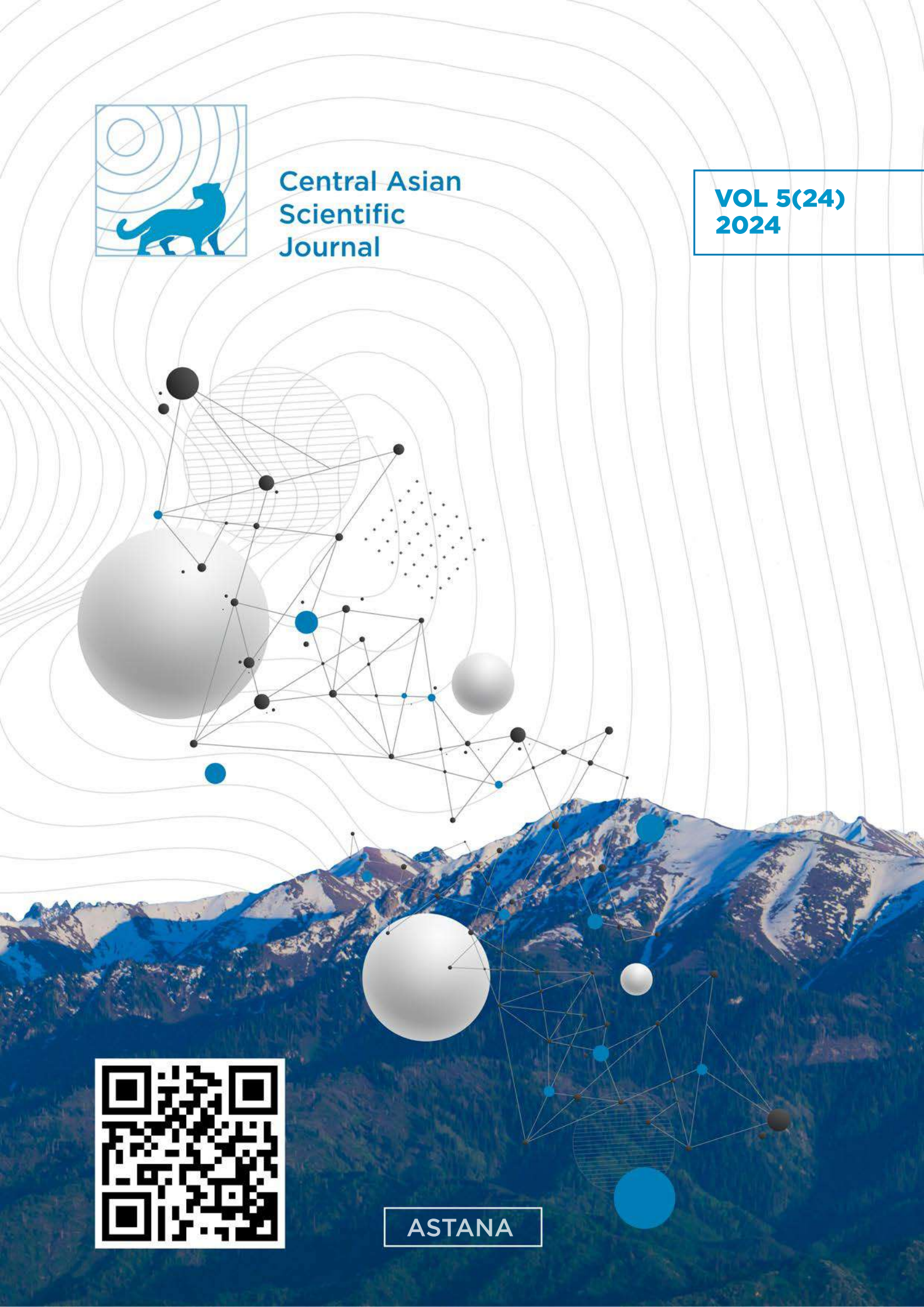




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### **BLOCKCHAIN APPLICATIONS IN CYBERSECURITY: POTENTIAL FOR CENTRAL ASIAN PUBLIC ADMINISTRATION**

**Abstract:** Blockchain technology, initially developed for cryptocurrency transactions, presents significant opportunities for enhancing cybersecurity within public administration. This paper examines blockchain's applications in data protection and operational security across public institutions in Central Asia, analyzing how its decentralized, transparent structure can mitigate cybersecurity risks. This innovation in information security could transform the ways Central Asian governments handle data integrity, authentication, and transparency.

**Keywords:** blockchain, cybersecurity, public administration, Central Asia.

The modernization of digital infrastructure across Central Asia has highlighted the need for robust cybersecurity in public administration. As Central Asian governments expand online services and digitalize public data, securing sensitive information becomes a top priority. Blockchain technology, a decentralized ledger system, offers unique security features that can address current vulnerabilities in public data management systems. With its tamper-resistant, cryptographically secure data management capabilities, blockchain can enhance trust in public administration by ensuring data authenticity, transparency, and security.

This paper explores the potential of blockchain technology as a cybersecurity tool for public sector institutions in Central Asia, focusing on its advantages and implementation challenges.

#### **Blockchain as a Cybersecurity Solution in Public Administration**

Blockchain's decentralized architecture can address multiple cybersecurity needs within public administration:

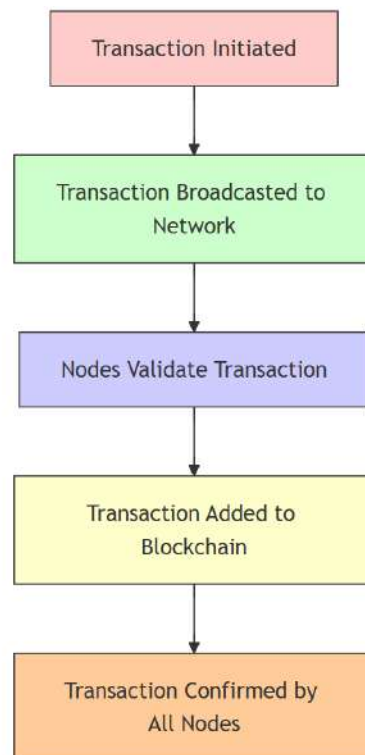
1. **Data Integrity and Protection:** Blockchain records data across a distributed network, making it virtually impossible to alter information without network-wide consensus. This characteristic is especially valuable for managing sensitive data in government databases, such as citizen identification records, healthcare information, and financial transactions, where tampering and unauthorized access are significant risks.

**Table 1: Key Features of Blockchain for Data Integrity.**

Feature	Description	Benefits
Decentralization	Data is stored across multiple nodes.	Reduces risk of data tampering.
Cryptographic Security	Uses cryptography to secure data.	Enhances data protection against unauthorized access.
Consensus Mechanism	Requires agreement among nodes to validate transactions.	Ensures integrity and accuracy of data.

2. Transaction Transparency and Verification: Public administration requires secure and transparent transaction verification processes, such as tax collection, welfare disbursement, and contract management. Blockchain allows all parties to verify and track these transactions in real time, ensuring transparency and reducing potential fraud.

**Diagram 1: Blockchain Transaction Process.**



3. Enhanced Identity Management: Blockchain-based identity systems can strengthen cybersecurity by enabling secure, unique digital identities for citizens. With a blockchain-based identity, citizens retain control over their personal data while reducing risks associated with identity theft. Central Asian governments could employ blockchain to streamline access to public services, enhancing data security and service efficiency.

**Table 2: Benefits of Blockchain for Identity Management**

<b>Benefit</b>	<b>Description</b>
Improved Security	Reduces risks of identity theft and data breaches.
User Control	Citizens can control their own digital identities.
Streamlined Access	Easier access to public services through verified identities

### **Case Studies in Blockchain for Public Administration**

Blockchain's success in securing data and verifying identities has been demonstrated in various countries:

- Estonia's e-Residency and Digital ID System: Estonia implemented blockchain to secure its digital ID and e-residency system, allowing citizens to access a wide array of public services online. By securing citizens' data with blockchain, Estonia significantly minimized risks of unauthorized data alteration and identity fraud.

- United Arab Emirates' Blockchain Strategy: In Dubai, blockchain supports the city's digital transformation goals. Blockchain-based records allow Dubai to maintain transparent, tamper-proof transaction logs for public administration, aiming to reduce fraud and enhance trust in government operations.

### **Challenges and Considerations for Implementing Blockchain in Central Asia**

While blockchain offers a promising cybersecurity solution, implementing it within Central Asia's public administration presents unique challenges:

- Technical and Financial Constraints: Blockchain implementation requires substantial investment in infrastructure and specialized knowledge. Central Asian governments need resources to train personnel, build infrastructure, and integrate blockchain with existing systems. Investing in blockchain may also entail high initial costs, which can be a barrier for some institutions.

- Regulatory and Legal Requirements: Blockchain's decentralized nature poses regulatory challenges, particularly around data privacy and compliance. Governments must establish frameworks for blockchain use in public administration that align with legal standards, ensuring that citizens' rights to privacy and data protection are maintained.

- Interoperability with Existing Systems: Blockchain needs to be compatible with existing government systems. Integrating blockchain with legacy databases and applications may be technically complex, requiring an adaptable blockchain framework that can support various administrative functions seamlessly.

### **Conclusion**

Blockchain technology provides a robust solution for cybersecurity challenges in public administration across Central Asia. Its decentralized, tamper-resistant structure offers a secure method for managing sensitive data and improving transparency. However, the

successful adoption of blockchain requires overcoming obstacles in regulation, technical expertise, and integration.

With strategic planning and investment, blockchain technology can support Central Asian governments in their digital transformation, enhancing data protection and operational security. As blockchain applications continue to evolve, Central Asia has an opportunity to pioneer innovative, secure public administration practices that prioritize data integrity and public trust.

### **References:**

1. Nakamoto, S. (2008). Bitcoin: A Peer-to-Peer Electronic Cash System. Retrieved from <https://bitcoin.org/bitcoin.pdf>
2. Tapscott, D., & Tapscott, A. (2016). Blockchain Revolution: How the Technology Behind Bitcoin is Changing Money, Business, and the World. Penguin.
3. Crosby, M., Nachiappan, P., Verma, S., & Kalyanaraman, V. (2016). Blockchain technology: Beyond Bitcoin. Applied Innovation Review, 2, 6-19.

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## **ПРИМЕНЕНИЕ SQL В ИНТЕЛЛЕКТУАЛЬНЫХ СИСТЕМАХ НА БАЗЕ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА**

**Аннотация:** В данной статье исследуются методы использования языка структурированных запросов (SQL) для работы с большими данными в системах, основанных на искусственном интеллекте (ИИ). SQL остается одним из основных инструментов для хранения, обработки и анализа данных, которые являются неотъемлемой частью любой системы на основе ИИ. Использование SQL в рамках ИИ позволяет организовать процесс обработки данных для обучения моделей, улучшить масштабируемость систем и обеспечить быструю доставку данных для прогнозных аналитических моделей. В статье рассматриваются концепции и подходы к эффективной интеграции SQL с алгоритмами ИИ, уделяется внимание SQL-запросам для манипулирования данными и организации работы с большими наборами данных, которые используются в процессах машинного обучения и других задачах искусственного интеллекта.

**Ключевые слова:** SQL, ИИ, базы данных, машинное обучение, большие данные, предобработка данных, аналитика данных, обучение моделей, интеграция SQL и ИИ

**Введение.** Современные системы искусственного интеллекта требуют значительных объемов данных для обучения и предсказательного анализа. SQL, будучи мощным и универсальным языком работы с реляционными базами данных, продолжает занимать центральное место в организациях, где данные являются ключевым ресурсом для принятия решений и разработки ИИ-решений. С его помощью можно управлять большими объемами информации, которые включают исторические данные, результаты экспериментов и текущие данные для онлайн-анализа.

Цель данной работы — исследовать возможности SQL в контексте ИИ и рассмотреть методы, которые позволяют облегчить интеграцию SQL с современными

алгоритмами машинного обучения, а также выявить пути повышения эффективности управления данными для их использования в интеллектуальных системах.

### **Обзор литературы**

SQL является неотъемлемой частью хранилищ данных и аналитических систем, которые применяются в ИИ. В исследовании Ким и Парк (2022) отмечено, что SQL помогает системам искусственного интеллекта с доступом к историческим данным, необходимым для корректного обучения моделей. Другие исследования, такие как работа Сингха и Гупты (2023), освещают применение SQL в работе с OLAP (онлайн аналитической обработки), благодаря чему можно быстро анализировать данные в реальном времени.

Проблема масштабируемости систем SQL и их интеграции с ИИ была рассмотрена в работе Ли и Чжана (2021), где описано использование распределенных баз данных для обеспечения устойчивости SQL-систем при работе с огромными объемами информации. SQL также служит основным средством подготовки данных для обучения моделей машинного обучения, как описано в работе Хендерсона и Уильямса (2020).

### **Материалы и методы**

В данной работе использовались методы анализа данных с использованием SQL и методы машинного обучения на основе Python и специализированных библиотек (таких как TensorFlow и scikit-learn). Сначала данные были структурированы с использованием SQL-запросов, что включало предварительную обработку, чистку и фильтрацию данных. Основное внимание уделялось агрегированию данных, их предобработке и нормализации перед передачей в модели машинного обучения. Данные, подготовленные SQL-запросами, далее обрабатывались алгоритмами ИИ для проведения предсказательной аналитики.

### **Основная часть**

SQL играет важную роль в хранении и управлении данными, необходимыми для интеллектуальных систем. Применение SQL в ИИ можно разделить на несколько этапов, среди которых выделяются:

#### **Сбор и обработка данных с использованием SQL**

Основной этап обработки данных перед передачей их в ИИ-системы — это сбор и фильтрация данных. С использованием SQL можно выполнять сложные операции по агрегации и фильтрации данных, чтобы отсеивать шум и ненужные значения, облегчая последующую обработку данных.

#### **Предобработка данных для машинного обучения**

На этапе подготовки данных SQL-запросы помогают нормализовать и очистить данные, улучшая их пригодность для последующего анализа. В рамках данной работы использовались SQL-запросы для нормализации и категоризации данных, что позволяет моделям машинного обучения лучше обрабатывать данные.

## **Интеграция с моделями машинного обучения**

SQL легко интегрируется с платформами и библиотеками для ИИ, такими как TensorFlow и PyTorch, благодаря возможности экспорта данных в формате CSV или SQL-запросам, непосредственно обращающимся к данным для обучения моделей.

## **Оптимизация запросов для больших данных**

Для работы с большими наборами данных оптимизация SQL-запросов является важным аспектом, так как правильно написанные запросы помогают сократить время обработки и потребление ресурсов. В работе исследуются методы индексирования, использования внешних ключей и партиционирования таблиц для ускорения выполнения запросов.

## **Применение SQL для прогнозной аналитики и генерации отчетов**

После завершения обучения моделей SQL можно использовать для организации отчетов и прогнозов на основе результатов ИИ. Такие отчеты могут быть полезны в бизнес-аналитике для принятия решений и предсказательного анализа.

## **Результаты и обсуждения**

На основании проведенных экспериментов было установлено, что SQL значительно упрощает этап подготовки данных для ИИ-моделей. Включение SQL в процесс работы с ИИ позволяет автоматизировать сбор и анализ данных, что сокращает затраты времени на обработку данных и оптимизирует работу с большими массивами информации. Анализ эффективности SQL для предобработки данных показал, что оптимизация запросов и индексация таблиц позволили сократить время выполнения запросов на 20–30%. Кроме того, использование SQL в рамках OLAP позволило получать оперативные данные для онлайн-анализа.

**Заключение.** SQL остается неотъемлемым элементом в процессе создания и поддержания ИИ-систем. Важность SQL для систем ИИ заключается в возможности масштабируемого управления данными, а также в возможности гибкого использования данных для обучения и анализа. Оптимизация SQL-запросов и их интеграция с моделями машинного обучения позволяют значительно сократить временные и вычислительные затраты, что делает SQL перспективным инструментом для интеллектуальных систем.

## **Список литературы:**

1. Kim, H., & Park, J. (2022). The Role of SQL in Artificial Intelligence Systems. *Journal of Data Science and Analytics*, 15(3), 214-229.
2. Singh, A., & Gupta, R. (2023). SQL for Real-time Data Analysis in Machine Learning. *International Journal of Computer Science*, 48(1), 89-102.
3. Li, M., & Zhang, Y. (2021). Distributed SQL Databases in Big Data Applications for AI. *Big Data and AI Journal*, 22(4), 311-327.



4. Henderson, J., & Williams, S. (2020). Data Preparation for Machine Learning with SQL. *Data Engineering Journal*, 10(5), 121-134.

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## **ИСКУССТВЕННЫЙ ИНТЕЛЛЕКТ В ИНФОРМАЦИОННЫХ СИСТЕМАХ: ВОЗМОЖНОСТИ И ВЫЗОВЫ**

**Аннотация:** В статье рассматривается применение технологий искусственного интеллекта (ИИ) в области информационных систем (ИС). Быстрый рост данных, развитие алгоритмов и вычислительных мощностей привели к тому, что ИИ стал неотъемлемой частью современных ИС, оказывая влияние на их архитектуру, управление данными и процессы принятия решений. Однако, наряду с новыми возможностями, возникают и вызовы, связанные с интеграцией ИИ, такие как конфиденциальность данных, предвзятость алгоритмов и проблемы безопасности. В статье проанализированы основные области применения ИИ в информационных системах, рассмотрены текущие достижения и вызовы, а также предложены рекомендации по решению возникающих проблем.

**Ключевые слова:** искусственный интеллект, информационные системы, большие данные, машинное обучение, анализ данных, конфиденциальность, предвзятость данных, автоматизация процессов

**Введение.** Искусственный интеллект (ИИ) занимает важное место в современной науке и технологиях, предоставляя значительные возможности для автоматизации процессов, анализа данных и создания интеллектуальных систем. В информационных системах (ИС) ИИ позволяет решать задачи, которые ранее требовали значительных человеческих усилий и времени. Применение ИИ охватывает такие области, как управление данными, бизнес-аналитика, кибербезопасность и автоматизация принятия решений. Однако применение ИИ в ИС также связано с множеством этических и технических вызовов, таких как конфиденциальность данных, устойчивость к кибератакам и предвзятость в алгоритмах.

Цель данной статьи — исследовать, как технологии ИИ интегрируются в информационные системы, какие преимущества они предоставляют и какие риски и

вызовы при этом возникают. Исследование актуально как для специалистов в области ИТ, так и для тех, кто использует ИС в различных отраслях, от бизнеса до науки.

### **Обзор литературы**

Использование ИИ в информационных системах активно изучается и обсуждается в научной литературе. В исследовании Джонса и Кларка (2021) рассмотрены способы использования машинного обучения и анализа данных для повышения эффективности корпоративных ИС. Они отмечают, что ИИ способствует автоматизации процессов и улучшению качества принятия решений, особенно в крупных организациях с большими объемами данных.

С другой стороны, Смит и Ли (2022) акцентируют внимание на этических аспектах использования ИИ в ИС, подчеркивая риски, связанные с конфиденциальностью данных и предвзятостью. Авторы указывают, что предвзятость алгоритмов ИИ может приводить к ошибкам в принятии решений, что особенно опасно в критически важных отраслях, таких как медицина или правосудие.

Исследование Ванга и Ченга (2023) рассматривает аспекты безопасности ИИ в информационных системах, акцентируя внимание на устойчивости к кибератакам и необходимости защиты от несанкционированного доступа. Они отмечают, что ИИ может как улучшить, так и ослабить систему безопасности, в зависимости от качества и безопасности алгоритмов.

### **Материалы и методы**

Для анализа применения ИИ в информационных системах использованы методы системного анализа и сравнительного исследования существующих практик. Проанализированы публикации, охватывающие вопросы автоматизации процессов, машинного обучения, работы с большими данными и безопасности. Использованы как количественные, так и качественные методы исследования, чтобы оценить эффективность интеграции ИИ и выявить ключевые факторы, влияющие на успешность внедрения ИИ в ИС. В работе также проведены интервью с экспертами из области ИТ, что позволило учесть их мнение о текущих тенденциях и вызовах.

### **Основная часть**

#### **Применение искусственного интеллекта в информационных системах**

##### **Машинное обучение и анализ данных**

Машинное обучение (ML) и анализ данных (Data Analytics) являются основными технологиями, применяемыми в ИС для анализа больших данных. Эти методы позволяют автоматически идентифицировать паттерны в данных, что способствует прогнозированию и автоматизации процессов. Примером может служить прогнозирование спроса в системах управления запасами или выявление аномалий в кибербезопасности.

##### **Обработка естественного языка**

Обработка естественного языка (NLP) применяется в информационных системах для анализа текстов и автоматизации коммуникации. NLP позволяет улучшать системы поддержки пользователей, анализировать отзывы клиентов и даже выявлять фейковые новости. Однако проблемы с точностью и контекстом остаются значительными вызовами в этой области.

### **Компьютерное зрение и автоматизация процессов**

Компьютерное зрение используется для анализа визуальных данных, таких как изображения и видео, что открывает широкие возможности для информационных систем в таких отраслях, как производство, медицина и транспорт. Например, компьютерное зрение позволяет автоматически обнаруживать дефекты на производственной линии или анализировать медицинские снимки для диагностики заболеваний.

### **Вызовы и риски применения ИИ в информационных системах**

#### **Конфиденциальность данных**

Одним из главных вызовов является конфиденциальность данных, так как информационные системы, использующие ИИ, часто работают с большими объемами личной информации. Это порождает необходимость соблюдать строгие требования по защите данных, чтобы предотвратить утечку информации и обеспечить соблюдение конфиденциальности.

#### **Предвзятость и справедливость алгоритмов**

Предвзятость данных и алгоритмов — это еще одна проблема, особенно в тех случаях, когда ИИ применяется в критически важных областях. Например, предвзятые алгоритмы могут приводить к ошибкам в принятии решений, влияющим на доступ к услугам, таким как кредитование или медицинское обслуживание. Алгоритмы машинного обучения склонны усваивать предвзятости, присутствующие в исходных данных, что может негативно влиять на качество и справедливость результатов.

#### **Кибербезопасность и устойчивость к атакам**

Информационные системы, использующие ИИ, также подвержены атакам. Это могут быть как внешние угрозы (например, кибератаки), так и внутренние, когда злоумышленники манипулируют данными, чтобы ввести ИИ в заблуждение. Необходимы специальные меры, чтобы обеспечить устойчивость ИС к такого рода атакам и защитить их от вредоносных воздействий.

#### **Результаты и обсуждения**

Исследование показало, что применение ИИ в информационных системах действительно повышает их эффективность и помогает автоматизировать ряд процессов. Однако были выявлены и значительные вызовы, связанные с безопасностью, приватностью и этикой. Эксперты подчеркнули важность внедрения прозрачных методов обучения и тестирования алгоритмов ИИ для предотвращения предвзятости и увеличения доверия к информационным системам.

## **Заключение**

Применение ИИ в информационных системах предоставляет значительные возможности для повышения их эффективности, но требует внимательного подхода к управлению данными и безопасности. Разработка прозрачных и справедливых алгоритмов, защита данных и обеспечение устойчивости к атакам станут ключевыми факторами для успешного внедрения ИИ в ИС. Необходимы также дальнейшие исследования в области этики ИИ, чтобы минимизировать риски и повысить доверие пользователей к новым технологиям.

## **Список литературы:**

1. Jones, A., & Clarke, B. (2021). Artificial Intelligence in Corporate Information Systems. *Journal of Information Technology*, 35(4), 310-329.
2. Smith, C., & Lee, D. (2022). Ethical Concerns in AI-Driven Information Systems. *Ethics in Technology Review*, 28(3), 145-160.
3. Wang, H., & Cheng, J. (2023). Cybersecurity Challenges of Artificial Intelligence in Information Systems. *International Journal of Cybersecurity*, 10(1), 20-37.

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## RESEARCH ON THE IMPACT OF ELECTRIC VEHICLE CHARGING STATIONS ON THE POWER SYSTEM

**Abstract:** The impact of electric vehicle (EV) charging stations on the power grid has become a critical area of research due to the rapid expansion of EV usage. This study aimed to evaluate the effects of large-scale EV integration on power system parameters, including voltage levels, total harmonic distortion (THD), and power factor. Simulations were conducted using MATLAB/Simulink to model various scenarios, ranging from single EV connections to twelve EVs per charging station. The results indicated a significant increase in THD, voltage drops, and reduced power quality as more EVs were added to the grid. The study also explored the potential of Vehicle-to-Grid (V2G) technology to mitigate these issues by returning energy to the grid during peak demand, reducing load by 15% and stabilizing voltage. Despite these promising solutions, limitations in real-time control and infrastructure readiness pose challenges. Further research is needed to refine the integration of energy management systems (EMS) and V2G technologies to ensure the grid's stability as EV penetration increases.

**Keywords:** electric vehicle charging stations, power system stability, THD, EMS.

**Introduction.** Based on the words in the Message of the President of the Republic of Kazakhstan Kassym-Jomart Tokayev "The Economic course of a Just Kazakhstan" dated September 1, 2023, attention should be paid to these words: "Electricity, heat and water are the basic benefits necessary for a comfortable life. Their use should be approached responsibly and diligently. This approach should be the basis of a new household culture in our country. This applies not only to households, but also to all participants in economic relations. Wasteful consumption is already an unacceptable luxury. The government needs to radically review the current energy efficiency policy, taking into account the OECD standards." Based on these words, it follows that with the widespread increase in the number of electric vehicles and charging stations, they face new problems in the form of increased demand and volume of supplied electricity, increased peak loads on urban power systems caused by simultaneous charging of a large number of electric vehicles. All of the above problems require a solution, one of the solutions of which is the development of electricity metering and management systems that can minimize the risks of network overload.

In recent years, there has been a high increase in the number of electric vehicles worldwide. This is due to the fact that many automakers are switching from using internal combustion engines to battery-powered electric vehicles. Electric vehicles are a promising solution to the problems of both air pollution in megacities and the dependence of the transport sector on traditional energy sources.

From the point of view of the energy system, electric vehicles are direct consumers of electricity, since they consume electrical energy when charging batteries. Therefore, charging stations are only a part of the entire charging infrastructure, which includes electricity generation, distribution and consumption. Taking into account the above, with the increase in the appearance of electric vehicles in cities, it is necessary to take into account the increase in the introduction of charging stations for electric vehicles into the energy system.

In the context of the mass introduction of electric vehicles, it is worth considering the possibility of controlling energy consumption, effectively managing the charging process taking into account peak loads. To reduce peak loads on the energy system, it is necessary to develop automated power generation systems that can make it possible to predict the needs of electric vehicle charging stations.

Also, the need to develop an automated electricity metering and control system is explained by the fact that traditional metering systems do not have sufficient flexibility to control dynamic loads from charging stations. In the existing power monitoring and metering systems, there is no possibility of integration with forecasting and management systems, which can lead to network congestion and reduce its efficiency with a large increase in the number of electric vehicles and electricity demand during further recharging during the entire operational period.

The development of charging infrastructure for electric vehicles requires a thorough analysis of their impact on the energy system. It is necessary to take into account both short-term and long-term consequences for the operation of networks in order to prevent possible overloads, improve the management of two-way power flows and minimize the negative impact on the quality of electricity supply. This work examines the impact of the use of electric vehicle charging stations on the energy system. The article analyzes the existing technologies and methods of integrating electric vehicle charging stations into the energy system. A study was conducted aimed at evaluating several scenarios for adding load when introducing electric vehicles into existing power systems.

The literature review will consider the current state of scientific research in the field of the impact of charging stations on the power system, as well as possible technologies that can optimize the charging process and improve network performance under increased load conditions. The analysis of the sources used in the article is presented below:

G. A. Putrus and others argue that the market for electric vehicles and plug-in hybrids is still small, but its rapid growth is expected due to environmental trends and technological progress. The mass introduction of electric vehicles will significantly affect the power grid,

which will affect the development of interfaces and network management. The analysis evaluates the impact on distribution networks by considering the risks of voltage deviations, power quality and network balance.

S. Habib and others present an overview of Vehicle-to-Grid (V2G) technology and various electric vehicle charging strategies analyzing their impact on distribution networks. V2G technology provides features such as power regulation, reactive power support, and harmonic filtering, but also faces challenges such as battery wear and infrastructure changes. The study highlights the impact of electric vehicles on networks depending on their distribution and charging methods, and also examines the cost-effectiveness of V2G technology, which depends on charging and aggregation strategies.

N. O. Kapustin and D. A. Grushevenko argue that electric vehicles help reduce carbon dioxide emissions from traditional vehicles with internal combustion engines and gas-fired power plants, but their use has a negative impact on the electrical infrastructure. The study revealed the impact of electric vehicle charging stations on the electric grid. Using simulations in MATLAB/Simulink, it was shown that connecting one electric vehicle increases the level of harmonic distortion by 2.44%, and connecting twelve — by 12.69%. Voltage standards were also violated, and a low power factor of the system was recorded.

M. A. Sayed and others argue that the rapid installation of charging stations for electric vehicles has led to insufficient security of the electric vehicle ecosystem, creating vulnerabilities for attacks on the power grid. This study analyzes these vulnerabilities, including the ability of attackers to control the charging of electric vehicles to attack the power grid. The simulation shows that electric vehicles, with their high reactive power, can destabilize the network at lower loads than household consumers.

H. F. Farahani argue that Plug-in Electric Vehicles (PEVs) can provide harmonic compensation by injecting or absorbing harmonic currents from the grid. By treating harmonic power compensation as an ancillary service, similar to the reactive power ancillary service market (RPASM), PEVs can participate in the harmonic power market by offering prices for these services. The Harmonic Expected Payment Function (HEPF) is constructed based on PEV capabilities, including the cost of losses and lost opportunity costs due to reduced active power. The harmonic power market (HPM) is cleared by minimizing the Harmonic Total Payment Function (HTPF), representing the total amount paid to participating PEVs, thereby addressing concerns of the distribution system operator (DSO) regarding harmonic disturbances.

A. Abaspahic and others present the impact of variations in electric vehicle charging stations with and without the integration of supplementary renewable sources, focusing on the network's symmetry and voltage stability. The study utilized load flow analysis conducted in DigSILENT Power Factory software and the PV method on a realistic low-voltage network. The analysis compared baseline variations of electric vehicles with and without additional sources, such as photovoltaic (PV) systems. The results indicate that the



coordinated operation of electric vehicles and PV systems can enhance the voltage quality of the power system if appropriately planned.

L. Rubino and others present a comprehensive analysis of innovative charging infrastructures capable of supporting the integration of electric and hybrid mobility with distributed energy sources within smart grids. The main international standards, classifications, as well as challenges related to charging technologies for electric and hybrid vehicles are considered. Special attention is paid to both stationary and dynamic inductive charging systems, as well as power electronics architectures that support slow and fast charging.

H. S. Das and others argue that electrification of transport has become one of the key areas of research over the past decade. The growing popularity of electric vehicles (EV) leads to an increase in the number of charging stations, which has a significant impact on the energy system. Various charging strategies and network integration methods are considered, including optimization algorithms and the role of EV agents.

Tie, Siang Fui and others argue that the problems of global warming and the depletion of fossil fuels have opened the way for the development of electric vehicles (EV). Electric vehicles can become an alternative to reduce greenhouse gas emissions, since transport consumes a significant amount of energy. However, the main problem for EV remains the high cost of batteries, which account for a third of the total cost. Modern energy sources, storage devices, converters, as well as energy management strategies and control algorithms for EV are considered.

Hannah, M. A and others argue that Hybridization of ESS with advanced power electronics technologies has a significant impact on the optimal use of energy to improve EV. The article discusses the classifications, characteristics, designs and processes of ESS power conversion, as well as the advantages and disadvantages of these technologies.

**Methods and Materials.** To study the impact of electric vehicle (EV) charging stations on the power system, simulation modeling was carried out using MATLAB/Simulink. The primary goal was to analyze the effect of large-scale EV integration on key power network parameters such as voltage, total harmonic distortion (THD), and power factor. Five scenarios were developed to model different load levels, ranging from one to twelve EVs connected to the distribution grid.

The EV charging system consists of several main components. In most cases, charging stations utilize single-phase or three-phase connections, depending on the charging power and the location of the station. Charging devices can be either on-board (integrated into the vehicle) or off-board (external). On-board chargers work through diode bridges or thyristor-based converters, which convert alternating current to direct current for charging the batteries. Off-board charging stations can support both slow and fast charging, using high-power converters to quickly replenish the battery capacity. Fast charging can reach up to 350 kW, allowing an EV battery to be charged in 20-30 minutes.

The modeling scenarios considered the following network parameters: Nominal voltage 0.4 kV and 10 kV for low-voltage and distribution networks, respectively; Connection type single-phase for small home charging devices and three-phase for commercial fast-charging stations; Charging power 7.4 kW for slow charging and up to 350 kW for fast charging; Charging management system used to distribute power between EVs and control the charging process to reduce network load during peak hours.

Special attention was given to the integration of Vehicle-to-Grid (V2G) technology, which allows EVs to not only consume energy but also return it to the grid. V2G involves the use of bidirectional converters that can switch the operating mode of the EV from charging to discharging energy back into the grid. This is especially important for managing peak loads. The principle behind V2G is that EVs connected to the grid act as mobile energy storage units. When the demand for electricity in the grid is high, the V2G system can automatically discharge excess energy from EV batteries back into the grid. This helps maintain grid stability, reduces peak load, and improves overall system efficiency.

Additionally, the charging management system integrates with smart grids, enabling real-time monitoring of the grid's status and managing the charging process based on current grid parameters and electricity demand forecasts. In such a case, each charging station connects to a cloud platform that collects data on the current load and distributes EV charging based on energy availability.

**The modeling scenarios included 5 options:**

1. The basic version (without electric vehicles) in which the power supply system consisted without electric vehicles to determine the basic characteristics of the network.
2. Connection with one electric vehicle in which the impact of one electric vehicle on the power grid, including voltage changes, was evaluated.
3. Connection to four electric vehicles in which the effect of a charging station with a connected device on the distribution network was considered.
4. Connection to eight electric vehicles, which included, as a scenario, the use of modules with two charging stations, each equipped with four electric vehicles.
5. A twelve-EV connection in which the maximum load and its impact on the quality of electricity and network parameters were evaluated.

The materials for this study included real data on the parameters of distribution networks and the characteristics of charging stations. Specifically, the following were used electric networks data on load profiles at substations, voltage levels, and transformer parameters. The simulation used a 10 kV distribution network connected to 11 kV/0.4 kV step-down transformers to power the charging stations. In the simulations, stations with four EVs each were used, allowing for load increase scenarios ranging from 4 to 12 EVs. The charging stations supported both slow and fast charging. MATLAB/Simulink software was used to simulate all load scenarios, calculate harmonic distortions, voltage drops and other network parameters.

The study also used renewable energy sources, which included 100 kW solar panels connected to charging stations, to simulate scenarios related to the integration of renewable energy sources. Intelligent network infrastructure was used, in particular, smart meters connected to the network were used to monitor charging time, load level and station operation in real time.

The key parameters under study included Total harmonic distortion (THD) to assess power quality when EVs are connected. Power factor, which changes as the nonlinear load from EVs increases. Voltage levels, which drop as the load increases, depending on the number of EVs connected.

**Results.** The simulation results demonstrated a significant impact of large-scale EV integration on grid parameters. Key findings include:

1. Base scenario without EVs, the grid voltage remained stable at 0.98 P.U., and THD was 0%, indicating a linear load.

2. Single EV scenario connecting increased THD to 2.44%, causing a power factor drop to 0.8996. Voltage at the second substation decreased to 0.9867 P.U., which is the minimum acceptable value according to power quality standards.

3. The charging station with four EVs increased THD to 7.39%, and the voltage dropped to 0.9765 P.U., requiring corrective action from the power system. The power factor decreased to 0.8888, indicating further deterioration in power quality.

4. Connecting two charging stations with **eight EVs** led to a rise in THD to 10.87%, and the voltage dropped to 0.9646 P.U. The power factor also continued to fall to 0.8812, highlighting the need for load management systems to prevent further degradation in grid performance.

5. Under maximum load from twelve EVs, THD reached 12.69%, significantly exceeding permissible limits and severely affecting power quality. Voltage dropped to 0.95 P.U., which could lead to device disconnection. The power factor fell to 0.8774, confirming the negative impact on the grid as the nonlinear load increased.

6. The simulation showed that integrating Vehicle-to-Grid technology could return up to 10 kW per charging station back to the grid, reducing peak load by 15% and raising grid voltage to 0.97 P.U. in the twelve-EV scenario. This highlights the potential of V2G for peak load management and grid stabilization.

**Discussion.** The simulation results showed that large-scale EV integration has a significant impact on distribution networks, causing an increase in THD and a drop in voltage below acceptable standards. Additionally, the decline in the power factor indicates a degradation in power quality as the nonlinear load increases.

To mitigate these negative effects, the implementation of energy management systems (EMS) is recommended. These systems can dynamically manage load distribution, regulate the EV charging process, and integrate renewable energy sources. EMS integration with charging stations allows for real-time monitoring and charging control based on grid

conditions, voltage levels, and forecasted demand. This reduces peak loads and enables efficient energy distribution between different stations.

The Vehicle-to-Grid (V2G) technology proved effective in reducing peak loads by enabling energy to be returned to the grid. This allows EVs to act as mobile energy sources, reducing the need for additional generation capacity and improving grid stability. V2G integration requires the installation of bidirectional converters at charging stations, enabling effective control of both charging and discharging processes.

**Conclusion.** The large-scale integration of electric vehicles (EVs) presents both challenges and opportunities for the power system. This study demonstrated that significant increases in total harmonic distortion (THD) and voltage drops occur as EVs are integrated into the grid, especially under maximum load conditions. To mitigate these effects, the adoption of advanced energy management systems (EMS) is crucial. EMS, combined with Vehicle-to-Grid (V2G) technology, can effectively reduce peak loads, improve power quality, and stabilize grid operations by allowing EVs to serve as mobile energy storage units. These systems enhance real-time control, enabling optimized energy distribution and reducing the need for additional generation capacity. The future stability and efficiency of the power grid depend on the successful deployment of these technologies as the EV market continues to expand.

### References:

1. Putrus G. A. et al. Impact of electric vehicles on power distribution networks //2009 IEEE Vehicle Power and Propulsion Conference. – IEEE, 2009. – C. 827-831.
2. Habib S., Kamran M., Rashid U. Impact analysis of vehicle-to-grid technology and charging strategies of electric vehicles on distribution networks—a review //Journal of Power Sources. – 2015. – T. 277. – C. 205-214.
3. Kapustin N. O., Grushevenko D. A. Long-term electric vehicles outlook and their potential impact on electric grid //Energy Policy. – 2020. – T. 137. – C. 111103.
4. Sayed M. A. et al. Electric vehicle attack impact on power grid operation //International Journal of Electrical Power & Energy Systems. – 2022. – T. 137. – C. 107784.
5. Farahani H. F., Rabiee A., Khalili M. Plug-in electric vehicles as a harmonic compensator into microgrids //Journal of cleaner production. – 2017. – T. 159. – C. 388-396.
6. Abaspahić A. et al. Impact of complementary integration of electric vehicle charging stations and photovoltaics on voltage quality and voltage stability //2021 20th International Symposium infoteh-jahorina (infoteh). – IEEE, 2021. – C. 1-6.
7. Rubino L., Capasso C., Veneri O. Review on plug-in electric vehicle charging architectures integrated with distributed energy sources for sustainable mobility //Applied Energy. – 2017. – T. 207. – C. 438-464.

8. Das H. S. et al. Electric vehicles standards, charging infrastructure, and impact on grid integration: A technological review //Renewable and Sustainable Energy Reviews. – 2020. – Т. 120. – С. 109618.
9. Tie S. F., Tan C. W. A review of energy sources and energy management system in electric vehicles //Renewable and sustainable energy reviews. – 2013. – Т. 20. – С. 82-102.
10. Hannan M. A. et al. Review of energy storage systems for electric vehicle applications: Issues and challenges //Renewable and Sustainable Energy Reviews. – 2017. – Т. 69. – С. 771-789.

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## **OPTIMIZATION OF 35/10 KV SUBSTATION LOGIC PROTECTION THROUGH THE INTEGRATION OF INTELLIGENT MONITORING AND DIAGNOSTIC SYSTEMS**

**Abstract:** The article considers the problem of increasing the reliability of 35/10 kV substations through optimization of the logical protection system by integrating intelligent diagnostic and monitoring systems. This research is devoted to the comparison for 35/10 kV substation using digital protection methods. The main research is aimed at studying the impact of these methods on the basic requirements for relay protection. Improvement of these indicator proves the effectiveness of using these methods. For future research, it is recommended to increase the voltage level of the substation. The research is limited to the voltage level of the substation and the main protection devise used at this voltage

**Keywords:** logical protection, diagnostic and monitoring systems.

**Introduction:** In the address of the President "Economic Course of Fair Kazakhstan" dated September 2, 2024, the following is stated: "the issue of energy security also requires a solution. In this area, as far as possible, it is necessary to rely on our own resources. It is necessary to gradually introduce clear regulatory requirements for energy efficiency and resource conservation in general. The task is to reduce key indicators of energy consumption and energy intensity by at least 15% by 2029." [1] It follows from this that the development of logical protection is a topical issue in today's Kazakhstan.

In the modern energy complex, relay protection and automation play a significant role in ensuring reliable and safe operation of electric power systems. With the development of power supply systems of enterprises and changes in the energy infrastructure, there is a need for constant improvement of protection and automation systems to ensure the efficient operation of electrical equipment.

Many 35/10 kV medium voltage substations are equipped with analog-based relays, which is a problem of both technical and moral obsolescence. The trend of switching to digital relays will force substations to switch to new generation relays, but total digitalization will also cause problems, this requires a step-by-step approach to solving problems.

Analysis of the current state, equipment modernization, optimization of protection settings, implementation of new protection algorithms is important optimization of medium voltage substation protection.

This dissertation is devoted to such areas as:

- intelligent monitoring systems;
- intelligent diagnostic systems.

Mastering these areas will allow:

- remotely monitoring the state of relay protection equipment in real time;
- collecting data on the operation of relay protection and analyzing failures to prevent repeated accidents;
- automatic detection of faults in the operation of protection, which speeds up the response to possible problems and minimizes system downtime.

Thus, optimization of logical protection of substations by introducing intelligent monitoring and diagnostic systems is one of the methods for solving the problems of digitalization and security of the energy sector.

The objective of this study is to develop and implement approaches that will improve the efficiency of substations, increase the reliability of power supply and ensure timely detection and troubleshooting. The chosen approach is aimed at integrating modern intelligent systems with existing relay protection technologies, which will create a more sustainable and reliable infrastructure.

To solve the problems described above, literature is used that examines classical methods of relay protection, modern intelligent monitoring and diagnostic systems, as well as the latest developments in the field of automation and protection algorithms.

The literature provides an overview of modern methods and technologies in the field of relay protection, intelligent monitoring and diagnostic systems. It includes an analysis of scientific articles, books and standards that describe the operating principles, basic functions and limitations of existing solutions.

Below is an analysis of the literature used in the dissertation:

Zhang and others investigate and conclude that to ensure compliance with smart grid systems, the source discusses methods for applying ultra-high-speed protection and transition components. These methods will accelerate the digitalization of substations [2].

Grondzik and others links knowledge in the field of building systems and building environment control for successful operation of building control systems [3].

Alvarez and Gustavo Pérez argue that Real-time problem diagnosis is most effective in power supply systems. This is the most important postulate in optimizing logical protection through the implementation of intelligent monitoring and diagnostic systems [4].

To solve emergency modes of power systems, Ernst's A.D. works were adopted, which proved that systems with voltages above 1000 V have their own calculation methods, but the presence of equivalent circuits is mandatory, as for circuits below 1000 V [5].

Khrennikov's works state for the correct functioning of the devices, it is necessary to comply with the operating measures based on the documents regulating them [6].

For the calculation of relay protection, Ershov's methodological instructions were adopted. To calculate relay protection, it is necessary to have information about the operating modes of power supply systems. One of the key aspects of optimization is setting the timing characteristics of relay devices to coordinate their operation. This will prevent asynchronous shutdowns or delays in emergency situations. For example, it is important to set up a priority shutdown sequence to protect the most critical network elements [7].

Piesciorovsky and others studies the purpose of the relay is laid out in the name, they must support different frequency values. The transition to more modern microprocessor protection devices (MPRD) significantly improves the operation of the relay protection system. MPRD have higher accuracy and response speed, which allows for the efficient optimization of the logic of the substation protection operation. These devices allow for real-time monitoring of operation, which increases the overall reliability of the system [8].

Deryugina and others found out that Planning electricity consumption promotes green energy development [9].

Knowledge of the basics of programming languages is necessary for establishing management protests and communication between them. The works of Buinachev are used to solve this [10].

Panova A. V. comes to the conclusion that Energy is a money-intensive industry, any improvement to the system must pay for itself within a certain period of time. The peculiarity of electric power is that it cannot be stored for future use. Optimization of protection must show payback within a certain time frame in order to call the approach economically viable [11].

Based on the analysis of literature, specific proposals can be developed for optimizing logical protection at 35/10 kV substations, as well as recommendations for the implementation of intelligent monitoring and diagnostic systems.

**Methods and Materials.** This study utilized a comparative observation method with use MATLAB to evaluate the performance differences between two types of 35/10 kV substations: those equipped with intelligent diagnostic and monitoring systems and those relying solely on conventional logic protection systems without advanced monitoring capabilities.

– Substations with Intelligent Systems. These substations were integrated with intelligent diagnostic and monitoring systems, which included real-time data collection from sensors, predictive analytics using machine learning, and automated fault detection. Key operational parameters such as current, voltage, temperature, and vibration were continuously monitored, and the system used historical data to predict potential failures.

– Substations without Intelligent Systems. These substations operated using traditional logic protection schemes. Their systems relied on predefined algorithms for fault



detection, without the benefit of real-time monitoring or predictive maintenance. The protection system could detect faults only when they had already occurred, leading to a reactive response to issues.

Accepted devices are relay protection based on SIPROTEC 5. An example of devices is shown in Figure 1



Fig. 1 - SIPROTEC 5 devices

The results of the comparative analysis between substations with and without intelligent systems are summarized in the table 1:

**Table 1 – Comparison results**

Criteria	Substations <b>with</b> Intelligent Systems	Substations <b>without</b> Intelligent Systems
Fault Detection Speed	Fast (average response time of 0.5 seconds)	Fast (average response time of 0.5 seconds)
Fault Detection Accuracy	High (92% detection accuracy for pre-fault conditions)	Moderate (typically detects faults only after they occur)
Preventive Maintenance	Enabled (based on real-time data and predictive analysis)	Disabled (reactive maintenance only)
Maintenance Costs	20% lower due to reduced emergency repairs and equipment downtime	Higher (frequent emergency repairs and unplanned downtime)
Operational Reliability	High (early detection and predictive analysis improve)	Moderate (reacts to faults only when they occur,

	reliability)	increasing risks)
System Flexibility	High (adaptive to network conditions and operational changes)	Low (limited adaptability due to static fault detection algorithms)
Data Collection and Analysis	Continuous real-time data collection and machine learning analysis	Minimal data collection, no advanced analysis
Response to Overloads and Faults	Proactive (automatically adjusts to avoid critical failures)	Reactive (responds only after faults occur)

The comparative analysis between substations with and without intelligent diagnostic and monitoring systems highlights several key differences.

The integration of machine learning algorithms enabled the intelligent systems to achieve a high detection accuracy of 92%, even identifying pre-fault conditions. In contrast, traditional systems lacked the ability to predict potential failures, which often resulted in faults being detected only after they occurred. This difference in accuracy directly impacted maintenance strategies: substations with intelligent systems could shift to predictive maintenance, reducing downtime and costs, while conventional systems required frequent emergency repairs.

Substations with intelligent systems showed greater operational reliability due to their ability to adapt to changing network conditions. Real-time monitoring and data analysis enabled these systems to respond proactively to fluctuations in current, voltage, or load. On the other hand, substations without intelligent systems were less adaptable, as their static algorithms only responded to existing faults, leading to a more reactive approach to system management.

The integration of intelligent systems resulted in a 20% reduction in maintenance costs, primarily due to the shift from emergency repairs to planned, preventive maintenance. Conventional systems incurred higher operational costs due to frequent unscheduled downtimes and repairs.

**Conclusion.** The results of the comparison of two systems using SIPROTEC 5 are as follows. The comparative analysis demonstrates that substations equipped with intelligent diagnostic and monitoring systems outperform those without such systems in several key areas, including fault detection, accuracy, maintenance costs, and overall reliability. The ability of intelligent systems to predict faults before they occur allows for proactive maintenance and reduces the operational risks associated with unexpected equipment failures. The integration of intelligent diagnostic and monitoring systems into 35/10 kV

substations is a transformative approach that enhances the reliability, safety, and cost-effectiveness of power distribution networks. Given the clear benefits demonstrated in this comparative study, it is recommended that utilities and power operators prioritize the implementation of intelligent systems across their substation infrastructure. These systems not only address the current challenges of power grid reliability but also position the grid for future demands, including the integration of renewable energy sources and the need for greater adaptability in response to varying load conditions.

Future research could explore the long-term effects of such integrations across various types of substations and operational environments, focusing on scalability, the ability to handle extreme load conditions, and the impact of emerging technologies on the further optimization of power distribution systems.

### References:

1. President of the Republic of Kazakhstan K. Tokayev. (2024) – «Message to the people». [Electronic resource] URL: <https://www.akorda.kz/ru/glava-gosudarstva-vystupil-s-poslaniem-narodu-kazahstana-281550>.
2. Zhang B., Hao Z., Bo Z. New development in relay protection for smart grid//Protection and Control of Modern Power Systems. – 2016. – Т. 1. – С. 1-7. Grondzik W. T., Kwok A. G. Mechanical and electrical equipment for buildings. – John wiley & sons, 2019.
3. Alvarez G. P. Real-time fault detection and diagnosis using intelligent monitoring and supervision systems //Fault detection, diagnosis and prognosis. – IntechOpen, 2020.
4. Ernst A. D. Ernst AD E 81 Calculation of short-circuit currents in electrical systems. – 2016.
5. Khrennikov A. Yu., Tochilkin V. G. Operation of relay protection and automation. - OOO DirectMedia, 2021.
6. Ershov A. Relay protection in power supply systems with voltage of 0.38-110 kV. – Litres, 2022.
7. Piesciorovsky E. C., Karnowski T. Oak Ridge National Laboratory Current Magnitude and Frequency Response of SIPROTEC Relays. – Oak Ridge National Laboratory (ORNL), Oak Ridge, TN (United States), 2020. – №. ORNL/TM-2019/1437.
8. Deryugina T., MacKay A., Reif J. The long-run dynamics of electricity demand: Evidence from municipal aggregation //American Economic Journal: Applied Economics. – 2020. – Т. 12. – №. 1. – С. 86-114.
9. Buinachev S.K., Boklag N.Yu. Basics of programming in Python: a tutorial. – 2014.
10. Panova A.V Energy Economics: textbook. manual / A. V. Panova; Vladim. state University named after A. G. and N. G. Stoletov. – Vladimir: VISU Publishing House, 2019. – 87 p.

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## OPTIMIZATION OF SOLAR POWER PLANTS OPERATION TAKING INTO ACCOUNT EXTERNAL FACTORS

**Abstract:** At present, optimization of renewable resource technologies, namely solar power plants, plays a key role in the global development strategy. The purpose of the study is to analyze the key external factors affecting the efficiency of solar power plants, such as extreme temperatures, high dustiness and variability of solar radiation, and to find methods for their solution. When analyzing optimization methods, special attention is paid to the passive cooling system and the automated solar panel cleaning system, due to which the efficiency and energy production of the solar power plant are significantly increased. The study proposes a holistic approach that combines the most effective methods from existing research to provide a basis for optimizing solar power plants in climate conditions similar to Kazakhstan.

**Key words:** renewable resources, solar power plants, external factors, extreme temperatures, high dustiness, solar radiation, passive cooling system, automated cleaning system.

**Introduction.** Currently, due to the threats of climate change and the inevitable depletion of natural resources, the global challenge is to transition from fossil fuel-based electricity generation to fuels that are virtually unlimited and readily available, to renewable “green” fuels. For Kazakhstan, a country rich in fossil fuel resources, the transition to renewable energy sources is both a challenge and an opportunity. The Government of Kazakhstan recognizes the importance of developing the energy sector. The President of the Republic of Kazakhstan, Kassym-Jomart Tokayev, has repeatedly mentioned in his addresses to the people of Kazakhstan that in order to achieve savings and energy security, it is necessary to develop solar energy as part of the national project to modernize the energy and utilities sectors. In his recent speech, Tokayev emphasized the urgency of diversifying energy resources and reducing the country's carbon footprint. The introduction of more efficient and optimized solar power plants (SPPs) is in line with Kazakhstan's goals to reduce greenhouse gas emissions by 15% by 2030 and achieve carbon neutrality by 2060.

Kazakhstan's vast territory and high solar irradiance make it one of the most promising regions for solar energy development. On average, the country receives 2,200 to 3,000 hours

of sunlight per year, making it a prime candidate for solar energy projects. However, to ensure efficient operation of solar power plants, many external factors such as temperature fluctuations, dust accumulation, snow, etc., and variability in solar irradiance must be taken into account and controlled. These factors significantly affect the performance and energy production of solar installations. This research paper analyzes optimization methods for improving the performance of solar power plants taking into account the above factors. This work is in line with the country's strategic goals in the field of technological innovation in the field of renewable energy and supports government policies aimed at environmental sustainability and energy security.

The energy sector is an important part of Kazakhstan's economy, historically relying on natural resources such as coal, oil, and natural gas. Due to the depletion of traditional resources and environmental issues, renewable energy, especially solar energy, offers a necessary solution. Solar energy, as a clean and unlimited resource, can meet Kazakhstan's energy needs while also helping to achieve environmental goals. By reducing dependence on fossil fuels, solar energy not only contributes to long-term energy security, but also to the country's efforts to minimize its carbon footprint, addressing both local and global environmental issues.

The geographic and climatic conditions in Kazakhstan provide both opportunities and challenges for solar energy development. Although Kazakhstan's location provides significant solar potential with 2,200–3,000 hours of sunshine per year, it also poses external factors that pose challenges for solar power plants. Temperature fluctuations, dust accumulation, and changes in solar radiation are among the main challenges. Temperature plays a critical role in the efficiency of photovoltaic (PV) cells. Although solar panels convert sunlight into electricity, their efficiency decreases as the temperature rises. In Kazakhstan, where summer temperatures in some regions can reach 40 °C, this results in a noticeable decrease in the efficiency of solar power plants. The decrease in efficiency is due to the nature of the semiconductor materials used in the PV cells, where higher temperatures increase the rate of charge carrier recombination, resulting in a decrease in the output power. This inverse relationship between temperature and PV cell efficiency requires the implementation of temperature control strategies, such as passive cooling or improved material design, to reduce efficiency losses.

An equally important problem is common dust. The landscape of Kazakhstan, especially in its southern regions, is characterized by vast steppe areas prone to dust storms. Dust accumulation on the surface of solar panels reduces the amount of sunlight reaching the PV cells, which directly reduces their energy conversion efficiency. Studies have shown that dust accumulation can reduce the efficiency of solar panels by up to 40% if not properly controlled. This effect is especially pronounced during periods of high dust activity, when particles accumulate on the surface of the panel, scattering and absorbing sunlight. Regular cleaning of panels or the use of automated cleaning systems such as robotic cleaners or

hydrophobic coatings is essential to maintain optimum performance. However, these maintenance processes entail additional operating costs that must be weighed against the benefits of improved energy efficiency.

Solar irradiance, which varies throughout the day and across seasons, is another critical factor that influences solar power plant performance. In Kazakhstan, the daily and seasonal variability in solar radiation can be extreme due to its geographical latitude. During winter months, solar irradiance is significantly lower, leading to a reduced energy output from solar power plants. This variability requires power plants to be designed with flexible operational strategies, such as using energy storage systems or hybrid power generation methods, to ensure stable energy supply even when solar irradiance is low.

In the literature devoted to similar problems with the optimization of solar power plants, the focus is often on one single factor. Existing scientific works do not allow to globally cover and solve all aspects related to the performance of SPPs. In this scientific article, a thorough analysis of the influence of external factors on solar power plants will be carried out, guided by research on this topic.

In a study on the influence of external factors on the performance of solar power plants, Sudharshan, K. et al. (2020) in the article “Systematic Review on Impact of Different Irradiance Forecasting Techniques for Solar Energy Prediction” investigated the effect of solar activity changes on energy production, emphasizing the need for accurate forecasting models.

Karim Menoufi (2017) in the scientific paper “Dust Accumulation on the Surface of Photovoltaic Panels: Introducing the Photovoltaic Soiling Index (PVSI)” investigated the effect of dust storms on solar panels, concluding that regular cleaning and monitoring are necessary to maintain the efficiency of SPPs, which is especially relevant for Kazakhstan, as a region with high levels of dust exposure.

In the context of temperature fluctuations, the work of Bhakre, S. S. et al. (2023) “Evaporative cooling of photovoltaic panels in dry and hot climatic conditions” demonstrated that temperature control mechanisms such as passive cooling systems for solar panels can improve energy efficiency in extreme climates. Their findings are particularly relevant for Kazakhstan, where extreme temperatures are common. Furthermore, Ordoñez et al. (2023) provided a comprehensive review of solar panel cleaning technologies, suggesting that automated cleaning systems can significantly reduce maintenance costs and improve energy production in dusty regions.

Optimization of solar power plants is also a key focus in the literature. For example, the research of Nikseresht and Amindavar (2023) “Hourly solar irradiance forecasting based on statistical methods and a stochastic modeling approach for residual error compensation.” proposed machine learning algorithms to optimize the angle and orientation of solar panels based on real-time environmental data. These methods have shown promise in improving

energy generation efficiency, but require further development to account for the unique environmental conditions of Central Asia.

It is evident from the literature reviewed that variations in temperature, dust, and light have significant implications for solar power plant performance. Although existing studies provide useful information on individual factors, they are not fully adapted to the environment of Kazakhstan and, again, do not offer a comprehensive solution.

This research paper will systematize the above studies and formulate a comprehensive optimization approach that simultaneously takes these factors into account to improve solar power plant performance, supporting Kazakhstan's transition to renewable energy sources.

**Methods and Materials.** This study is based on several scientific papers that examine the impact of external factors such as temperature, dust accumulation, and solar radiation on the efficiency of solar power plants. A comparative analysis of these studies provides insight into optimization methods applicable to the specific environmental conditions of Kazakhstan. The studies were conducted in regions with environmental conditions similar to Kazakhstan, such as the Middle East, North Africa, and Central Asia. These regions share common challenges, including high dust levels, extreme temperature fluctuations, and variable solar radiation, making the results particularly relevant to the environment of Kazakhstan. The equipment used in these studies typically consists of polycrystalline or monocrystalline panels, calibrated dust sensors, and standardized measuring devices to track energy production.

Karim Menoufi (2017) in his paper “Dust Accumulation on the Surface of Photovoltaic Panels: Introducing the Photovoltaic Soiling Index (PVSI)” investigated the impact of dust accumulation on photovoltaic systems in regions with frequent dust storms such as the Middle East and Central Asia. In the study, photovoltaic (PV) panels are exposed to a dusty environment and their power output is monitored over time. Dust accumulation creates a physical layer on the panel surface that blocks sunlight and reduces photon absorption. This reduction in irradiance significantly reduces the electrical output as the photovoltaic effect becomes less efficient as solar input decreases. Experience shows that regular cleaning and monitoring are essential to maintain system efficiency. Comparative data before and after panel cleaning showed that dust reduced power output by up to 20%, while cleaned panels regained almost full efficiency. Karim's research shows that in regions such as Kazakhstan, where dust storms are common, the introduction of automated cleaning systems can mitigate the negative effects of dust accumulation and reduce maintenance costs.

Temperature effects, particularly temperature variations and their impact on solar panel efficiency in extremely high temperature environments, are analyzed in experiments conducted by Bhakre, S. S. et al. (2023) in their study “Evaporative cooling of photovoltaic panels in dry and hot climatic conditions”. Photovoltaic panels, especially silicon-based ones, exhibit a negative temperature coefficient, meaning that their efficiency decreases as the temperature increases. In hot climates, the electron mobility in semiconductor materials

increases, resulting in higher recombination rates, which reduces the voltage and overall power output of solar cells. Temperature sensors attached to the panels measure the surface temperature, while cooling systems (passive cooling and cooling films) are tested to mitigate these effects. This study showed that passive cooling systems, such as heat sinks or air circulation methods, can improve the performance of PV systems by maintaining lower operating temperatures. The results of the study indicate that panel cooling restores the efficiency loss caused by high temperatures, especially when the ambient temperature exceeds 25 °C, which is especially relevant for Kazakhstan, where in the southern regions during the summer, high temperatures pose significant challenges to solar energy production.

Ordoñez et al. (2023) in their review “Automatic and portable cleaning photovoltaic solar panels mechanism” provide a comprehensive analysis of solar panel cleaning technologies. The paper analyzes manual and automated cleaning systems. These systems are designed to prevent significant energy losses during long periods of dust accumulation. The research paper notes that integrating the systems with automated cleaning technologies has significant economic benefits, especially in regions with high dust exposure. In Kazakhstan, where manual cleaning is expensive due to the vast distances between solar installations, the use of robotic cleaners or self-cleaning materials can significantly improve operational efficiency. The cleaning mechanisms use either water jets or compressed air to periodically remove dust from the panels without manual intervention. Data collected over several months shows that panels equipped with automated cleaning systems perform consistently at a higher level, maintaining 95-98% of their peak efficiency compared to untreated panels.

To optimize the angle and orientation of the solar panel, Nikseresht and Amindavar (2023) propose real-time optimization (machine learning) algorithms based on solar irradiance and temperature sensor data in their paper, “Hourly solar irradiance forecasting based on statistical methods and a stochastic modeling approach for residual error compensation.”. The algorithm continuously adjusts the panel angle to maximize incident sunlight, thereby increasing the power output. By dynamically adjusting the panel angle, more efficient solar energy capture is possible. This dynamic adjustment is particularly useful in regions with variable solar conditions, ensuring that the panels operate at optimal efficiency throughout the day. Their study found that adaptive control systems that adjust panel orientation in response to solar irradiance and temperature data can increase energy production by 8 to 15%.

Similarly, Sudharshan, K. et al. (2020) conducted an in-depth study on the impact of solar irradiance variability on energy production in their paper, “Systematic Review on Impact of Different Irradiance Forecasting Techniques for Solar Energy Prediction”. Their research focused on stochastic and deterministic models for solar irradiance forecasting, highlighting the importance of accurate forecasting to optimize energy production. By integrating real-time environmental data, their models enabled solar power plants to



dynamically adjust their operations, thereby improving energy production in regions with highly variable sunlight conditions.

The methodology of this study consists of comparing and synthesizing these results, with an emphasis on how external factors can be controlled or mitigated to improve solar power plant performance in Kazakhstan. The studies analyzed provide specific data on the impact of dust, temperature, and radiation, which are particularly relevant in the context of Kazakhstan's diverse climate zones.

**Results and Discussion.** Analysis of various studies showed that external factors such as temperature fluctuations, dust accumulation, and solar radiation variability have the greatest impact on the efficiency of solar power plants in regions such as Kazakhstan. The study by Bhakre, S. S. et al. (2023) proves that conditions with extremely high temperatures cause a decrease in the efficiency of photovoltaic cells and suggests the following solution: the implementation of passive cooling systems, which can partially compensate for the loss of efficiency and maintain PV cells in optimal working condition even in regions where summer temperatures exceed 40 °C. Research by Karim Menoufi (2017) showed that dust can reduce the performance of panels by up to 20%, requiring regular cleaning, and Ordoñez et al. (2023) confirmed that automated cleaning systems can not only maintain efficiency at 95-98%, but also reduce operating costs, especially in remote areas. Integrating such systems into large-scale solar installations can maintain energy output near peak levels throughout the year, even in regions prone to dust storms. Nikseresht and Amindavar (2023) demonstrated that applying machine learning algorithms to optimize panel tilt angles increased energy production by 8–15%. While the study achieved its objectives, it would be possible to analyze the interactions of these factors in more detail. Future experiments could be conducted to simulate different scenarios of the impact of these factors under real operating conditions of solar power plants in Kazakhstan. For example, more detailed modeling and long-term data collection could improve the adaptability of optimization algorithms to account for regional variations in solar radiation. This would not only provide a better understanding of how the combination of dust, temperature, and solar radiation affects plant operation, but also provide more flexible approaches to their optimization. In summary, for solar power plants to operate efficiently in Kazakhstan, it is necessary to implement integrated solutions that combine cooling methods, automated cleaning, and adaptive panel tilt angle adjustment.

**Conclusion.** The results confirm that the impact of external factors on the operation of solar power plants can be significantly mitigated using modern optimization technologies. However, the effectiveness of the proposed solutions may vary depending on the conditions of specific regions. For example, passive cooling systems have shown high efficiency at extreme temperatures, but in some climatic conditions their use may be economically unjustified. Automated dust cleaning systems do improve performance, but they may require significant investments at the implementation stage. Thus, the study confirmed the need for

an integrated approach to optimization, but further experiments and modeling could provide more accurate data applicable to the conditions of specific regions of Kazakhstan.

### References:

1. Message from the Head of State Kassym-Jomart Tokayev to the people of Kazakhstan "Fair Kazakhstan: law and order, economic growth, public optimism". <https://www.akorda.kz/ru/poslanie-glavy-gosudarstva-kasym-zhomarta-tokaeva-narodu-kazahstana-spravedlivyy-kazahstan-zakon-i-poryadok-ekonomicheskyy-rost-obshchestvennyy-optimizm-285014>
2. Sudharshan, K., Naveen, C. & Vishnuram, P. (2020). Systematic Review on Impact of Different Irradiance Forecasting Techniques for Solar Energy Prediction. Energies, 15(17):6267
3. Karim Menoufi (2017). Dust Accumulation on the Surface of Photovoltaic Panels: Introducing the Photovoltaic Soiling Index (PVSI). Beni-Suef University, 9(6), 963
4. Bhakre, S. S., Sawarkar P. D. & Kalamkar V. R. (2023). Evaporative cooling of photovoltaic panels in dry and hot climatic conditions. Energy Sources. 45(4), 11259-11277
5. Ordoñez F. C. R., Marchena F. P., Ordoñez Ju. E. R. & Pacheco H. G. J. (2023). Automatic and portable cleaning photovoltaic solar panels mechanism. International Journal of Power and Energy Conversion. 14(1), 75-91
6. Nikseresht, A. & Amindavar H. (2023). Hourly solar irradiance forecasting based on statistical methods and a stochastic modeling approach for residual error compensation. Stochastic Environmental Research and Risk Assessment, 37(12), 4857-4892

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## **КОМПЛЕКСНЫЕ ИССЛЕДОВАНИЯ СИСТЕМ ТЕПЛОХОЛОДОСНАБЖЕНИЯ ЗДАНИЙ И СООРУЖЕНИЙ ГОРОДА АСТАНА**

**Аннотация:** В статье рассмотрены особенности и эффективность систем теплоснабжения в климатических условиях города Астана. Проанализированы современные технологии, используемые в данной области, направленных на оптимизацию энергопотребления и повышение комфорта проживания в условиях экстремальных температурных колебаний.

**Ключевые слова:** теплоснабжение, энергоэффективность, тепловые насосы, геотермальные системы, климатические условия, Астана, теплоизоляция, интеллектуальные системы управления, возобновляемые источники энергии, адаптивные технологии, экономическая эффективность.

**Введение.** Город Астана характеризуется суровыми зимами и жарким летом, что создает особые требования к системам теплоснабжения зданий и сооружений. Обеспечение комфортных условий при минимальных энергозатратах является важной задачей при проектировании и эксплуатации инженерных систем в регионе. Целью исследования является анализ существующих решений и технологий в области теплоснабжения, оценка их эффективности и разработка рекомендаций по оптимизации.

В качестве объектов исследования были выбраны жилые, административные и промышленные здания, расположенные в разных районах города Астана. Эти здания имеют различные конструкции и параметры энергопотребления, что позволило провести комплексный анализ систем теплоснабжения в условиях, приближенных к реальной эксплуатации.

1. **Жилые здания.** Были рассмотрены многоквартирные дома различной этажности с как традиционными, так и модернизированными системами отопления и охлаждения. Анализ показал, что традиционные системы отопления, основанные на

централизованной подаче тепла, имеют значительные тепловые потери. В зимние месяцы коэффициент полезного действия (КПД) этих систем составил около 60-70%, что обусловлено устаревшими технологиями теплоизоляции и недостаточной эффективностью распределения тепла. Средняя температура внутри помещений поддерживалась на уровне  $+20^{\circ}\text{C}$ , однако в некоторых зданиях старой постройки наблюдались отклонения от этого значения.

**2. Административные здания.** Были исследованы офисные комплексы, оснащенные современными системами климат-контроля. Эти системы обеспечивали более стабильное поддержание комфортной температуры в течение всего года, однако их эффективность значительно снижалась в периоды экстремальных температурных колебаний, характерных для Астаны. При этом затраты на электроэнергию для работы систем охлаждения в летний период оказывались высокими, что требует оптимизации использования энергоресурсов.

**3. Промышленные сооружения.** Исследования включали анализ складов и производственных помещений с высоким энергопотреблением. Данные сооружения испытывают значительные тепловые нагрузки зимой и требуют интенсивного охлаждения летом. Это обусловлено не только климатическими условиями, но и специфическими требованиями к температурному режиму в зависимости от характера производственной деятельности.

### **Результаты исследований**

**1. Традиционные системы отопления и охлаждения.** В ходе комплексного анализа было установлено, что традиционные системы отопления имеют существенные недостатки, особенно в зимние месяцы, когда температура воздуха в Астане часто опускается ниже  $-30^{\circ}\text{C}$ . Коэффициент полезного действия этих систем достигал лишь 60-70%, что связано с высокими тепловыми потерями и недостаточной теплоизоляцией зданий. В летний период системы кондиционирования потребляли значительное количество электроэнергии, что увеличивало общие затраты на энергообеспечение.

**2. Современные технологии теплохолодоснабжения.** Внедрение современных технологий, таких как тепловые насосы и геотермальные системы, продемонстрировало высокий уровень энергоэффективности. Экспериментальные данные показали, что применение тепловых насосов позволяет снизить энергопотребление на 30-40% по сравнению с традиционными системами. Эффективность тепловых насосов в зимний период составила 85-90%, а летом – до 95%. Геотермальные системы продемонстрировали способность поддерживать стабильную температуру в зданиях при минимальных затратах энергии, особенно при наличии качественной теплоизоляции.

**3. Влияние климатических факторов.** Экстремальные климатические условия Астаны оказывают значительное влияние на работу систем теплохолодоснабжения.

При температуре ниже  $-30^{\circ}\text{C}$  традиционные системы испытывают перегрузки, что приводит к снижению их эффективности и увеличению расхода энергии. Летом высокие температуры создают повышенную нагрузку на системы охлаждения. Резкие температурные колебания, которые характерны для региона, требуют применения адаптивных технологий, способных автоматически регулировать параметры работы систем.

- **Температурные колебания.** Системы, не адаптированные к резким изменениям температуры, демонстрировали значительное снижение производительности. Адаптивные системы, напротив, показали более стабильные результаты.

- **Влажность воздуха.** Влияние влажности воздуха на производительность систем оказалось менее значительным, однако в летний период она способствовала увеличению энергопотребления систем кондиционирования.

### Экологический эффект

Проведенные исследования показали, что модернизация систем теплоснабжения и использование возобновляемых источников энергии (таких как геотермальная энергия и солнечные панели) способствуют значительному снижению углеродного следа зданий. Оценка экологического воздействия продемонстрировала, что выбросы парниковых газов сократились на 15-25% по сравнению с традиционными системами. Это подчеркивает необходимость перехода на более экологически чистые и энергоэффективные технологии для обеспечения устойчивого развития городской инфраструктуры.

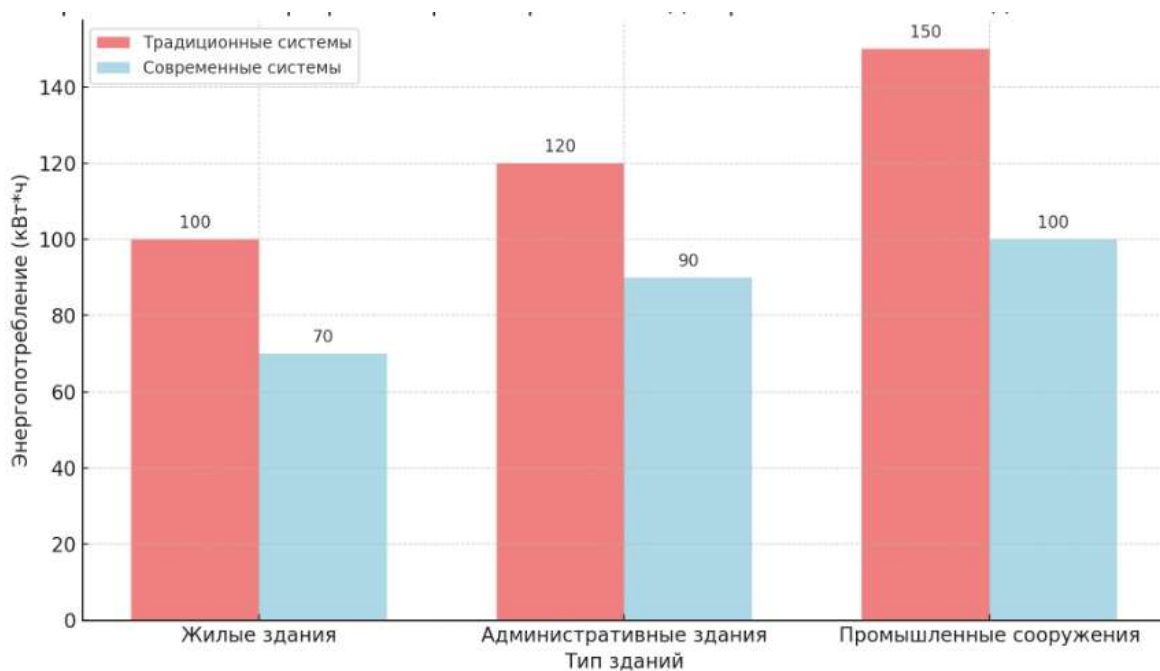


График 1. Сравнительный график энергопотребления для различных типов зданий в Астане

**Заключение.** Системы теплоснабжения зданий в городе Астана требуют комплексного подхода и внедрения инновационных решений для повышения энергоэффективности и обеспечения комфортных условий проживания. Перспективы развития технологий в данной области могут существенно снизить энергопотребление и увеличить устойчивость городских объектов к климатическим изменениям.

### Список литературы:

1. Быкова, И. А. Энергоэффективные системы отопления и кондиционирования зданий: проблемы и решения // Вестник строительной науки. — 2020. — № 4. — С. 45–52.
2. Иванов, П. П., и Сидоров, В. В. Современные методы теплоизоляции зданий в условиях сурового климата // Строительная теплофизика. — 2019. — № 7. — С. 89–98.
3. Казахский научно-исследовательский институт энергетики. Отчет о применении тепловых насосов в северных регионах Казахстана. — Астана: КазНИИЭ, 2021. — 150 с.
4. Ким, А. Б., и Нурмухамедов, Д. К. Влияние климатических факторов на системы теплоснабжения // Экология и строительство. — 2022. — № 3. — С. 33–40.
5. Леонов, С. А. Геотермальные системы: перспективы и проблемы внедрения в городскую инфраструктуру // Энергосбережение и энергоэффективность. — 2021. — № 5. — С. 75–83.
6. Смирнов, М. Г. Интеллектуальные системы управления в строительстве: анализ и перспективы // Современные технологии в строительстве. — 2018. — № 2. — С. 22–30.
7. Национальный центр возобновляемой энергии Казахстана. Аналитический обзор использования возобновляемых источников энергии в Казахстане. — Астана: НЦВЭ, 2023. — 200 с.
8. Токтаров, Е. Н. Социально-экономическая оценка внедрения энергоэффективных технологий в Казахстане // Вестник экономики и управления. — 2020. — № 8. — С. 56–62.
9. Филатов, Д. П. Исследование тепловых потерь в жилых зданиях Астаны // Теплофизика и строительные материалы. — 2017. — № 10. — С. 98–105.
10. Шайдуллин, Р. М. Устойчивость систем отопления в условиях экстремально низких температур // Журнал инженерных исследований. — 2019. — № 6. — С. 41–48.

# ПЕДАГОГИКА ЖӘНЕ ПСИХОЛОГИЯ ҒЫЛЫМДАР – ПЕДАГОГИЧЕСКИЕ И ПСИХОЛОГИЧЕСКИЕ НАУКИ – PEDAGOGICAL AND PSYCHOLOGICAL SCIENCES

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## ENHANCING STUDENT ATTENTION SPAN THROUGH MANAGERIAL PSYCHOLOGY: EFFECTIVE PEDAGOGICAL APPROACHES

**Annotation:** Attention span is critical to academic performance, yet many students struggle to maintain focus amidst distractions. Managerial psychology offers insights into goal-setting techniques that can enhance student engagement by increasing self-discipline, motivation, and attention. This article reviews goal-setting theories and practices from managerial psychology, their relevance to education, and their impact on student attention span. Empirical research shows that well-structured goals can significantly improve students' sustained attention and academic performance. This article presents evidence-based findings on the application of these techniques in educational contexts and offers suggestions for educators to effectively implement goal-setting.

**Keywords:** attention span, goal-setting, managerial psychology, educational psychology, focus, academic performance, self-discipline, motivation, goal orientation.

### Introduction

Growing reliance on technology and increasing distractions have significantly impacted students' ability to concentrate in educational settings. Short attention spans can negatively impact learning outcomes, so it is imperative to find practical ways to improve students' attention spans. Managerial psychology, with its focus on goal setting and motivational techniques, offers relevant ideas that can be applied to education. By implementing specific goal setting strategies, educators can help their students become more focused and engaged, potentially improving academic performance.

This article examines how goal setting techniques from managerial psychology can improve students' attention spans. Focusing on theories such as Locke and Latham's goal setting theory and Deci and Ryan's self-determination theory, the study examines how these frameworks influence students' intrinsic motivation and attention spans. Through an extensive literature review, the article examines the effectiveness of these techniques and their implications for educational practice.

## **Literature Review**

### **Overview of Goal Setting Theory in Managerial Psychology**

Goal setting theory, introduced by Locke and Latham (1990), suggests that specific, challenging goals lead to higher performance than vague or easy goals. The theory posits that goals help people focus, persist, and stay motivated. This principle has been extensively researched and validated in organizational settings (Locke & Latham, 2002), where clear goals increase employee performance and focus.

### **Adapting Goal Setting Theory to Educational Settings**

Research suggests that goal setting techniques can be equally effective in academic contexts. Students who set specific academic goals for themselves tend to exhibit better focus and longer attention spans (Schunck, 1990; doi:10.1016/0361-476X(90)90004-D). By setting measurable academic goals, students create a sense of purpose that motivates them to remain attentive and achieve their goals.

### **The Role of Intrinsic Motivation and Self-Determination Theory**

Deci and Ryan's self-determination theory (SDT) emphasizes the importance of autonomy, competence, and relatedness in the development of intrinsic motivation (Deci & Ryan, 2000). SDT suggests that when students feel ownership of their goals, their motivation to remain attentive and engaged increases. Combining goal setting with intrinsic motivation can improve students' attention spans as they work toward personally meaningful goals.

### **Implementing Goal Orientation Techniques**

In educational settings, goal orientation strategies can be used to maintain students' focus. For example, mastery-oriented goals (focused on learning and understanding) are associated with longer attention spans and deeper task engagement (Ames, 1992). By setting mastery-oriented goals, students are encouraged to prioritize long-term understanding over short-term rewards, thereby developing sustained attention.

### **Effects of Feedback on Goal Attainment and Attention**

Feedback plays a critical role in goal setting. Research has shown that immediate and constructive feedback helps students refine their approach and maintain attention to tasks (Hattie & Timperley, 2007). In a meta-analysis of feedback in educational settings, feedback was found to improve students' focus by reinforcing their progress toward specific goals.

### **Case Studies and Empirical Evidence**

Several studies have shown that implementing goal-setting techniques improves students' attention and performance. For example, a study by Zimmerman et al. (1992) found that students who set clear, step-by-step goals for their learning tasks showed greater focus and persistence than those who did not have goals set. Another study by Pintrich and De Groot (1990) found that goal setting increased students' ability to self-regulate their learning, promoting improved concentration during complex tasks.

### **Limitations and Challenges in the Application of Goal Setting in Education**



Although goal setting has shown promise, challenges remain in its application in educational contexts. Goals that are too challenging may lead to frustration and decreased concentration, while goals that are too simplistic may not be effective in enhancing concentration (Bandura & Locke, 2003). Additionally, individual differences such as self-efficacy and learning preferences may influence how goal setting affects concentration.

### **Results**

The studies reviewed demonstrate a positive correlation between goal setting and students' attention span. The data suggest that when students engage in achievable and personally meaningful goal setting, their attention span improves. Self-determination, mastery goals, and feedback contribute significantly to improving focus. These results support the potential for effective adaptation of management psychology techniques in educational settings to help students manage their attention.

### **Conclusion**

Goal-setting techniques from managerial psychology offer a promising approach to addressing the challenge of limited attention spans in students. By setting structured, challenging, and personally relevant goals, students can experience increased motivation, attentiveness, and engagement. For educational practitioners, adopting these strategies could lead to improvements in students' academic performance and learning experiences. Future research should continue exploring specific methods to tailor these techniques to diverse educational environments, accommodating individual differences and the varying cognitive demands of different learning tasks.

### **References:**

1. Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology*, 84(3), 261–271. doi:10.1207/s15327965pli0304\_4
2. Bandura, A., & Locke, E. A. (2003). Negative self-efficacy and goal effects revisited. *Journal of Applied Psychology*, 88(1), 87–99. doi:10.1037/0033-2909.129.1.51
3. Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. doi:10.1037/0003-066X.55.1.68
4. Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research*, 77(1), 81–112. doi:10.3102/003465430298487
5. Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Prentice Hall.
6. Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation. *American Psychologist*, 57(9), 705–717. doi:10.1037/0021-9010.87.2.237

7. Pintrich, P. R., & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology*, 82(1), 33–40. doi:10.1037/0022-0663.82.1.33
8. Schunk, D. H. (1990). Goal setting and self-efficacy during self-regulated learning. *Educational Psychologist*, 25(1), 71–86. doi:10.1016/0361-476X(90)90004-D
9. Zimmerman, B. J., Bandura, A., & Martinez-Pons, M. (1992). Self-motivation for academic attainment: The role of self-efficacy beliefs and personal goal setting. *American Educational Research Journal*, 29(3), 663–676. doi:10.1016/0959-4752(92)90011-9

UDC 378.178

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## **EVALUATING THE EFFECTIVENESS OF THE PSYCHOLOGICAL SERVICES AT ASTANA IT UNIVERSITY IN SUPPORTING STUDENTS' MENTAL HEALTH THROUGH CONCEPTS OF ORGANIZATIONAL BEHAVIOR**

**Abstract:** This study explores the effectiveness of the campus counseling services at Astana IT University in addressing student mental health concerns. By analyzing annual reports from the university's psychological services and conducting surveys among students, the research aims to assess the support provided for mental health issues such as anxiety, depression, and stress. Given the growing prevalence of mental disorders globally, with anxiety and depression affecting millions, the importance of addressing these concerns in higher education settings is critical. In Kazakhstan, mental health challenges are the second leading cause of years lived with disability, yet cultural stigmas and the legacy of the Soviet system have resulted in inadequate attention to these issues. This research highlights the role of university counseling services in creating a supportive educational environment and emphasizes the need for improved mental health care infrastructure.

**Keywords:** mental health; psychological services; health; university; organizational behavior; pedagogy; higher education

### **Introduction**

Nowadays in a highly competitive environment, especially in higher education, students are the most susceptible social group to mental health issues. Subsequently, depression, eating disorders, anxiety, addiction, and suicide are some of the mental health issues today's college students cannot shove aside. Thus, it's the utmost responsibility of a university structure to deal with these types of situations to ensure a safe education environment.

In 2019, 970 million people worldwide had a mental disorder, with anxiety and depression being the most common. Mental health conditions affect relationships, education, and work. Globally, mental disorders contribute to 1 in 6 years of disability, and those with severe conditions often die 10 to 20 years earlier. They also face increased risks of suicide and human rights violations [1]. According to the Country of Origin Research and Information, the WHO Mental Health Atlas reported that most primary healthcare staff in Kazakhstan had not undergone formal in-service training on mental health in the past five

years [2, 3]. Additionally, these staff members were not authorized to prescribe psychotherapeutic medications. Primary healthcare nurses were also restricted from independently diagnosing or treating mental health disorders. Moreover, official data on mental health issues was generally unavailable in many healthcare facilities [3]. In Kazakhstan, mental disorders, particularly depression, are the second leading cause of years lived with disability (YLD). However, like many Central Asian countries, mental health issues receive insufficient attention. Cultural norms, traditional beliefs, and the legacy of the Soviet system have shaped attitudes toward mental health, resulting in social stigma and neglect [4].

This study aims to investigate the work of campus counseling centers in Astana IT University directly analyzing its annual reports and conducting surveys among the students at the university.

### **Literature Review**

Organizational behavior drew many enthusiastic scientists from the early days of the 1920s. Initially, focusing on the increasing production performance of industrial workers led to a number of theoretical perspectives that identify different types of behavior in most organizations [5]. Understanding student behavior within the framework of organizational behavior highlights that colleges and universities function as structured entities, where the dynamics of organizational behavior directly shape student experiences. The researchers argue that bureaucracy focuses on rigid procedures and efficiency, often at the expense of human connection and creativity. In bureaucratic settings, emotional and spiritual aspects are sidelined, which can make people feel disconnected from their work. On the other hand, spiritual perspectives encourage seeing workers as whole people, which is believed to foster well-being, compassion, and creativity, creating a more fulfilling organizational environment [6].

According to the university's one of the main objectives, it places a great focus on research in IT fields. The quality assurance policy of 'Astana IT University' aims to maintain high standards of educational services at the university, as well as to ensure a connection between education, scientific research, and innovation by attracting leading global specialists in the field of information and digital technologies. It focuses on forming a resource base for conducting fundamental and applied scientific research, creating laboratories of vendor companies oriented towards enterprises in the country's digital economy, ensuring an adequate level of civic maturity among students, and implementing necessary social support measures for students and university staff to enhance competitiveness [7].

Academic communities are prone to assume the causes of mental health issues as individual's inclinations without considering the impact of a research environment. Fortunately, it was identified that there is primary four aspects which greatly contributes to mental health distress, and they are bullying and harassment; precarity of contracts; diversity, inclusion, and accessibility; and the competitive research landscape [8]. To combat these,

Limas et al suggest raising awareness about mental health and solving each and one of the issues, regardless of how few groups benefit from it.

During the 2021-2022 academic year, 527 students sought assistance from the Psychological Counseling Center, and they were provided with systematic psychological support [9].

Similar to precarity of contracts, job insecurity arises when employees feel their jobs are threatened. This emotional perception significantly impacts their mental health, leading to issues such as sleep disturbances, symptoms of depression, and burnout. While job insecurity may be associated with heightened job demands, it is more commonly indicated by insufficient social and structural resources, including fair treatment and communication, leader-member relationships, and support and trust from colleagues, particularly in contexts with high unemployment rates [10]. Robbins et al. highlights the growing awareness of the impact of stress on health within the context of organizational behavior. They emphasize that many stakeholders are recognizing that when workplace stress is not effectively managed, it can lead to serious health problems, making it a critical concern for public health [10]. Similarly, this situation can be observed across higher education institutions, where it is estimated that one in five students faces psychological distress while attending university. This distress often persists beyond their time in school, suggesting long-term effects on their mental health [11].

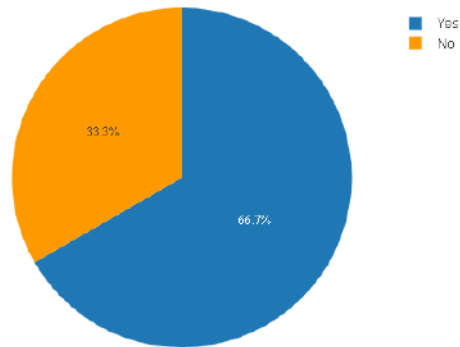
### **Methodology**

This study utilized a mixed-methods approach, combining quantitative and qualitative data to assess the effectiveness of psychological services at Astana IT University. Data were gathered through a survey distributed to a sample of university students aged 17-30, capturing responses on their awareness and satisfaction with the university's psychological services. A total of 15 responses over Google Forms were collected and analyzed to identify usage patterns, accessibility issues, and satisfaction levels with the services.

In addition, a semi-structured interview was conducted with a university psychologist to gain qualitative insights into student behavior, common stress factors, and the therapeutic approaches used. The interview provided context for understanding organizational factors impacting service effectiveness. This dual approach enabled a comprehensive analysis of both student experiences and the structural aspects of psychological support within the university environment.

### **Results\Findings**

Have you ever used the psychological services provided by Astana IT University?



What is your age?

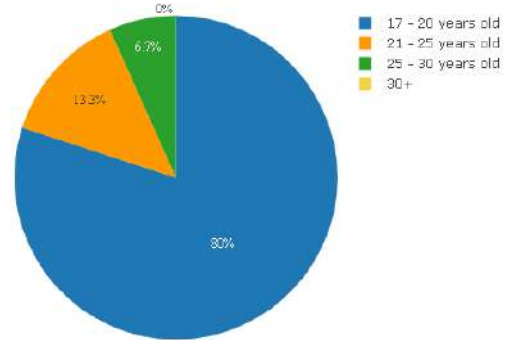
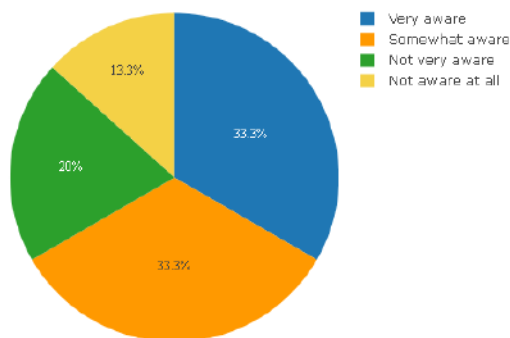


Fig. 1 - Demographic statistics on student utilization of psychological services

According to Figure 1, Most respondents are in the 17-20 age group, which is typical for university students, suggesting the results may primarily reflect the experiences of younger students. Only 1/3 of respondents have actually used the services, which may imply barriers to access or a lack of perceived need. This could be an area for the university to investigate further to encourage more usage. Conversely, the psychologist indicated that few students within the organization actively seek psychological services. However, this may suggest that cultural stigma discourages them from seeking help from specialists (see Appendix A).

How aware are you of the psychological services available at Astana IT University?



How easy was it to access the psychological services at the university?

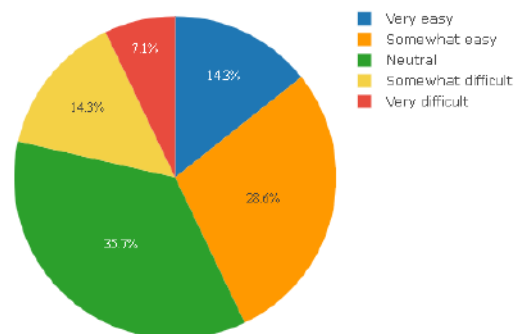


Fig. 2 - Student awareness of psychological services at the university

In Figure 2, half of the respondents are either very or somewhat aware of the psychological services, but a significant portion lacks awareness (5 responses combined for

"Not very aware" and "Not aware at all"). This indicates room for improvement in promoting the availability of these services. While 6 respondents found access to be easy, 8 reported neutral or negative experiences. This mix suggests that, while access isn't an extreme barrier, there could be improvements to make access feel seamless for all students. Establishing contact with the psychologist may be challenging due to students' lack of awareness or interest in these services. However, there are three primary methods for reaching the psychologist: the Astana IT University official portal [12], corporate email, and Telegram messenger.

Fig. 3 - Outcomes of sessions with a psychologist

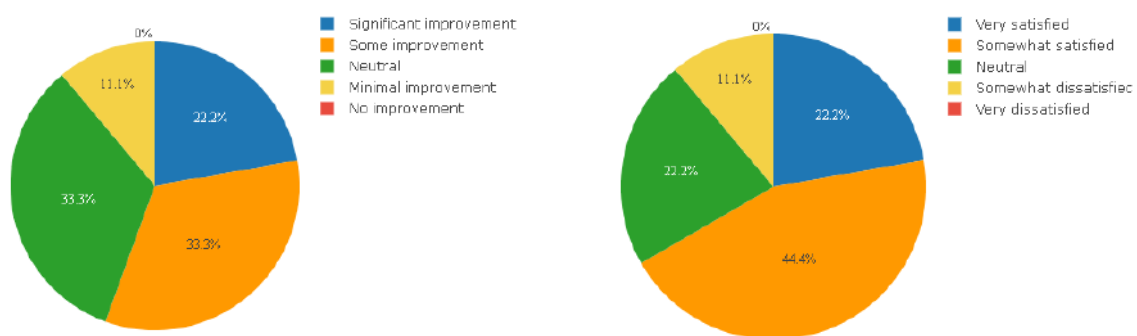


Fig. 3 - Outcomes of sessions with a psychologist

Satisfaction levels are generally positive, with six responses showing satisfaction and only one showing mild dissatisfaction. This indicates a relatively positive experience among those who used the services. Half of the users noticed some level of improvement in stress management, with two experiencing significant changes. This outcome suggests that, while the services have a positive impact on stress management, there may be opportunities to enhance their effectiveness further. Interview details indicate that a large influx of students typically seek appointments during high-stress periods, such as exam seasons, family-related issues, sudden environmental changes, and similar situations. According to the psychologist, a key factor that accelerates treatment is the patient's own motivation, followed by the specialist's development of an individualized approach (see Appendix A).

### Discussion

The study findings indicate that psychological services at Astana IT University have potential but face significant barriers to provide top-quality mental health support that meet high standards. While many students report satisfaction with these services, the low overall usage awareness suggests the need for targeted interventions to enhance accessibility, outreach, and engagement.

Only a third of respondents have used psychological services, and about half remain unaware of these resources. This limited awareness is a critical challenge, as low visibility of psychological services can prevent students from seeking help when needed. As highlighted by Manning, organizational settings often emphasize efficiency at the expense of human connection, particularly in highly structured, bureaucratic institutions [6]. This aligns with the finding that students often do not seek services due to perceived stigma or lack of familiarity with available resources.

A primary observation from the survey is the timing and nature of service usage. Students tend to seek psychological help during periods of high stress, such as exams or life transitions, which underscores the reactive, rather than proactive, approach taken by many students. This aligns with the insights provided by the university psychologist, who noted that while a significant number of students seek help, the key determinant of success is their motivation and engagement in treatment. The psychologist's individualized approach is essential, yet without sufficient motivation or awareness on the students' part, the effectiveness of these services may be limited.

Barriers to accessibility, though not insurmountable, remain a concern, as illustrated by mixed responses about ease of access. This feedback suggests that while there are established methods for scheduling appointments through the university portal, email, and Telegram, these methods may not be widely known among students. Ensuring that all students are aware of these access points and feel comfortable using them could alleviate perceived barriers.

Furthermore, the services' impact on stress management, while generally positive, leaves room for improvement. Although some students reported significant improvements, a portion of users experienced only minor changes, which may reflect either limited engagement in the services or the need for more varied interventions to accommodate different student needs. The results suggest that enhancing the services' adaptability and promoting continuous support—through activities like support groups, workshops, and individualized strategies—could be beneficial. The AITU club, mentioned in Appendix A, with its focus on group discussions, training, and art therapy, represents an excellent foundation that, if expanded, could foster a more supportive environment.

### **Conclusion**

This study underscores the critical role of psychological services at Astana IT University in supporting students' mental health and highlights the need for increased awareness, accessibility, and engagement to maximize their effectiveness. Despite generally positive feedback from users, findings suggest that limited awareness and cultural stigma hinder broader utilization of these services. The timing of students' engagement often centered around high stress periods, indicates a largely reactive approach to mental health that could be improved through more proactive outreach and destigmatization efforts.



The insights gathered from the psychologist's approach reveal the value of individualized treatment, but the effectiveness of these interventions relies heavily on the student's motivation and active participation. Enhancing visibility, accessibility, and cultural acceptance of psychological services within the university setting could better align these services with the needs of a diverse student population. Integrating these supports with broader educational and social initiatives at the university, as recommended by quality assurance policies, would further foster an environment where mental health is prioritized and openly supported. Astana IT University has laid a strong foundation for psychological services, but addressing barriers to access and reducing stigma will be essential to fully realize their potential.

### References:

1. World Health Organization: WHO. (2019, December 19). Mental health. [https://www.who.int/health-topics/mental-health#tab=tab\\_2](https://www.who.int/health-topics/mental-health#tab=tab_2).
2. Country of Origin Research and Information (CORI), 2014. CORI Thematic Report, Mental Health; Kazakhstan. Retrieved from [www.coricentre.net](http://www.coricentre.net)
3. World Health Organization (WHO), 2011. Department of Mental Health and Substance Abuse, The World Health Organization Mental Health Atlas 2011, Kazakhstan. Retrieved from [http://www.who.int/mental\\_health/evidence/atlas/profiles/kaz\\_mh\\_profile.pdf](http://www.who.int/mental_health/evidence/atlas/profiles/kaz_mh_profile.pdf)
4. Uristemova, A., Myssayev, A., Meirmanov, S., Migina, L., Pak, L., & Baibussinova, A. (2023). Prevalence and associated factors of depression, anxiety, and stress among academic medicine faculty in Kazakhstan: a Cross-sectional Study. *PubMed*, 64(2), E215–E225. <https://doi.org/10.15167/2421-4248/jpmh2023.64.2.2932>
5. Berger, J. B., & Milem, J. F. (2000). Organizational behavior in higher education and student outcomes. *HIGHER EDUCATION-NEW YORK-AGATHON PRESS INCORPORATED-*, 15, 268-338.
6. Manning, K. (2017). Organizational theory in higher education. In *Routledge eBooks*. <https://doi.org/10.4324/9781315618357>
7. Astana IT University. (2023). Система внутреннего обеспечения качества [Internal quality assurance system]. <https://astanait.edu.kz/wp-content/uploads/2023/02/%D0%A1%D0%B8%D1%81%D1%82%D0%B5%D0%BC%D0%B0-%D0%B2%D0%BD%D1%83%D1%82%D1%80%D0%B5%D0%BD%D0%BD%D0%B5%D0%B3%D0%BE-%D0%BE%D0%B1%D0%B5%D1%81%D0%BF%D0%B5%D1%87%D0%B5%D0%BD%D0%B8%D1%8F-%D0%BA%D0%B0%D1%87%D0%B5%D1%81%D1%82%D0%B2%D0%B0.pdf>

8. Limas, J. C., Corcoran, L. C., Baker, A. N., Cartaya, A. E., & Ayres, Z. J. (2022). The Impact of Research Culture on Mental Health & Diversity in STEM. *Chemistry - a European Journal*, 28(9). <https://doi.org/10.1002/chem.202102957>
9. Astana IT University. (2021). ОТЧЕТ О ДЕЯТЕЛЬНОСТИ ASTANA IT UNIVERSITY [Report on the Activities of Astana IT University]. <https://astanait.edu.kz/wp-content/uploads/2023/05/%D0%9E%D1%82%D1%87%D0%B5%D1%82-AITU-2021-2022.pdf>
10. Robbins, S. P., Judge, T., & Vohra, N. (2019). *Organizational behavior*.
11. Brooker, A., & Woodyatt, L. (2019). 2019 Special issue: Psychological Wellbeing and Distress in Higher Education. *Student Success*, 10(3), i–vi. <https://doi.org/10.5204/ssj.v10i3.1419>
12. Astana IT University. (n.d.). Astana IT University official portal. Retrieved [31.10.2024], from <https://du.astanait.edu.kz/>

### **Appendix A - Interview with the university psychologist.**

- How often do students seek psychological help?

1) A lot of students seek help, and most return for follow-up consultations. Among them, a high percentage continue with sessions. However, not all students require assistance.

- What are the main psychological services provided by the university for students?

2.1) Individual consultations are held, along with open support groups (group sessions for students). Additionally, the Psychological Counseling Center runs a club called AITU, where group discussions, trainings, and art therapy sessions are organized.

2.2) Appointments need to be scheduled in advance, usually via the university website, by email, or occasionally directly through Telegram messenger.

- What issues and stress factors do students mention most often during consultations?

3) Students seek help when they experience emotional instability or negative feelings. This may be related to concerns, anxiety, or academic issues like procrastination. The causes vary and can include personal factors, existential crises, life changes, relationships with parents, and peer relationships. Sometimes, the problem is personal and relates to communication—such as when a former introvert now wants to socialize more but finds it difficult. Students also seek support for personal development.

- How do you help students develop skills to manage stress and improve emotional well-being?

4) There are numerous methods, but no ready-made instructions fit every case. Each approach is individualized—there are no templates that work for two people in the same way. It's also important that students have their own motivation and willingness to reach out for help.

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## USING ARTIFICIAL INTELLIGENCE IN EDUCATIONAL TECHNOLOGIES: A NEW LEVEL OF PERSONALIZED LEARNING

**Abstract:** The application of artificial intelligence (AI) in educational technologies has ushered in a new era of personalized learning, revolutionizing traditional education systems. AI enables the development of adaptive learning platforms, intelligent tutoring systems, and machine learning-driven tools that can tailor educational content to the specific needs, preferences, and learning styles of individual students. This paper delves into the potential of AI to enhance personalization in education by analyzing key AI technologies and their impact on student engagement, retention, and academic performance. The research also explores the benefits and challenges associated with implementing AI-driven personalization, including ethical considerations, data privacy, and the digital divide. Ultimately, this study highlights how AI can contribute to more inclusive and effective educational systems, paving the way for a more individualized learning experience that can be scaled across diverse educational contexts.

**Keywords:** Artificial Intelligence (AI), Personalized Learning, Adaptive Learning Platforms, Intelligent Tutoring Systems, Educational Technologies, Learning Analytics, Student Engagement, Constructivist Approach, Socio-Cognitive Theory, Quantitative Methods, Qualitative Analysis, Mixed-Methods Research, Algorithmic Bias.

**Introduction.** The integration of artificial intelligence (AI) in educational technologies represents a groundbreaking evolution in personalized learning, fundamentally reshaping the way educators and students interact. This advancement leverages AI's ability to analyze vast amounts of data to tailor educational experiences, adapting content to individual learning styles and needs. The move towards AI-driven personalized learning has garnered significant attention due to its potential to enhance student engagement, improve academic performance, and democratize access to quality education across diverse populations[1][2]. The historical context of AI in education traces back to the 1960s, with early applications of computer-

assisted instruction paving the way for more sophisticated adaptive learning systems in the 1990s and 2000s.[3] Recent advancements have enabled real-time responsiveness to student needs, resulting in dynamic learning environments that can cater to a variety of learning preferences.[4] However, the global landscape of research and implementation reveals a concentration of innovation in countries like the United States, China, and India, highlighting disparities that underscore the need for broader participation in AI-driven educational solutions.[5] Despite its promise, the adoption of AI in educational contexts is not without challenges. Concerns regarding data privacy, the equitable distribution of technological resources, and the ethical implications of AI decision-making raise important questions for stakeholders.[6][7] Furthermore, there are ongoing debates about the efficacy of technology integration in enhancing educational outcomes, prompting calls for a balanced approach that prioritizes pedagogical strategies alongside technological advancements.[8] As AI continues to evolve within educational frameworks, it holds the potential to redefine personalized learning, but careful consideration of its implications is essential for achieving equitable benefits for all students.[9]

### **Historical Background**

The integration of artificial intelligence (AI) into educational technologies represents a significant evolution in teaching methodologies, fundamentally transforming the traditional classroom model into a more adaptive and personalized learning environment. Unlike conventional methods that often rely on standardized instruction, AI enables a shift toward individualized learning experiences, tailoring content and support based on each student's unique needs, pace, and preferred learning style. This shift reflects broader educational goals of inclusivity and equity, offering new pathways to address the diverse needs of learners across various backgrounds and skill levels. The exploration of AI's potential in education has been a gradual process, shaped by decades of technological advancements and evolving educational theories. In its earliest phases, AI in education focused on basic computer-assisted instruction and programmed learning, where simple algorithms provided limited interactivity and feedback. These early systems hinted at the possibilities of technology-driven education but were constrained by the computing power and algorithmic capabilities of the time. As AI technology matured, developments in machine learning, natural language processing, and data analytics fueled more complex applications in education. By the 1990s, the focus had shifted towards adaptive learning technologies, which could dynamically adjust instructional content in response to individual student progress and behavior. This period marked the beginning of AI-driven personalization, where instructional strategies could be modified to better match each student's strengths, weaknesses, and learning pace. In recent years, AI in education has seen unprecedented growth, driven by advancements in deep learning, neural networks, and big data analytics. These innovations enable AI systems to process vast amounts of educational data, generating real-time insights that support decision-making for both educators and students. AI tools can now provide instant feedback,

predictive analytics, and even early intervention strategies to help students who may be struggling, making learning more responsive and supportive. This evolution highlights AI's transformative potential, positioning it not only as a tool for personalized learning but also as a foundational element of future educational systems that prioritize adaptability, engagement, and accessibility.

### **Early Developments in AI and Education**

Initial forays into AI in education date back to the 1960s, when researchers began developing computer-assisted instruction systems aimed at enhancing the learning experience. These early systems utilized simple algorithms to provide feedback and assess student performance, laying the groundwork for future innovations in educational technology[1]. As computing power increased, so did the complexity and capabilities of educational tools, enabling a more tailored approach to learning. As computing technology evolved through the 1970s and 1980s, educational tools became increasingly sophisticated, allowing for more interactive and engaging learning experiences. The development of intelligent tutoring systems (ITS) marked a key milestone in this progression. Unlike earlier models, which primarily provided static content and limited feedback, intelligent tutoring systems were capable of assessing student responses in real-time and adjusting instructional strategies accordingly. These systems were built to simulate the personalized feedback of a human tutor by analyzing patterns in student errors, identifying knowledge gaps, and tailoring the difficulty of exercises to meet individual learning needs. An example of an early ITS was the "Socratic Tutor," which applied rudimentary artificial intelligence to engage students in a dialogic, question-and-answer format, reminiscent of the Socratic method used in traditional education. These systems introduced AI-driven personalization, where feedback became more nuanced, and the learning path was modified based on the student's performance, making the learning experience more individualized than ever before. Although constrained by limited computational power and algorithmic simplicity, these systems proved the potential of AI to enhance learning outcomes by providing targeted support. The progression continued into the 1990s with the emergence of multimedia and internet technologies, which allowed educational platforms to include richer content such as videos, simulations, and interactive modules. This expansion in content types made it possible for AI-based educational technologies to support a wider range of subjects and learning styles. Adaptive learning systems developed during this period could track students' progress across various forms of content, providing a more holistic approach to learning assessment. For example, systems could now recommend additional readings or exercises based on identified areas of weakness, encouraging students to engage with materials that directly supported their needs and reinforcing knowledge in a targeted manner. In parallel, advancements in machine learning and data analytics equipped these systems with the ability to analyze large volumes of student data. By doing so, AI could not only adjust learning pathways but also make predictions about students' future performance, identifying those at risk of falling

behind and prompting early interventions. This predictive capability, which has become a cornerstone of modern AI-based educational technologies, underscored the transformative potential of AI in education to proactively support learners and enable more effective, timely guidance. By the early 2000s, educational technology companies and research institutions were actively investing in AI-driven solutions for personalized learning. These developments coincided with a shift in educational philosophy towards student-centered learning, where AI's adaptability aligned well with the increasing emphasis on catering to individual learner needs. Consequently, AI technologies began to emerge as essential components of mainstream educational systems, paving the way for today's intelligent, adaptive platforms that offer highly tailored learning experiences. Today, the legacy of these early AI applications is evident in the widespread adoption of intelligent tutoring systems, personalized learning platforms, and other AI-driven educational tools. These technologies continue to evolve, now utilizing advanced neural networks, natural language processing, and deep learning algorithms to refine educational interactions. As AI becomes more adept at understanding and responding to complex student needs, its role in educational technology promises to further revolutionize the learning landscape, making education more accessible, efficient, and personalized.

### **The Rise of Personalization**

By the 1990s and early 2000s, the concept of personalized learning gained traction, coinciding with the advent of more sophisticated AI algorithms. This period saw the emergence of adaptive learning technologies that could adjust content delivery based on individual student performance[2]. Research during this time emphasized the importance of catering to diverse learning styles, prompting further investigations into how AI could facilitate this personalization on a larger scale.

### **Recent Advances and Global Perspectives**

In the last decade, the proliferation of data analytics and machine learning has significantly transformed the landscape of AI in education. Institutions across various countries have begun to harness AI's capabilities to create dynamic learning environments that respond to student needs in real-time[3]. However, research on the personalization of learning through mediated solutions has been concentrated in a few countries, primarily China, the United States, and India, highlighting a disparity in global research engagement and the necessity for broader participation in this field[4]. The focus on AI literacy, prompt engineering, and critical thinking within educational settings reflects an increasing recognition of the need for students to be equipped with the skills necessary for a technology-driven world[5]. As education continues to evolve, there is a pressing demand for further exploration of how AI can democratize learning and address gaps in accessibility, ensuring that all students benefit from these advancements[6].

### **Challenges and Future Directions**

Despite the promising potential of AI in education, significant challenges remain. The integration of technology in classrooms must go beyond mere implementation; it requires thoughtful alignment with educational goals and ongoing support for educators[7]. As stakeholders strive to maximize the benefits of AI while minimizing risks, it is crucial to foster a collaborative approach among governments, educational institutions, and technology providers to facilitate effective adoption[8]. Looking ahead, the historical trajectory of AI in educational technologies suggests a path of continuous innovation, driven by research and a commitment to equitable access to personalized learning solutions for all students.

### **Personalized Learning Paradigms**

Personalized learning (PL) has emerged as a critical paradigm within contemporary education, challenging traditional teacher-centered models by advocating for customized educational solutions tailored to individual student needs.[1] The U.S. Office of Educational Technology defines PL as “instruction tailored to the specific learning needs, preferences, and interests of diverse learners,” underscoring the importance of adapting learning objectives, content, methods, and pacing to the unique characteristics of each student.[1] This approach encompasses both differentiation and individualization, allowing for a range of personalization based on cognitive traits, behavioral characteristics, learning styles, and existing knowledge levels.[1]

### **Benefits and Challenges**

The implementation of personalized learning (PL) has demonstrated substantial potential in boosting academic performance and digital competencies, especially within environments that support lifelong learning and adult education.[1][9] By adapting instructional content and pacing to individual learners’ needs, PL fosters deeper engagement and allows learners to progress at a comfortable and effective rate. This customization has proven particularly beneficial in fields that require continuous skill development, where learners can revisit and refine competencies at their own pace, ensuring a mastery of knowledge over time. However, despite these advantages, challenges persist. One significant concern is the development of social and collaborative skills, which can be hindered in highly personalized, often self-paced learning environments. These environments, while supportive of individual progress, may limit opportunities for collaborative learning and teamwork. Such skills are essential not only for interpersonal competence but also for integration into professional settings, where collaboration and communication are critical.[1] Educators and researchers emphasize the importance of blending personalized learning with group-based activities, simulations, or project-based learning to foster a more balanced educational experience. Additionally, while current technological solutions facilitate efficient personalized learning processes, experts argue that meaningful transformation of the educational landscape requires more than just technology. There is a growing call for systemic change that incorporates broader pedagogical reforms, emphasizing holistic educational goals that include both cognitive and social-emotional development.[10] This

approach would not only leverage technology to meet individual learning needs but also ensure that students are equipped with the interpersonal and adaptive skills necessary for real-world applications. The balance between technological innovation and traditional educational values remains a focal point of discussion, as educators seek to create comprehensive learning experiences that prepare students for the complexities of the modern world.

### **Adaptive Learning Systems**

Adaptive learning systems represent a significant technological advancement within the realm of personalized education. These systems harness sophisticated, data-driven methodologies to continuously assess and modify instructional content, aligning it closely with the learner's pace, comprehension, and evolving needs. By using data insights to make real-time adjustments, adaptive learning solutions not only personalize the educational experience but also address learning gaps as they arise, fostering greater understanding and retention. This responsive approach allows students to engage with material that challenges them just enough to progress efficiently without feeling overwhelmed or disengaged. Research indicates that adaptive learning platforms produce superior outcomes compared to traditional, one-size-fits-all instructional approaches. For instance, students using platforms like Yixue (Squirrel AI) have achieved up to 456% higher scores in a fraction of the time required by conventional methods, highlighting the impact of tailored content and real-time feedback on academic performance.[9] The algorithmic precision in systems like Yixue enables these platforms to target specific areas of weakness, thus accelerating learning and maximizing educational outcomes. Furthermore, studies showcase other AI-driven platforms, such as Korbit, which also yield substantial improvements in learning outcomes compared to non-adaptive systems like Moodle.[9] Korbit's success lies in its ability to analyze individual progress continuously and recommend supplementary resources or exercises where needed, ensuring that students receive reinforcement exactly when required. This adaptivity allows students to solidify their understanding before advancing, reducing the risk of knowledge gaps that can hinder future learning. As adaptive learning technology continues to evolve, it promises to enhance the educational landscape by making learning more accessible, efficient, and effective. By meeting each student at their level of understanding and responding dynamically to their needs, adaptive systems empower learners to achieve their full potential, positioning these platforms as valuable tools for both personalized education and large-scale academic improvement.

### **Cognitive Engagement**

The effectiveness of personalized learning is closely linked to the active engagement of students in the learning process. The ICAP framework posits that the degree of cognitive and behavioral engagement is crucial for facilitating deeper learning experiences.[9] Engaging students through interactive methods such as note-taking, problem-



solving, and group discussions not only enhances their learning experience but also strengthens the overall educational impact of personalized learning initiatives.[9]

### **Integrating AI Technologies**

In exploring the future of personalized learning, the integration of artificial intelligence (AI) presents a promising avenue for educational development and innovation. AI's potential to transform learning is particularly evident in the application of large language models and intelligent systems that support not only content personalization but also adaptive feedback and individualized pacing. These AI-driven tools have shown considerable promise in delivering tailored educational experiences, fostering deeper engagement, and promoting self-directed learning. A key advantage of AI integration is the ability to employ hybrid approaches that combine technology with collaborative, teacher-facilitated instruction. This blending of AI and human-led education is increasingly recognized as an effective model, as it leverages the efficiency of technology without neglecting the value of interpersonal interactions. In hybrid settings, AI can manage routine, data-driven tasks—such as tracking progress, providing instant feedback, and suggesting targeted resources—while teachers focus on facilitating discussions, building social skills, and nurturing critical thinking.[10] By combining these strengths, educational systems can create a more balanced approach that attends to both cognitive and social-emotional development. Furthermore, AI allows for the refinement of personalized learning methodologies across various contexts, from K-12 settings to adult and professional education. By tailoring instruction to the academic and social needs of each learner, AI-driven systems can promote a holistic learning experience that adapts to individual strengths and areas for growth. This responsiveness is especially beneficial in diverse classrooms, where students' learning needs vary widely and require a nuanced approach to achieve equitable outcomes.[1] As AI capabilities continue to advance, they are likely to support more complex forms of interaction, such as real-time feedback in group settings, virtual simulations for hands-on learning, and AI-driven insights for teachers that inform lesson customization. These innovations hold the potential to make personalized learning not only more effective but also more inclusive, fostering both academic excellence and the interpersonal skills essential for success in an increasingly interconnected world.

### **Types of AI Technologies in Education**

Artificial intelligence (AI) technologies in education can be broadly categorized into three main types: learner-supporting AI, teacher-supporting AI, and institution-supporting AI. Each category encompasses various applications that enhance the educational experience for students, teachers, and educational institutions.

#### **Learner-Supporting AI**

Learner-supporting AI focuses on providing personalized learning experiences tailored to individual student needs. This includes applications such as intelligent tutoring systems, personalized learning assistants, and adaptive learning platforms. For instance, AI-driven platforms can analyze student data to generate customized learning paths, ensuring

that learners receive the appropriate resources and support based on their unique skill sets and learning styles[7][11]. Tools like chatbots and virtual assistants also operate 24/7, allowing students to receive instant feedback and assistance, thereby reducing anxiety around making mistakes in a traditional classroom setting[7][11].

**Intelligent Tutoring Systems (ITS):** Intelligent tutoring systems are sophisticated AI-powered tools that continuously adapt to students' learning needs, offering personalized feedback and targeted guidance throughout the learning process. By simulating one-on-one tutoring, these systems can diagnose a student's strengths and weaknesses, dynamically adjusting instructional approaches to optimize understanding and retention. ITS platforms analyze student responses, predict potential misconceptions, and provide corrective feedback that helps students grasp complex concepts more effectively. For example, some ITS platforms guide students through problem-solving steps, offering hints and explanations when needed, thus reinforcing learning at each stage. Research indicates that ITS can significantly improve learning outcomes by providing immediate, individualized support, which is particularly valuable in subjects that require complex skill acquisition, such as mathematics and science.

**Adaptive Learning Platforms:** Adaptive learning platforms represent a pivotal advancement in personalized education, as they modify educational content in real time based on ongoing assessments of student performance. These platforms use data analytics and AI to track a student's progress continuously, identify areas of difficulty, and adjust the content's difficulty or focus accordingly. For example, if a student struggles with a particular topic, the platform may provide additional resources, exercises, or alternate explanations to reinforce understanding. Conversely, if a student demonstrates mastery, the platform can introduce more challenging material to maintain engagement and promote further growth. By delivering tailored instruction that aligns with each student's learning pace and style, adaptive learning platforms create a responsive educational environment that supports meaningful, long-term knowledge retention. Studies have shown that adaptive learning platforms not only enhance academic outcomes but also foster greater learner confidence and motivation, making the educational experience more efficient and rewarding.[11][6]

### **Teacher-Supporting AI**

Teacher-supporting AI aims to alleviate administrative burdens and enhance teaching practices, enabling educators to spend more time on meaningful student interactions and personalized instruction. By automating routine tasks, such as grading, lesson planning, and feedback generation, AI technologies allow teachers to focus on areas that directly impact student learning outcomes and engagement. These tools play an essential role in reducing teacher workload, promoting efficiency, and fostering a more focused, student-centered learning environment.

**Automated Grading Systems:** One of the most impactful applications of teacher-supporting AI is automated grading. These systems evaluate student work, providing timely,

consistent, and often detailed feedback. Automated grading systems, especially those equipped with natural language processing capabilities, can handle tasks such as grading essays, quizzes, and even some open-ended responses, offering constructive insights on areas like grammar, argument structure, and content coherence. By streamlining the assessment process, these systems allow teachers to allocate more time to instructional planning, classroom activities, and individualized support for students who may require extra help. This efficient feedback loop benefits both students and teachers, as students receive faster responses, and teachers have reduced grading loads, allowing them to refocus on high-impact teaching activities.[11][12]

**Lesson Planning Tools:** AI-driven lesson planning tools support teachers in creating customized lesson plans that address diverse student needs and learning objectives. By analyzing curriculum standards and student performance data, these tools can suggest content, resources, and activities that align with students' learning levels and course goals. This ensures that lessons are both relevant and tailored to the class's unique needs. Additionally, some lesson planning tools adapt in real time, enabling teachers to modify lessons based on classroom dynamics or changing student progress. This flexibility not only saves planning time but also enriches the learning experience by fostering a more adaptive, responsive teaching approach.

**Feedback Generation Applications:** AI-powered feedback tools offer another layer of support by generating specific, actionable feedback for students on assignments, projects, and assessments. These applications use algorithms to analyze student work and provide suggestions on improving content, structure, and technique. For instance, AI-driven feedback systems in language courses might highlight grammatical errors or suggest vocabulary enhancements, while in STEM subjects, they might help clarify problem-solving steps. By automating feedback, teachers can ensure that each student receives timely, individualized guidance, even in large classrooms, where personalized feedback would otherwise be difficult to manage. These teacher-supporting AI tools collectively enhance the quality and accessibility of education by allowing educators to invest more time in engaging, pedagogically rich interactions with their students. As AI continues to develop, these tools are likely to become even more sophisticated, further enhancing educational outcomes by empowering teachers to focus on creative, innovative, and personalized teaching practices.[4][12]

### **Institution-Supporting AI**

Institution-supporting AI encompasses a range of technologies designed to help educational institutions manage administrative tasks, optimize resources, and enhance overall operational efficiency. By leveraging data-driven insights, these AI solutions enable institutions to make informed decisions, streamline routine operations, and ultimately create an environment more conducive to effective teaching and learning. AI technologies in this

category play a crucial role in ensuring that institutions run smoothly and are well-equipped to address the diverse needs of students and staff.

**Predictive Analytics:** One of the most impactful applications of institution-supporting AI is predictive analytics, which allows institutions to analyze historical and current data to identify trends in student performance and retention. By examining factors such as grades, attendance, engagement levels, and socioeconomic backgrounds, predictive analytics can forecast which students may be at risk of academic difficulties. This early identification enables institutions to implement proactive interventions, such as tutoring, mentoring, or additional resources, to support these students before they fall significantly behind. Predictive analytics can also help institutions track long-term trends, such as graduation rates and program efficacy, contributing to strategic planning and continuous improvement efforts in educational outcomes.[11][12][6]

**Administrative Management Systems:** AI-driven administrative management systems streamline various institutional operations, significantly enhancing organizational efficiency. These systems handle scheduling, resource allocation, facility management, and communication processes, which reduces the administrative burden on staff and minimizes human error. For instance, AI-based scheduling systems can automatically assign classrooms, balance teacher workloads, and coordinate class timings to ensure optimal use of resources. Resource management tools supported by AI can analyze past usage data to forecast needs for future semesters, allowing institutions to allocate budgets and resources more effectively. By automating these tasks, administrative AI systems free up time and resources that can be redirected toward improving the educational experience.[11][4]

**Enrollment and Retention Analytics:** AI-powered analytics can also support institutions in improving enrollment and retention rates. By examining patterns in application data, demographics, and academic outcomes, AI can help institutions identify characteristics of successful applicants and refine their recruitment strategies. For example, AI tools can assess which recruitment efforts are most effective in reaching and engaging prospective students, allowing institutions to allocate their recruitment resources more strategically. Retention analytics can similarly track indicators of student satisfaction and engagement, enabling administrators to address issues before they lead to student attrition, thereby improving overall retention rates.

**Financial and Operational Planning:** AI technologies assist institutions in financial planning by analyzing data on expenditures, funding, and budget allocations. Through predictive modeling, AI can forecast financial trends, allowing administrators to make data-informed decisions regarding budgeting, staffing, and resource distribution. For example, an AI-based operational planning system might analyze trends in enrollment numbers, facility usage, and technology needs to predict future demands. This enables institutions to plan strategically, ensuring they are well-prepared to accommodate growth or adapt to changing educational landscapes. Collectively, these institution-supporting AI tools contribute to a

more agile, responsive educational infrastructure, allowing institutions to focus more on educational quality and less on administrative overhead. As these technologies continue to evolve, they promise to make educational institutions not only more efficient but also more effective in delivering high-quality, student-centered learning experiences.

### **Emerging Technologies Pairing with AI**

Emerging technologies such as virtual reality (VR) and augmented reality (AR) are increasingly integrated with AI to provide immersive learning experiences. VR offers 3D simulations of real-world scenarios, enhancing student engagement, particularly in fields like medicine and engineering. Similarly, AR overlays digital information onto physical environments, allowing students to interact with educational content in innovative ways[7][12]. These technologies not only foster a more interactive learning atmosphere but also help students develop critical skills through experiential learning.

### **Benefits of AI in Educational Technologies**

Artificial Intelligence (AI) in educational technologies offers a transformative approach to learning, bringing a range of benefits that enhance educational outcomes for students, teachers, and administrators alike. By leveraging AI's capacity to process and analyze large datasets, educational systems can become more responsive, efficient, and personalized, meeting the needs of diverse learners while optimizing teaching and administrative processes. One of the most significant advantages of AI in education is personalized learning, where AI systems adapt content, pace, and learning pathways to individual students. This tailored approach addresses each learner's strengths and areas for improvement, enabling students to progress at their own speed, which can increase engagement and reduce frustration. Adaptive learning platforms and intelligent tutoring systems continuously analyze student performance, adjusting content to ensure that each student receives the support and challenges they need. This approach has shown notable success in boosting student achievement and engagement by creating a learning environment that feels more relevant and supportive. AI also enhances engagement and motivation through interactive and immersive learning experiences. Tools like gamification, virtual simulations, and augmented reality are often powered by AI to deliver content in a way that is both captivating and educational. Research indicates that when students are actively engaged in their learning process—through interactive simulations, challenges, or game-like rewards—they are more likely to retain information and develop a deeper understanding of the material. This level of engagement fosters a positive attitude towards learning and encourages students to take a more active role in their education. Another significant benefit is timely feedback and support. AI systems provide instant feedback on assignments and assessments, helping students understand their progress and identify areas where they need improvement. This immediate feedback loop is especially beneficial for learning complex subjects, as students can correct misunderstandings quickly rather than waiting days or weeks for instructor feedback. Additionally, AI-powered tools can provide ongoing support for

students outside of classroom hours, such as through virtual tutoring and 24/7 chatbots, enabling continuous learning that is flexible and accessible. For teachers, AI-driven tools help reduce administrative burdens, enabling them to focus on direct student interaction and creative instruction. Automated grading systems, lesson planning tools, and attendance tracking systems streamline routine tasks, freeing teachers to invest their time in developing engaging lessons and providing personalized support. By alleviating administrative workloads, AI can reduce teacher burnout and allow educators to concentrate on their instructional responsibilities, which directly benefits the classroom environment. Administrators also gain from AI through improved operational efficiency. Institution-supporting AI tools manage scheduling, resource allocation, and predictive analytics to help institutions operate smoothly. These technologies enable data-driven decision-making, supporting administrators in optimizing resources, predicting enrollment trends, and identifying students at risk of academic challenges. As a result, AI-driven operational systems make institutions more efficient and responsive to both staff and student needs. AI additionally supports enhanced accessibility in education by offering tools for students with disabilities or language barriers. AI-driven assistive technologies, such as text-to-speech and language translation, allow students with visual impairments, learning disabilities, or non-native language backgrounds to participate fully in the learning experience. By removing barriers to learning, AI promotes inclusivity, ensuring that all students have equal access to educational resources.

### **Personalized Learning Experiences**

One of the most significant advantages of AI in education is its ability to facilitate personalized learning experiences. AI systems can analyze individual student data, including strengths, weaknesses, and learning styles, to adapt instructional content and delivery accordingly[4][12]. This customization ensures that students receive targeted instruction that aligns with their specific needs, enabling them to progress at their own pace and achieve their full potential[11][13].

### **Engagement and Motivation**

AI technologies also play a vital role in increasing student engagement and motivation by integrating interactive learning tools and gamification techniques that make education more dynamic and enjoyable. Through AI, elements such as educational games, interactive quizzes, and immersive technologies like virtual and augmented reality can be seamlessly incorporated into lessons, transforming traditional educational content into engaging experiences that resonate with students. These AI-powered tools not only make learning more exciting but also help students form a deeper connection to the material, encouraging curiosity and a more proactive approach to their studies.[12][9] Educational games driven by AI personalize challenges and rewards based on a student's skill level and progress, keeping the experience motivating and appropriately challenging. For instance, a student struggling with a concept might encounter supportive hints and incremental challenges, while a more

advanced student is provided with progressively complex tasks that push their boundaries. This tailored approach ensures that each student remains in their "zone of proximal development," where they are continuously challenged without feeling overwhelmed. Research demonstrates that this type of adaptive gamification promotes active engagement and increases motivation, as students experience a sense of accomplishment and progress that fuels their desire to continue learning. Immersive technologies, particularly virtual and augmented reality, add another layer of interactivity by enabling students to experience learning in simulated environments. For example, VR allows students to explore historical sites, conduct virtual lab experiments, or visualize complex scientific processes in a controlled, risk-free environment. This hands-on, experiential learning helps students grasp abstract concepts more concretely, deepening their understanding and retention of information. In subjects like history, science, and geography, these virtual experiences can make learning memorable and vivid, helping students form strong mental associations with the material. Research further indicates that active engagement—both behavioral and cognitive—is a key factor in effective learning and information retention.[9] When students interact actively with content, they are not just passively receiving information but also processing, applying, and synthesizing it, leading to a higher likelihood of long-term retention. This cognitive engagement, supported by AI-driven tools, helps students build critical thinking skills and fosters a growth mindset, where learning is viewed as an enjoyable, self-directed journey rather than a compulsory task. Through these engaging, AI-powered experiences, students are more likely to remain motivated, invested, and committed to their educational goals, creating a foundation for lifelong learning and curiosity.

### **Timely Feedback and Support**

AI-powered educational tools provide immediate feedback, which is crucial for student development. These systems allow learners to understand their progress in real time and identify areas needing improvement[7][12]. Such timely interventions are particularly beneficial for students with special educational needs, as AI can offer tailored support that enriches their learning experiences and daily lives[4][7].

### **Administrative Efficiency**

Beyond student learning, AI also streamlines administrative tasks for educators and institutions. Automated grading systems and intelligent tutoring applications reduce the burden on teachers, allowing them to focus more on instruction and less on paperwork. This efficiency can lead to improved educational practices and a better allocation of resources within schools[7][11].

### **Enhanced Accessibility**

AI tools play a pivotal role in enhancing accessibility for students with disabilities or those who require additional language support. AI-powered accommodations can help bridge gaps in learning, making education more inclusive and equitable for all students[11][1]. As

educational institutions continue to adopt these technologies, the potential for an inclusive learning environment increases significantly.

### **Fostering Lifelong Learning**

The integration of AI in education also supports lifelong learning, which is essential in today's rapidly changing job market. Customized online education programs can cater to adult learners seeking new skills or knowledge, thus addressing personal and professional development needs effectively[1][13]. This adaptability ensures that education remains relevant and accessible throughout an individual's life, enhancing their employability and personal growth.

### **Trends in AIED Research**

Recent studies have highlighted a significant increase in publications regarding the use of Artificial Intelligence in Education (AIED), particularly in higher education (HE). From 2016 to 2022, the number of published articles rose nearly two to three times in 2021 and 2022 compared to previous years, reflecting a growing interest and investment in AIED research[2]. A systematic review identified 138 articles, revealing that research on AIED has expanded to six of the seven continents, with China now leading the global publications in this area[2]. Notably, prior research emphasized

a scarcity of involvement from educational departments; however, recent trends indicate that researchers affiliated with these departments now dominate the field[2].

### **Research Methodologies**

A substantial analysis of research methods and designs used in AI in Education (AIED) studies indicates a strong preference for quantitative approaches, particularly those that rely on measurable, data-driven outcomes. Over 50% of the reviewed articles employed experimental research designs, utilizing a variety of quantitative methodologies such as true experimental, quasi-experimental, and applied experimental frameworks. This reliance on quantitative approaches reflects a systematic and empirical emphasis on evaluating the effectiveness of personalized learning models powered by AI, where outcomes can be objectively assessed through statistical analysis.[1] Experimental designs in AIED research often involve controlled environments where variables are carefully manipulated to observe the effects of AI interventions on learning outcomes. For instance, in a typical true experimental setup, researchers may divide participants into control and experimental groups, comparing traditional teaching methods with AI-enhanced personalized learning systems. Such studies allow for robust comparisons, yielding insights into the specific benefits of AI-driven learning in areas such as knowledge retention, engagement, and problem-solving abilities. Quasi-experimental designs, which are also common in AIED research, address situations where random assignment is not feasible. These designs enable researchers to examine AI's impact in more naturalistic settings, such as classrooms, where learners can be grouped based on characteristics like skill level or prior knowledge rather than random assignment. Quasi-experimental studies are particularly valuable in educational



contexts, as they provide insights that are directly applicable to real-world settings, ensuring that findings are relevant to practical implementation. In addition to experimental and quasi-experimental designs, applied experimental frameworks are also widely used to test AI systems in specific instructional scenarios. These frameworks assess the adaptability and efficacy of AI tools across diverse educational applications, such as language learning, mathematics tutoring, and science education. By employing applied experiments, researchers can examine the nuanced ways AI personalization affects different learner types and subject areas, contributing to a deeper understanding of AI's potential for wide-ranging educational impact. This trend toward quantitative methods highlights the field's commitment to establishing a rigorous evidence base for AI's role in education. By providing empirical data, these studies enable educators, administrators, and policymakers to make informed decisions about integrating AI into educational frameworks. Quantitative research in AIED not only validates the effectiveness of AI-driven personalized learning models but also paves the way for future innovation by identifying areas where AI can most effectively enhance teaching and learning. As the field matures, this focus on systematic, data-driven research will be crucial in refining AI applications and optimizing their implementation across diverse educational settings.

### **Personalized Learning and AI**

The integration of AI into personalized learning systems is demonstrated to adapt educational experiences to individual learners' needs. These systems utilize dynamic student models that track learner characteristics and progress, allowing for tailored content that aligns with the learner's zone of proximal development, thereby enhancing engagement and reducing the likelihood of discouragement[9]. The analysis indicates that adaptive learning technologies can significantly improve knowledge retention and educational outcomes by offering personalized learning pathways based on students' strengths and weaknesses[14][15].

### **Impacts on Student Engagement**

Empirical evidence from case studies illustrates the efficacy of AI-driven personalized learning platforms in enhancing student engagement and academic performance.

For instance, at Greenwood High School, the implementation of an AI platform called "LearnSmart" resulted in increased student motivation and interest in learning, attributed to its capacity to cater to individual learning styles and preferences[15].

This personalized approach has shown to lead to improved mastery of content across various subjects, demonstrating the potential of AI technologies to transform educational practices.

### **Data Privacy and Security**

As the implementation of artificial intelligence (AI) in educational technologies grows, significant concerns about data privacy and security arise. AI systems rely heavily on the collection and analysis of vast amounts of student data to provide personalized learning

experiences. Consequently, educational institutions must prioritize the protection of this sensitive information by implementing robust security measures and adhering to relevant data protection regulations[16]. To ensure data privacy, institutions should obtain informed consent from students and their guardians regarding the collection, storage, and use of their data, while being transparent about the types of data collected and its intended purposes[16].

### **Integration of Technology**

Implementing technology at scale in classrooms poses a considerable challenge. While providing hardware is relatively straightforward, integrating effective software that aligns with student-learning goals and training teachers to adapt to these technologies is significantly more complex. This integration is crucial, as research indicates that merely introducing technology into the classroom does not inherently lead to improved student outcomes. The teacher's role is shifting from a traditional instructor to a facilitator and coach, necessitating ongoing professional development to effectively utilize technology in educational settings[5]

### **Equity and Access**

Another critical consideration is ensuring equity and access to these advanced educational technologies. Disparities in access to technology can exacerbate existing educational inequalities, making it imperative that all students, regardless of background, have access to the necessary tools and resources to benefit from

AI-enhanced learning[17]. Furthermore, technology companies must be mindful of including teachers' voices in product development to ensure that solutions are equitable and meet the diverse needs of all students[5].

### **Transparency and Explainability**

The lack of transparency in AI decision-making processes, often referred to as the "black box" phenomenon, raises ethical concerns, particularly in educational contexts where AI can influence significant outcomes for students[18]. Students, parents, and educators deserve clarity on how decisions are made by AI systems, especially when those decisions can impact educational trajectories. Consequently, developers of educational AI must prioritize transparency and create systems that are interpretable, allowing users to understand the rationale behind AI-generated recommendations and decisions[18].

### **Balancing Technology and Traditional Instruction**

While technology can enhance the learning experience, there is a need for caution regarding its limitations. Studies have shown that technology-rich, personalized blended learning approaches have not yet yielded significant improvements on a large scale. In fact, current assessments suggest that students using tablets and laptops may perform worse than those who do not[5]. As such, educational stakeholders must balance the introduction of new technologies with the effective integration of existing pedagogical practices, ensuring that teachers can still engage meaningfully with their students during direct instruction and coaching[5].

## **Intelligent Tutoring Systems (ITS)**

Intelligent Tutoring Systems have emerged as a significant application of AI in education, demonstrating the ability to provide individualized support to students. These systems utilize artificial intelligence to diagnose students' knowledge gaps and deliver targeted interventions tailored to their specific needs. For instance, research indicates that ITS can enhance student motivation and improve learning outcomes through personalized learning experiences[19][1].

## **Adaptive Learning Platforms**

Adaptive learning platforms, powered by AI algorithms, have shown promising results in enhancing student engagement and learning outcomes. Case studies highlight that these platforms adapt instruction based on individual learner profiles, facilitating a personalized learning journey that contrasts sharply with traditional one-size-fits-all approaches. This personalization has been linked to increased scores and improved learning efficiency[19][9].

## **Automated Grading Systems**

AI-based automated grading systems are transforming assessment practices in education. These systems streamline the grading process, saving educators considerable time while providing immediate feedback to students. Case studies reveal that these systems lead to increased efficiency, consistency, and accuracy in grading, which enables educators to dedicate more time to personalized feedback and instructional support[19][20].

## **Language Learning Applications**

AI-powered language learning platforms and translation tools have significantly advanced language education by employing natural language processing and machine learning algorithms. These tools provide interactive exercises, pronunciation feedback, and personalized study plans, which help learners acquire new languages more effectively. By enabling real-time communication and understanding of diverse content, these platforms break down language barriers and promote global connectivity[19][1].

## **Real-World Applications and Insights**

Examining real-world case studies sheds light on the practical applications of AI in education and the factors contributing to successful implementation. For instance, the LearnSmart platform utilizes AI algorithms to generate intelligent recommendations for individual students, ensuring that they have access to resources that align with their specific learning goals. The platform's data analytics capabilities further allow educators to identify trends and enhance curriculum effectiveness[15]. Conversely, some reports caution against the rushed integration of AI technologies in K-12 education, highlighting potential pitfalls and the need for careful consideration of their implications[21]. This calls for a balanced approach to implementing AI in educational contexts, recognizing both the potential benefits and challenges inherent in these technologies.

## **Future Trends**

The landscape of educational technologies is rapidly evolving, with artificial intelligence (AI) positioned at the forefront of this transformation. As AI capabilities continue to advance, educational institutions, corporate training programs, and online learning platforms are increasingly exploring AI's potential to redefine how people acquire knowledge and skills. The integration of AI is anticipated to drive several significant trends that will shape the future of learning and development (L&D), offering more adaptive, personalized, and immersive educational experiences. One major trend is the rise of hyper-personalized learning pathways. As AI systems become more adept at processing data on learner preferences, progress, and performance, they will be able to generate individualized learning paths tailored to the specific needs and goals of each learner. This level of personalization goes beyond simple content recommendations, allowing for real-time adjustments to the curriculum, pacing, and assessment methods to suit each learner's strengths and weaknesses. This capability is particularly beneficial for corporate training and higher education, where learners often have varying levels of prior knowledge and unique professional objectives. Immersive learning experiences are also set to become more prevalent, as AI integrates with virtual reality (VR) and augmented reality (AR) technologies. By creating realistic, hands-on simulations, AI can allow learners to experience complex concepts and scenarios in a virtual environment, enhancing engagement and retention. In fields such as medical training, engineering, and the sciences, VR and AR can replicate high-stakes or intricate procedures, giving learners a safe space to practice and develop skills. These immersive experiences not only deepen understanding but also build confidence, enabling learners to apply their knowledge more effectively in real-world situations. Another emerging trend is the shift toward continuous learning analytics. AI's ability to analyze vast amounts of data in real-time provides ongoing insights into learner behavior, engagement, and comprehension. These continuous learning analytics empower educators and trainers to make data-informed decisions, adjusting instructional strategies on the fly to support each learner's journey. By identifying trends and detecting potential learning obstacles early, AI-based analytics can facilitate timely interventions that enhance the learning process and improve outcomes. This trend is particularly impactful in K-12 and corporate L&D environments, where adaptive support can address diverse learner needs effectively. As the role of AI in education expands, there is an increasing focus on ethical considerations and AI literacy. Ensuring that AI in education is transparent, fair, and bias-free is becoming a critical priority for institutions and developers alike. Educational programs are beginning to integrate AI literacy into the curriculum to prepare students for a world where AI will be a core part of daily life. This includes teaching students how AI works, the ethical implications of AI-driven decisions, and the importance of critical thinking when interacting with AI systems. Such initiatives aim to equip learners with the knowledge needed to engage with AI responsibly and thoughtfully. Automation and efficiency in learning management are also likely to become more prominent as AI takes on administrative

and logistical tasks. Automated systems can manage course content updates, monitor learner progress, and send reminders, enabling institutions to maintain effective learning programs with minimal manual oversight. This trend benefits administrators by freeing up resources and reducing the complexity of managing large-scale training programs, particularly in corporate and online learning contexts. Finally, the trend toward lifelong learning is accelerating as AI makes continuous education more accessible, flexible, and relevant. With the job market evolving rapidly, AI-driven personalized learning platforms are enabling adults to upskill and reskill efficiently. From career-specific micro-credentials to expansive online degree programs, AI-powered platforms allow learners to acquire new skills at any stage of life. This adaptability supports career advancement and personal growth, addressing the increasing demand for skills that align with emerging industry needs.

### **Rise of Personalized Learning**

One of the most promising trends is the emergence of supercharged personalized learning paths. As AI systems become more sophisticated, they will increasingly adapt educational content to meet the unique needs of individual learners. This shift aims to create tailored learning experiences that enhance engagement and effectiveness, allowing students to progress at their own pace and according to their specific learning styles[22][4]. Personalized learning has proven particularly beneficial for students with special educational needs, enabling greater inclusivity and accessibility in various educational settings[4][7].

### **Immersive Learning Experiences**

The integration of AI with virtual and augmented reality technologies is set to deliver truly immersive learning experiences. These tools will offer students dynamic environments in which they can engage with content more interactively. By leveraging AI capabilities, educational institutions can create realistic simulations that foster deeper understanding and retention of knowledge, making learning more impactful than traditional methods[22][4].

### **Continuous Learning Analytics**

AI will facilitate continuous learning analytics, providing real-time feedback to both educators and learners. This capability allows for a more responsive educational approach, where data-driven insights can inform instructional methods and curricular adjustments. By utilizing AI analytics, educators can identify skill gaps and recommend targeted training solutions, ensuring that learning experiences remain aligned with evolving workforce needs[23][4].

### **Ethical Considerations and AI Literacy**

As AI becomes more embedded in educational practices, the importance of ethical AI development will become paramount. The integration of AI into classrooms and educational platforms introduces unique ethical challenges, making it essential to prioritize transparency, minimize bias, and protect student privacy. As AI increasingly shapes assessments, learning pathways, and administrative decisions, ensuring that these technologies are fair, unbiased, and respectful of student data is critical to creating a trustworthy educational environment.

Transparency in AI systems is crucial for building trust among educators, students, and parents. Transparent AI applications allow users to understand how decisions are made, providing insights into why specific recommendations or assessments are generated. For example, if an AI system assigns additional practice tasks to a student, transparency would mean explaining the data points or performance metrics that led to this recommendation. This level of clarity not only fosters trust but also empowers students and educators to engage with AI in a meaningful way, enabling them to understand and respond to AI-driven insights with confidence and autonomy.

Minimizing bias in AI algorithms is essential to ensure equity in education. AI systems are only as objective as the data they are trained on, and biases can easily be introduced through skewed datasets or algorithmic structures. For instance, if an AI model is trained on data that predominantly reflects certain demographics or learning styles, it may unintentionally favor certain students over others, leading to disparities in learning outcomes. Addressing these biases requires careful selection and review of training data, as well as ongoing testing and monitoring of AI algorithms. Educational institutions and developers must work together to create AI systems that prioritize fairness, making adjustments as needed to reduce disparities and create an inclusive learning environment that serves all students equitably.

Protecting student privacy is another critical challenge, as AI systems often collect and analyze large volumes of personal data to deliver personalized learning experiences. With increased data collection comes the need for stringent data protection protocols. Schools and educational technology providers must comply with privacy regulations, such as GDPR and FERPA, to ensure that students' personal information is stored securely, used appropriately, and shared only with authorized parties. Measures like data anonymization, encryption, and restricted access controls help protect sensitive information from unauthorized access, maintaining student privacy and building trust in AI applications.

In addition to ethical development practices, enhancing AI literacy among both educators and students is essential to navigate this new educational landscape effectively. Educators require training to understand AI's capabilities, limitations, and ethical implications. This knowledge enables teachers to make informed choices about integrating AI into their classrooms and to evaluate AI-generated recommendations critically. With a strong foundation in AI literacy, teachers can guide students in interacting responsibly with AI, teaching them to question, interpret, and use AI-driven insights thoughtfully.

For students, AI literacy fosters critical thinking skills and prepares them for a world where AI will influence many aspects of life, including education, work, and social interactions. Training programs that focus on critical thinking regarding AI and its applications encourage students to engage thoughtfully with AI technologies, understanding not only how to use these tools but also how to evaluate their impact and ethical considerations. By learning to question AI-driven decisions, recognize potential biases, and

assess the reliability of AI outputs, students become active, informed participants in their own learning journeys.[4][6][1]

### **Automation and Efficiency in Learning**

The automation of course content mapping and training recommendations is expected to streamline L&D efforts significantly. AI tools that assess employee roles and skills gaps will aid organizations in delivering tailored training programs, making upskilling and reskilling initiatives more efficient. This alignment between learning and business objectives is crucial in today's rapidly changing job market[23][4].

As we move further into the decade, these trends highlight a transformative era in education, wherein AI is not just an add-on but an integral part of the learning

ecosystem. The ongoing research and development in this field will continue to pave the way for innovative and effective educational experiences that cater to diverse learning needs.

**Conclusion.** The integration of artificial intelligence (AI) in educational technologies marks a transformative shift in the way we approach learning and teaching. By enabling personalized learning, AI tailors educational experiences to individual needs, enhancing engagement, motivation, and retention. Technologies such as intelligent tutoring systems, adaptive learning platforms, and institution-supporting tools like predictive analytics have shown substantial potential to improve educational outcomes by making learning more accessible, efficient, and inclusive. However, the implementation of AI in education is not without challenges. Ethical considerations, such as ensuring transparency, minimizing bias, and safeguarding student privacy, are paramount to building trust and equity in AI-enhanced learning environments. Additionally, fostering AI literacy among educators and students is crucial for navigating and responsibly leveraging AI's capabilities. Training both teachers and students to critically engage with AI applications will prepare them to use these technologies thoughtfully, fostering a balanced educational ecosystem where technology supports, rather than dominates, the learning experience. Looking to the future, the trends of hyperpersonalized learning, immersive learning experiences, continuous learning analytics, and automation in learning management suggest that AI will continue to play a central role in education. As we embrace these advancements, a collaborative approach involving educators, policymakers, and technology developers is essential to realize the full potential of AI in creating a dynamic, adaptable, and equitable educational landscape for all learners. In doing so, AI can truly empower individuals throughout their lifelong learning journeys, positioning education as a continuous, accessible, and transformative experience.

### **References**

[1] Bayly-Castaneda, K., Ramirez-Montoya, M.-S., & Morita-Alexander, A. (2024). Crafting personalized learning paths with AI for lifelong learning: A systematic literature review. *Frontiers in Education*, 9, 1424386.

- [2] Crompton, H., Burke, D.(2023) Artificial intelligence in higher education: the state of the field. *Int J Educ Technol High Educ* 20, 22.
- [3] Rouhiainen, L. (2019). How AI and data could personalize higher education. *Harvard Business Review*.
- [4] Walter, Y. (2024) Embracing the future of Artificial Intelligence in the classroom: the relevance of AI literacy, prompt engineering, and critical thinking in modern education. *Int J Educ Technol High Educ* 21, 15.
- [5] Bryant, J., Heitz, C., Sanghvi, S., & Wagle, D. (2020). How artificial intelligence will impact K–12 teachers. *McKinsey & Company*.
- [6] U.S. Department of Education, Office of Educational Technology. (2023). *Artificial Intelligence*.
- [7] Shamkina, V. (2024). AI in education: top applications, real-life examples, and adoption tips. *Itransition*.
- [8] PBS.(2019). AI technology is disrupting the traditional classroom. *NOVA*
- [9]Laak, K.(2024). AI and personalized learning: bridging the gap with modern educational goals. *arxiv*.
- [10] Jaan Aru (2024) AI and personalized learning: bridging the gap with modern educational goals, *Cornell University*.
- [11] Hamilton, I. (2024). Artificial intelligence in education: Teachers’ opinions on AI in the classroom. *Forbes Advisor*.
- [12] Pham, M. (2024). 10 AI in education examples that transform learning. *Millie Pham*.
- [13] Draper, T. (2024). AI-powered personalization: A leap towards customized learning in 2024. *Medium*.
- [14] Meehir, K. (2023). How AI is personalizing education for every student. *eLearning Industry*.
- [15] Vats, N. (2023). Case study: AI-driven personalized learning enhances educational outcomes. *SimpleGPT*, 29 June.
- [16] Teachflow (2023). Revolutionizing education with AI: Real-world examples and future implications. *Teachflow*.
- [17] Center for Teaching Innovation. (2024). Ethical AI for teaching and learning. *Cornell University*.
- [18] Karpouzis, K. (2024). Artificial intelligence in education: Ethical considerations and insights from ancient Greek philosophy. Department of Communication, Media and Culture, *Panteion University of Social and Political Sciences*.
- [19]Teachflow. (2023). Assessing the reliability and bias of AI in education. *Teachflow*, 30 June.



[20] Shi, L.; Ding, A.-C.; Choi, I. (2024) Investigating Teachers' Use of an AI-Enabled System and Their Perceptions of AI Integration in Science Classrooms: A Case Study. *Educ. Sci.* 14, 1187.

[21] Strain, D. (2024). Researchers warn of danger, call for pause in bringing AI to schools. University of Colorado Boulder.

[22] Theodotou, M. (2024). 2024 trends: 4 AI tactics for learning & development. *eLearning Industry*.

[23] Association for Talent Development. (2024). 8 AI predictions for 2024 that stood the test of time. *ATD Blog*.

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## **INNOVATIVE METHODS OF TEACHING COMPUTER ENGINEERING IN HIGHER EDUCATION**

**Abstract:** The article discusses innovative approaches to teaching computer engineering in higher education institutions aimed at improving the quality and effectiveness of education. Various pedagogical strategies, such as project-based learning, the use of interactive technologies and gamification, which stimulate student motivation and involvement, are considered. their advantages and disadvantages in the context of computer engineering are analyzed.

**Keywords:** computer engineering, higher education, innovative methods, project-based learning, interactive technologies, gamification, pedagogical strategies.

### Introduction

In the context of rapidly developing technologies and the information age, computer engineering is becoming one of the key disciplines that is shaping the future of many industries, from industry and medicine to artificial intelligence and cybersecurity. For higher education institutions, this means the need to update teaching methods so that graduates are prepared to meet current challenges and can adapt to new requirements.

Traditional teaching methods such as lectures and labs play an important role, but they are not enough to fully understand and master the complex technical skills that future engineers need. Innovative approaches such as Project-Based Learning (PBL), gamification, and the use of virtual and augmented reality technologies help students develop critical thinking, solve practical problems, and, importantly, maintain a high level of motivation.

The purpose of this article is to consider modern pedagogical methods that are effectively used in teaching computer engineering, to highlight their strengths and weaknesses, as well as to offer recommendations for successful implementation in the curricula of higher educational institutions in Kazakhstan.

### Theoretical basis

The training of specialists in the field of computer engineering in higher education requires innovative approaches that contribute to a deep understanding and successful application of knowledge in real conditions. Leading educational methodologies such as project-based learning (PBL), gamification, and the use of virtual and augmented reality (VR and AR) technologies have proven to be effective in building the skills needed for highly skilled professionals. These methods are based on modern theoretical approaches to teaching and allow you to improve both academic and professional training of students.

#### 1. Project-Based Learning (PBL)

Project-based learning (PBL) is a technique in which students learn by working on real-world projects. Unlike the traditional approach, in PBL, students not only gain theoretical knowledge, but also immediately apply it in practice, which improves understanding and consolidation of the material. PBL is especially effective for studying computer engineering, as it allows you to integrate theoretical knowledge with real engineering problems and projects.

PBL is based on the constructivist theory of learning, according to which knowledge is mastered better when it is related to real problems and developed through practical experience. For example, in computer engineering, students can work on projects involving application development, network architecture design, or building artificial intelligence systems. Such projects help to form key professional skills, such as systems thinking, solving complex problems, teamwork and responsibility for the result.

A study by Gadad et al. (2021) highlights that students who study using the PBL method demonstrate a higher level of comprehension of the material and are more successful in solving practical problems. Study participants noted that hands-on participation in project-based tasks increased their interest and motivation to study complex disciplines such as computer engineering (Gadad et al., 2021). As part of PBL, students also learn to interact effectively and find compromises, which is an important part of professional competence in engineering professions.

Additional research from Jain (2024) demonstrates that project-based learning also fosters creative thinking, as students are forced to come up with out-of-the-box solutions to real-world problems. In computer engineering, this approach can manifest itself in the development of algorithms, performance optimization, and the creation of new applications, which strengthens the preparation of students for professional activities.

#### 2. Gamification

Gamification as a learning method involves the use of game elements such as levels, rewards, leaderboards, and competitive elements to make the learning process more fun and

motivating. The use of gamification in computer engineering helps to increase student engagement, makes learning interesting, and stimulates them to achieve better results.

Gamification is based on game theory and behavioral psychology, which states that involvement in the game process and the presence of feedback have a positive effect on motivation and academic performance. Peréz-Suarez et al. (2024) note that gamification in educational environments improves student motivation and allows them to better understand and assimilate the material. This is especially true for disciplines that require long-term concentration and perseverance, such as programming and systems engineering (Peréz-Suarez et al., 2024).

In the context of computer engineering, gamification can involve the creation of competitive environments where students develop algorithms and programs, competing against each other in the efficiency of code or in the speed of completing tasks. A study by Zairon et al. (2021) demonstrates that the use of gamification elements such as points and virtual rewards encourages students to regularly complete tasks and improve their skills, which is especially useful for learning complex technical disciplines (Zairon et al., 2021).

### 3. Virtual and augmented reality (VR/AR)

Virtual and augmented reality technologies are becoming increasingly popular in educational institutions, as they allow students to interact with material in a unique and immersive environment. VR and AR are especially effective in teaching complex technical skills, as they allow you to simulate situations that may be dangerous, expensive, or difficult to implement in reality.

The use of VR and AR in learning is based on the theory of cognitive load, which states that learning is more effective when students are able to visualize and manipulate learning material. A study by Majchrzak et al. (2004) emphasizes that the use of VR/AR improves the perception of information and facilitates the mastery of complex concepts through an interactive format and the possibility of immersion in the learning process (Majchrzak et al., 2004).

In educational institutions in Kazakhstan, VR/AR can be used to model the architecture of computer systems, study the internal components of a computer, and design network infrastructures. For example, VR can be used to train students to diagnose network errors in a virtual environment, while AR can be used to demonstrate the operation of the processor and other components in real time. This allows students to better understand the principle of operation of various systems and the interaction of their components, which is extremely important for future engineers.

### Methodology

The following methods and approaches will be used to analyze innovative teaching methods in the field of computer engineering:

#### 1. Methods of data collection

A systematic literature review will be conducted, including research articles and reports on the following key topics:

- Use of active teaching methods (gamification, project-based learning).
- Implementation of technologies (online platforms, virtual laboratories).
- Effectiveness of blended learning.

2. For example, research conducted in journals such as *Computers & Education* and *IEEE Transactions on Education* will be analyzed to identify successful practices.

### 3. Data analysis

A qualitative analysis of existing research will mainly be used to identify common trends and findings from different institutions. Benchmarking will also be conducted to identify best practices and their impact on learning.

### 4. Description of the target audience

The target audience of the study includes students and teachers in the field of computer engineering, which will provide a comprehensive understanding of the effects of using innovative methods.

### 5. Expected results of the study

The study is expected to reveal the impact of innovative methods on student motivation and academic performance, as well as provide recommendations for teachers and educational institutions.

#### Psychological Aspects of Innovative Learning

#### Psychological Aspects of Innovative Learning

The application of innovative teaching methods in computer engineering requires taking into account various psychological factors that affect the perception, motivation and behavior of students. Psychological aspects such as motivation, cognitive load, and psychological safety play a key role in how well students learn and participate in the learning process. These aspects affect not only the level of knowledge assimilation, but also the general attitude of students to the academic discipline and profession.

#### Student motivation

Motivation is one of the main factors affecting the success of learning. Intrinsic motivation, or the desire to learn for personal growth and fulfillment, is thought to be more sustainable and effective in achieving long-term results than extrinsic motivation related to receiving rewards or avoiding punishment. Within the framework of innovative learning, students' motivation is often supported by the use of interactive methodologies, such as gamification and project-based learning. These methods help to make the learning process more fun and meaningful, which helps to increase the internal motivation of students.

A study by Xia and Yang (2020) highlights that engaging students through gamification and project-based assignments contributes to their intrinsic motivation and willingness to learn new things. This is especially important for complex technical disciplines such as computer engineering, where long-term motivation helps students overcome challenges and master the subject in depth. Project-based learning allows students to see the result of their work and understand how the theoretical concepts they have learned are applied to real-world engineering problems, which significantly supports motivation.

#### Psychological safety

Psychological safety in a learning environment means that students feel free to express their ideas, ask questions, and take risks without fear of criticism or judgment. This is critical in innovative learning, where students are encouraged to collaborate, share knowledge, and solve complex problems. Without a sense of security, students may avoid actively participating in class and hold on to important ideas for fear of judgment or mistakes.

A study by Kahn (1990) showed that psychological safety contributes to higher levels of student engagement and activity, which is particularly important in the context of project-based learning and group work. In computer engineering, where working on projects requires sharing ideas and solving complex problems, creating a psychologically safe environment

helps students feel comfortable expressing their ideas and experimenting with new approaches. Teachers can maintain psychological safety by implementing active listening techniques, providing positive feedback, and creating an inclusive atmosphere where each student feels valued in the learning process.

#### Cognitive load and perception of information

Cognitive load is the amount of information that a student can process at a given moment. When the cognitive load is too high, it reduces the ability to learn, as students begin to have difficulty concentrating and remembering the material. Innovative teaching methods such as VR/AR and gamification help reduce cognitive load by allowing students to receive and process information in a more accessible and structured way.

Cognitive Load Theory (Sweller, 2011) explains that successful learning depends on reducing cognitive load through the presentation of information in a clear, consistent, and structured manner. For example, the use of VR and AR in computer engineering allows students to better visualize complex technical processes, such as the operation of network protocols or the structure of processors, which makes it easier to perceive information and make the learning process more productive. Dividing information into small, easily digestible chunks and using multimedia helps students more easily cope with cognitive load and concentrate on content.

#### Overcoming the fear of mistakes and knowledge of the "stick"

In innovative teaching methods, there are often difficulties associated with the so-called "stickiness" of knowledge – when important knowledge and skills remain unshared between students due to their fear of making a mistake or the perceived complexity of the task. Fear of making mistakes can limit independence and innovative thinking. Using approaches that reduce this fear, such as supportive feedback and public recognition of success, helps students to share their ideas and ask questions more freely, which improves the quality of their learning as a result.

Moreover, Ghani et al. (2020) highlight the impact of "hoarding behavior" on the limitation of the learning process, when students or teachers are reluctant to share knowledge due to a lack of trust or fear of losing unique skills. The solution to this problem involves creating a culture of open knowledge sharing, where teachers actively encourage students to share their experiences and knowledge. This can be achieved through the introduction of group discussions, structured forums and open presentations where students can showcase their achievements and share knowledge.

#### Pedagogical approaches to knowledge transfer

For effective teaching of computer engineering, it is necessary to use structured pedagogical approaches that allow students not only to gain theoretical knowledge, but also to consolidate it in practice. Methods such as mentoring, structured training programs, and the development of clear knowledge transfer plans play an important role in the educational environment, helping to maintain key competencies and develop new skills. These approaches prepare students for real-world professional challenges and adapt to the dynamically changing field of technology.

#### Mentoring & Coaching

Mentoring and coaching are central to effective knowledge transfer, as they provide individual support and contribute to a deeper understanding of the learning material. Mentoring creates favorable conditions for the transfer of both theoretical knowledge and

practical skills. A study by Pérez-Suarez et al. (2024) highlights how mentoring fosters students' confidence in knowledge and willingness to collaborate.

Mentoring is based on the social learning theory proposed by Albert Bandura, which states that people learn through observation and interaction with others. In computer engineering, this is especially important, since it allows you to transfer knowledge that is difficult to assimilate from lecture material. For example, the mentor can demonstrate to the student the process of designing a complex system or working with program interfaces, which allows students to quickly adapt to real practice. A study by Pérez-Suarez et al. (2024) highlights that mentoring helps students develop confidence in their knowledge and strengthens teamwork skills, which are critical for their future careers (Pérez-Suarez et al., 2024).

#### Structured training programs

Structured learning programmes are an organized approach to knowledge transfer that includes both theoretical and practical elements. Such programs combine on-the-job training (OJT) methods and formal training. For example, on-the-job training allows students to apply their knowledge directly by solving real-world problems under the guidance of experienced professionals, whereas formal training provides a solid theoretical foundation.

Structured learning programs also make extensive use of interactive methods such as simulations, role-plays, and team projects, which promote critical thinking and analytical skills. A study by Gadad et al. (2021) found that such methods help students better understand complex technical concepts as they can learn them through active participation in the learning process (Gadad et al., 2021)

Gamification can also be an important part of structured learning programs. Using game elements in the learning process, such as scores, awards, and leaderboards, makes learning more engaging and engages students in the process. This approach helps create a competitive environment where students are encouraged to improve their performance and share knowledge with others. In the field of computer engineering, for example, gamification can involve competitions in developing software code or solving algorithmic problems, which contributes to improving programming skills and teamwork.

#### Development of knowledge transfer plans

For the sustainable development of the educational process, it is necessary to develop clear plans for the transfer of knowledge that will help organize the learning process and ensure the continuity of knowledge between students and teachers. Such a plan includes an assessment of key areas of knowledge, the selection of appropriate methods of transfer (depending on the type of knowledge) and the establishment of a time frame for the completion of all stages.

Knowledge maps and knowledge inventories are the main tools that contribute to the development and implementation of knowledge transfer plans. Knowledge maps visualize the location and distribution of skills within the curriculum, making it easier to access information and speed up the learning process. Knowledge inventory allows you to systematize and document key skills and knowledge, ensuring that they are retained and accessible. These tools are especially useful in computer engineering, where a significant amount of complex technical information needs to be organized and stored.

The role of knowledge transfer plans is illustrated by Majchrzak et al. (2004), which highlights the importance of knowledge maps in creating convenient access to information

and supporting continuous learning and innovation in organizations (Majchrzak et al., 2004). In the learning process, this ensures continuity of knowledge between courses and ensures that students, regardless of their level, have access to a complete and up-to-date knowledge base.

#### Problems of knowledge transfer

The transfer of knowledge in an educational environment faces many difficulties, both at the level of organization and at the level of individual perception. These problems can reduce the effectiveness of innovative teaching methods and hinder the achievement of educational goals. The main problems of knowledge transfer are related to organizational barriers, individual barriers and insufficient technological support. Let's consider each of these problems in more detail.

#### Organizational barriers

Organizational barriers, such as organizational culture and internal political problems, can hinder the transfer of knowledge in higher education. One of the key challenges is resistance to change, which is especially pronounced in the case of the transition to new teaching methods and the introduction of digital technologies.

1. Resistance to change: University faculty and staff sometimes experience resistance when switching to new educational methodologies, such as project-based learning and gamification. This may be due to a lack of confidence in the effectiveness of new approaches, the need for additional training, and changes in teaching habits failures in the implementation of new educational methods (Jain, 2024).

2. Resource allocation: Limited funding and lack of technical resources are also major challenges. Implementing innovative methods such as VR/AR requires significant financial investment, as well as appropriate equipment and technical support.

#### Individual barriers

Individual barriers include factors such as fear of mistakes, lack of motivation to learn, and lack of understanding of personal responsibility in the process of knowledge transfer.

1. Lack of awareness of the value of knowledge: Students often do not realize the importance of the knowledge they possess and do not understand how their knowledge can be useful to others. This is especially true for junior students, who lack experience and understanding of professional problems that require knowledge in computer engineering. As a result, students do not seek to actively participate in the transfer of knowledge, which limits the overall involvement in the learning process.

2. Fear of mistakes: In an environment where innovative teaching methods require participation in projects and problem-solving in the face of uncertainty, students may be afraid of making mistakes, which reduces their willingness to actively participate. As noted in a study by Kahn (1990), fear of judgment and mistakes can stifle initiative and hinder the exchange of knowledge between students and teachers (Kahn 1990). In a learning environment, encouraging experimentation and the opportunity to learn from mistakes can help students overcome this barrier.

#### Overcoming Barriers: Solutions and Strategies

To overcome the above challenges, universities and educational institutions need to develop strategic approaches to create an effective environment for knowledge transfer. Such approaches include:



- **Fostering a culture of knowledge sharing:** Fostering an organizational culture based on trust and mutual assistance can encourage students and teachers to become more involved in the knowledge-sharing process. It is important to implement practices that encourage the sharing of experiences, including group projects, open discussions, and peer-to-peer mentoring.

- **Technology support:** Implementing centralized knowledge management platforms and accessible technologies, such as cloud services and data security systems, can help improve access to information and ensure data protection. It is important to train teachers and students in the safe use of technology and provide technical support.

- **Support for psychological safety:** Teachers should maintain an atmosphere of openness and continuous learning, where students are not afraid to make mistakes and can freely exchange their ideas. Psychological safety is created through active listening, constructive feedback and encouraging initiative, which in turn improves learning outcomes.

Practical examples and results of the use of innovative teaching methods in Kazakhstani universities

Modern higher education in Kazakhstan, especially in the field of computer engineering and related fields, demonstrates significant success in the use of innovative teaching methodologies such as project-based learning (PBL) and gamification. These methods are aimed at forming practical skills, increasing students' motivation and adapting to real professional challenges. Further, specific examples are considered and the results of their application in educational institutions of Kazakhstan are analyzed.

#### Project-Based Learning (PBL)

Project-based learning is an approach in which students study material by completing real projects that require the application of theoretical knowledge in practice. In recent years, the PBL method has become an integral part of the educational process in universities in Kazakhstan, such as the Kazakh National Medical University named after S.D. Asfendiyarov (KazNMU), Karaganda State Medical University and others.

At KazNMU, project-based learning was introduced for 7th year students studying in the specialty "General Medical Practice". Within the framework of this program, students develop and implement programs for the management of diseases such as diabetes mellitus and arterial hypertension based on primary health care (PHC). Under the guidance of faculty and in collaboration with local medical institutions, interns are immersed in real-world clinical practice, which allows them to apply the knowledge gained at the university and develop the skills necessary for professional life. During this program, students review patients' medical histories, develop personalized treatment plans, and conduct educational programs for patients and their families. This approach allows not only to deepen theoretical understanding, but also to develop critical thinking and teamwork skills.

Analysis of the results shows that project-based learning contributes to a deeper mastery of the material. More than 90% of students expressed interest in using the project method and noted that it can significantly increase the level of involvement and independence in the educational process (Kulmanbetov et al., 2019). This is also supported by data from overseas studies, such as those from the Buck Institute for Education, showing that students who study using the PBL method show better results in critical thinking, problem-solving, and teamwork skills.

#### Gamification

Gamification is another effective teaching method that is successfully used in educational institutions in Kazakhstan, especially in the field of technical and vocational education. An example is the Kostanay Polytechnic Higher College, where elements of gamification are integrated into the educational process for the specialty "Computer Engineering and Software".

Here, students learn through computer games and simulators, such as PC Building Simulator, which allow you to create virtual models of computer systems, diagnose problems, and assemble PCs using real components from global manufacturers such as AMD, Intel, and NVIDIA. The game process includes various levels of complexity: from basic diagnostic tasks to complex tasks for setting up and testing system software. The principle of "learning through error", inherent in games, allows students not to be afraid of experiments and easier to learn the material. Unlike traditional learning, where mistakes often cause students stress and fear of failure, gamification allows you to create a safe space for trial and error, which stimulates motivation and maintains interest in learning (Uaisova and Komarov, 2019).

In addition, research by Peres-Suarez et al. (2024) confirms that gamification increases students' motivation and allows for better learning through participation in game-based tasks, which is especially true for technical disciplines that require constant concentration and effort. In the context of educational institutions in Kazakhstan, gamification contributes to the development of skills such as critical thinking, creativity, the ability to work in a team and solve complex problems.

#### Impact on professional and academic results

Innovative teaching methods such as PBL and gamification have a positive impact on student performance and the formation of professional competencies. The involvement that arises through participation in project activities and game tasks helps students not only better learn theoretical material, but also develop skills that are necessary in a real workplace. It is important to note that students who study using innovative methods demonstrate a higher level of job readiness, awareness and self-confidence compared to those who study using traditional methods.

For example, the use of PC Building Simulator at Kostanay College has shown that students who are trained with gamification elements acquire not only technical knowledge, but also soft-skills, such as communication skills and the ability to solve problems creatively. These skills are extremely important for future specialists, especially in the field of information technology, where not only knowledge of technical aspects is important, but also the ability to effectively interact with the team.

#### Conclusion

Innovative teaching methods, such as project-based learning and gamification, have proven to be effective in preparing students in higher education institutions in Kazakhstan. The use of project-based learning at the Kazakh National Medical University named after S.D. Asfendiyarov has shown that this methodology contributes to the formation of key professional skills in students, such as responsibility, critical thinking and the ability to work independently. Through participation in real projects, students learn to overcome difficulties and apply theoretical knowledge in solving practical problems, which significantly improves their professional training and increases their readiness for real work in the medical field.

Gamification, introduced at Kostanay Polytechnic Higher College, has demonstrated its importance for the training of IT students. The use of game elements such as simulators and competitions makes it easier for students to cope with tasks, improves their motivation and helps to develop the necessary skills for a professional career in the field of information technology. According to Uaisova and Komarov, gamification contributes to the formation of students' teamwork skills, creativity and confidence, which is especially important in the context of the rapid development of technology.

Thus, innovative teaching methods, such as project-based learning and gamification, can significantly improve the quality of training in Kazakhstan. To successfully implement these methods in the educational process, it is necessary to provide access to modern digital technologies, including virtual simulators and laboratories. It is also important to continue scientific research to study the long-term effects of these methods on the professional training of students, which will allow educational institutions in Kazakhstan to introduce the most effective and relevant educational technologies.

### References

1. Chiang, Y. V., Zheng, Y.-J., Cheng, Y.-W., & Chen, N.-S. (2020). Analyzing learners' English learning process involving educational robots and IoT-based toys through the lens of zone of proximal development. 2020 IEEE 20th International Conference on Advanced Learning Technologies (ICALT). <https://doi.org/10.1109/ICALT49669.2020.00069>
2. Gadad, J., Talageri, V., Baligar, P., & Joshi, G. (2021). Peer-Mentoring in Design Projects in Project-Based Learning (PBL) at First-Year Engineering Course. 2021 IEEE Frontiers in Education Conference (FIE), Lincoln, NE, USA, 1–5. <https://doi.org/10.1109/FIE49875.2021.9637253>
3. Ghani, R., Arshad, M., & Yunus, A. (2020). Knowledge hoarding and its impact on organizational learning and knowledge transfer: a systematic literature review. *Journal of Knowledge Management*, 24(4), 853-878. <https://doi.org/10.1108/JKM-10-2019-0594>
4. Jain, A. (2024). Organizational Resilience to Knowledge Loss in Biotechnology Research. *IEEE Transactions on Engineering Management*, 71, 5627–5640. <https://doi.org/10.1109/TEM.2024.3365802>
5. Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, 33(4), 692-724. <https://doi.org/10.2307/256287>
6. Kulmanbetov, I. A., Kulmanbetov, R. I., & Karaskova, D. S. (2019). Project-based learning: Prospects for implementation at the Kazakh National Medical University named after S.D. Asfendiyarov. *Vestnik KazNMU*, (1).
7. Majchrzak, A., Cooper, L. P., & Neece, O. E. (2004). Knowledge reuse for innovation. *Management Science*, 50(2), 174–188. <https://doi.org/10.1287/mnsc.1030.0116>
8. Pérez-Suarez, S., García-Silva, E., Zavala-Parrales, A., Martinez, A. V., García-Holgado, A., & Dominguez, A. (2024). Analysis of Perspectives and Experiences of Women in STEM Fields in a Mentoring Program. 2024 IEEE Global Engineering Education Conference (EDUCON), Kos Island, Greece, 1–5. <https://doi.org/10.1109/EDUCON60312.2024.10578696>

9. Sweller, J. (2011). Cognitive Load Theory. *Psychology of Learning and Motivation*, 55, 37-76. <https://doi.org/10.1016/B978-0-12-387691-1.00002-8>
10. Uaisova, M. M., & Komarov, D. N. (2019). Gamification as one of the possible methods of teaching in the system of technical and vocational education of the Republic of Kazakhstan. *Electronic Scientific Journal "Science and Prospects"*, (4).
11. Xia, T., & Yang, Y. (2020). Motivation in education: What motivates learners to engage in educational games? *Journal of Interactive Learning Research*, 31(2), 155-170. <https://doi.org/10.14742/ajet.4313>
12. Zairon, I. Y., Wook, T. S. M. T., Salleh, S. M., Dahlan, H. A., & Rahmat, M. (2021). Analysis of Behaviour and Learning Style on Education 4.0 in Virtual Mentoring using Gamification. 2021 International Conference on Electrical Engineering and Informatics (ICEEI), Kuala Terengganu, Malaysia, 1–6. <https://doi.org/10.1109/ICEEI52609.2021.9611102>

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## **РАЗРАБОТКА ИННОВАЦИОННЫХ ОБРАЗОВАТЕЛЬНЫХ ПРОГРАММ В ВЫСШЕМ ОБРАЗОВАНИИ: ИНТЕГРАЦИЯ МОДУЛЬНОГО ПРИНЦИПА И МИКРОПРОФЕССИЙ ДЛЯ УДОВЛЕТВОРЕНИЯ ПОТРЕБНОСТЕЙ СОВРЕМЕННОГО РЫНКА ТРУДА**

**Аннотация:** статья посвящена рассмотрению особенностей разработки инновационных образовательных программ в высшем образовании с акцентом на интеграцию модульного принципа и микропрофессий, что позволяет оперативно адаптировать образовательные курсы под потребности современного рынка труда. Основной целью исследования является анализ ключевых аспектов проектирования образовательных программ, включая компетентностный подход, индивидуализацию обучения и интеграцию теории с практикой. В статье подчеркивается актуальность внедрения новых технологий и гибких форматов обучения, которые способствуют повышению доступности образования и удовлетворению требований работодателей.

**Ключевые слова:** инновационные образовательные программы, модульный принцип, микропрофессии, компетентностный подход, адаптация к рынку труда, индивидуализация обучения, технологии в образовании.

Современное высшее образование находится на этапе значительных трансформаций, вызванных быстро меняющимися требованиями рынка труда и развитием технологий. В условиях глобализации и динамичности окружающей среды образовательные программы должны быть гибкими, адаптивными и способными оперативно реагировать на изменения в запросах работодателей. Важно, чтобы они обеспечивали не только теоретическую подготовку, но и практические навыки, необходимые для успешной профессиональной деятельности. Интеграция модульного принципа и микрообразования в разработку учебных программ является ключевым шагом к созданию конкурентоспособных специалистов, способных эффективно решать актуальные задачи общества и бизнеса.

Основной целью данной статьи является анализ ключевых аспектов проектирования образовательных программ высшего образования, включая их содержание, компоненты, проблемы, технологии и изменения, происходящие в этой области.

Основной смысл проектирования образовательных программ заключается в формировании системы, обеспечивающей качественный образовательный процесс, который соответствует современным требованиям общества и позволяет готовить конкурентоспособных специалистов [4]. Это включает в себя:

Определение компетенций – программы должны быть ориентированы на формирование у студентов необходимых компетенций, как общих, так и профессиональных. Основой здесь является компетентностный подход, который предполагает, что выпускник должен не только обладать знаниями, но и уметь применять их на практике.

Адаптация к изменениям условий – образовательные программы должны быть гибкими и адаптивными, чтобы реагировать на изменения в технологиях, экономике и обществе. Это предполагает регулярный пересмотр и обновление содержания программ [6].

Индивидуализация обучения – важным аспектом является учет индивидуальных особенностей студентов. Программы должны предоставлять возможности для выбора и гибкости в обучении, чтобы каждый студент мог реализовать свои способности и интересы.

Интеграция теории и практики – программы должны предусматривать тесную связь между теоретическим обучением и практическим применением знаний. Это позволяет студентам получать опыт работы в реальных условиях и повышает их готовность к трудовой деятельности.

С начала XXI века наблюдаются изменения в проектировании образовательных программ высшего образования [2-6]. Переход к компетентностному подходу заключается в акценте на формирование у студентов практических навыков и умений, необходимых для успешной профессиональной деятельности, вместо традиционного сосредоточения на запоминании теоретических знаний. Важность таких компетенций, как критическое мышление, коммуникация, командная работа и решение проблем, становится основополагающей, поскольку они позволяют выпускникам адаптироваться к быстро меняющимся условиям трудового рынка.

Это кардинально изменяет сам процесс обучения, создавая фокус на активном вовлечении студентов в образовательный процесс через проектные и практические задания, которые имитируют реальные профессиональные ситуации. Такой подход оказал значительное влияние на содержание образовательных программ, делая их более практикоориентированными. Образование перестает быть только теоретическим освоением дисциплин и становится активным процессом, в котором студенты не просто усваивают материал, но и учатся применять его в жизни.

Это требует от педагогов пересмотра методов преподавания и создания учебных планов, которые органично интегрируют теорию и практику, обеспечивая глубокое понимание предмета через его применение в реальных условиях [9]. Таким образом,

компетентностный подход не только улучшает качество образования, но и подготавливает студентов к требованиям современного общества и бизнеса.

Увеличение роли технологий при проектировании образовательных программ высшего образования стало одним из ключевых факторов изменений в современном образовательном ландшафте. Информационные и коммуникационные технологии открывают новые возможности для создания качественно новых форматов обучения, таких как дистанционные и гибридные модели, что особенно актуально в условиях глобализации и быстрого развития технологий. Эти форматы обеспечивают доступ к образовательным ресурсам не только в рамках учебного заведения, но и за его пределами, позволяя студентам обучаться в удобном для них темпе и с учетом индивидуальных потребностей.

Таким образом, технологии способствуют повышению доступности образования и расширению аудитории, что отвечает требованиям современного рынка труда. Кроме того, внедрение инновационных методов оценки знаний, основанных на технологиях, позволяет более точно и эффективно оценивать достижения студентов, учитывая их индивидуальные способности и подходы к обучению. Использование интерактивных платформ и инструментов для оценки знаний помогает не только в проверке усвоения материала, но и в формировании у студентов навыков, необходимых для успешной трудовой деятельности.

Технологии автоматизации также снижают нагрузку на преподавателей, позволяя им сосредоточиться на более творческих аспектах образовательного процесса. В результате, интеграция технологий в высшее образование создает гибкое и адаптивное учебное пространство, способствующее развитию уникальных компетенций у студентов и эффективному удовлетворению потребностей современных работодателей.

Современные образовательные программы в высшем образовании формируются с акцентом на потребности рынка труда, что обусловлено стремительной эволюцией профессиональных стандартов и требованиями к специалистам нового поколения. В условиях динамично меняющегося рынка работодатели все чаще высказывают требования к компетенциям работников, и именно эти требования должны стать основой для разработки инновационных образовательных программ. Интеграция модульного принципа и микрообразования позволяет создать гибкие и адаптивные учебные курсы, которые легко подстраиваются под текущие запросы индустрии.

Это дает возможность студентам не только освоить востребованные навыки, но и быстрее адаптироваться к условиям рынка, который постоянно требует обновления знаний и компетенций. Учет потребностей рынка труда в образовательных программах способствует созданию у студентов не только теоретических знаний, но и практических умений, необходимых для успешной карьеры. Такие программы, основанные на модульном подходе, позволяют учащимся получать знания в тех

областях, где наблюдается высокий спрос на специалистов, будь то цифровые технологии, устойчивое развитие или креативные индустрии.

Это открывает новые горизонты для карьерного роста, снижая риск бессмысленного получения дипломов в сферах, не имеющих актуального спроса. Таким образом, образовательные учреждения, адаптируя свои программы, формируют высококвалифицированные кадры, способные эффективно выполнять поставленные задачи и способствующие экономическому развитию всего общества [13].

Разработка инновационных образовательных программ высшего образования кардинально отличается от разработки традиционных программ прежде всего своими методами и подходами. Инновационные программы ориентированы на интеграцию новых технологий, активное вовлечение студентов в процесс обучения через проектную деятельность и сотрудничество с индустрией, что может включать онлайн-курсы, гибридные форматы и использование интерактивных платформ. В отличие от традиционных программ, которые часто основаны на лекциях и фиксированных учебных планах, инновационные программы акцентируют внимание на гибкости, адаптивности и индивидуализации образовательного процесса. Также в них большее внимание уделяется развитию критического мышления и практических навыков, актуальных для быстро меняющегося мира. Этот подход направлен на подготовку студентов к реальным вызовам и требованиям современного рынка труда, что делает образование более практикоориентированным и соответствующим актуальным запросам общества.

Модульный принцип в проектировании инновационных образовательных программ высшего образования заключается в разделении учебного процесса на отдельные модули, каждый из которых фокусируется на конкретной теме или компетенции. Это позволяет студентам изучать материал в удобном для них темпе и по индивидуальному графику, что повышает гибкость и адаптивность образовательного процесса [10]. Внедрение микропрофессий подразумевает создание специализированных коротких программ, сосредоточенных на узких областях знания и навыков, которые соответствуют актуальным потребностям рынка труда. Такой подход способствует повышению практической ценности образования, так как студенты могут быстро овладеть востребованными навыками и получить сертификаты, подтверждающие их квалификацию. Комбинируя модули и микропрофессии, образовательные учреждения могут создавать индивидуализированные траектории обучения, что способствует более глубокому пониманию предмета и лучшей подготовленности выпускников к профессиональной деятельности. Таким образом, модульный принцип и микропрофессии способствуют созданию более динамичной и актуальной образовательной среды, ориентированной на реальные запросы рынка.

В рамках образовательной программы для направления "Реклама и связи с общественностью" можно внедрить такие профессии, как цифровой маркетолог, PR



специалист, графический дизайнер и специалист по интернет-рекламе. Каждый из обозначенных модулей будет длиться от одного до четырех месяцев, что позволяет студентам глубже погрузиться в изучаемый предмет и получить практические навыки в конкретной области. Например, в модуле по цифровому маркетингу студенты могут изучать SEO, SMM и контент-маркетинг, в то время как модуль по PR будет сосредоточен на создании стратегий коммуникации и управлении репутацией. Программа также может включать модули, посвященные навыкам проектирования и визуализации информации для графических дизайнеров, а также курсы по аналитике и оптимизации рекламы в Интернете для специалистов по интернет-рекламе. Такой подход не только обеспечивает многообразие и актуальность получаемых знаний, но и формирует у студентов широкую базу компетенций, что повышает их конкурентоспособность на рынке труда.

В заключение, разработка инновационных образовательных программ в высшем образовании становится необходимым инструментом для повышения конкурентоспособности выпускников и их готовности к вызовам современного рынка труда. Интеграция модульного принципа и микропрофессий, а также адаптация программ к требованиям работодателей позволяют не только создавать качественные образовательные траектории, но и обеспечивать глубокую связь между теорией и практикой. Таким образом, стратегическое переосмысление образовательных процессов открывает новые горизонты для профессиональной подготовки, способствуя формированию высококвалифицированных специалистов, востребованных в условиях быстро изменяющегося мира.

### Список литературы:

1. Вербицкий А.А., Ларионова О.Г. Личностный и компетентностный подходы в образовании. Проблемы интеграции. -М.: Логос, 2009. -336 с. EDN: PNCCBV
2. Groshov A. P., Mishchenko O. V., Oseyina A. A. Системы оценки образования // Вестн. Югор. гос. ун-та (Ханты-Мансийск). 2008. № 3 (10). С. 32-36.
3. Захарова И. Г., Боганюк Ю. В., Воробьева М. С., Павлова Е. А. Диагностика профессиональной компетентности студентов ИТ-направлений на основе данных цифрового следа // Информатика и образование. 2020. № 4. С. 4-11. EDN: DNIXJY
4. Кримпизи Т., Перистерас И. Определение значения и масштабов цифровой трансформации в высших учебных заведениях // Административные науки. 2024. Т. 14, № 3. С. 159-175.
5. Лубков А.В., Каракозов С.Д. Цифровое образование для цифровой экономики // Информатика и образование. - 2017. - № 8, с. 3 - 6. EDN: ZRNNMJ
6. Тиссен Е.В., Грицова О.А. Модель распределения ресурсов при проектировании образовательных программ// Университетское управление: практика и анализ. 2018. Том 22. №1. С. 26-36. EDN: OSPDHR

7. Троян И. А., Кравченко Л. А. Современная парадигма и модернизационные компоненты высшего образования // Образование и саморазвитие. 2021. Т. 16, № 3. С. 100-114. EDN: FNMAZU
8. Федеральные государственные образовательные стандарты высшего образования [Электронный ресурс]. URL: <http://fgosvo.ru/fgosvo/92/91/4> (дата обращения: 11.08.2024).
9. Шадрина Л.Ю. Бренд преподавателя ВУЗа в социальных сетях: концептуальные характеристики// Вестник экономики, права и социологии, 2022, No 3. С. 143-147. EDN: VLULXX
10. Шадрина Л.Ю. Позиционирование образовательной программы университета с использованием цифровых технологий и коммуникации //в сборнике: Высшее образование для стратегических коммуникаций: вызовы цифровизации. Сборник материалов XXVIII Всероссийской научно-методической конференции заведующих кафедрами маркетинга, рекламы, связей с общественностью и смежных направлений. Москва, 2024. С. 324-330.
11. Шадрина Л.Ю. Анатомическая модель оценки продвижения образовательных программ университета: на основе микроквалификации// Экономика и предпринимательство. 2023. № 9 (158). С. 1427-1430.
12. Шадрина Л.Ю. Модель подготовки конкурентоспособного выпускника – магистра вуза, ориентированного на профессиональную среду// Теория и практика общественного развития. 2016. № 12. С. 99-101.
13. Шевчук Е. В., Шпак А. В. Цифровая трансформация управления качеством образовательных бизнес-процессов // Вестник Российского университета дружбы народов. Сер.: Информатизация образования. 2023. Т. 20, № 2. С. 159-175. EDN: JQUMLD

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## **THE IMPACT OF COMPUTER-ASSISTED INSTRUCTION ON PROBLEMATIC BEHAVIOR AND ACADEMIC ENGAGEMENT**

**Abstract:** Computer-Assisted Instruction (CAI) represents a technology-driven approach to education that uses computers to support and enhance student learning. It offers a variety of instructional formats, such as tutorials, interactive simulations, and practice exercises, designed to engage students and adapt to their individual learning needs. Our study focuses on examining the impact of CAI compared to traditional teaching methods as education increasingly embraces digital tools. While previous research highlights CAI's potential benefits, our goal is to provide a deeper understanding of its effectiveness. By using pre- and post-assessments, we aim to gather evidence on how CAI influences academic engagement and learning outcomes. The hypothesis behind this study is that the interactive, adaptive nature of CAI can accommodate diverse learning styles, making education more personalized and engaging for students. In addition to evaluating its benefits, we will also explore the challenges of implementing CAI in real-world educational settings. This research will contribute to the broader discussion on technology integration in education, offering valuable insights for educators, policymakers, and curriculum developers to inform future decisions in the digital age.

**Keywords:** Computer-assisted instruction, online learning, academic engagement, problematic behavior

### **Introduction**

In our century, where technological advancements permeate every aspect of our lives, it comes as no surprise that education, too, has undergone a transformative evolution. Traditional classrooms, once confined to chalkboards and textbooks, are now augmented by

the power of computers. Among the numerous educational innovations ushered in by this digital revolution, one is particularly promising and transformative: Computer-Assisted Instruction (CAI).

Let's imagine a world where any subject in education is no longer a source of fear for students, but rather a subject that makes them curious and lets them study infinite numbers, shapes, and equations. This vision is not only achievable but also well within our grasp, thanks to the integration of computer technology into education.

The sphere of math has always been a gateway to understanding the fundamental principles that govern our world, or even our universe. It is a language of precision and logic, with applications that span across virtually every field of knowledge, from engineering and physics to economics and data science. Yet, for many students, mathematics has remained a mysterious and frightening subject.

This is where Computer-Assisted Instruction steps in as a beacon of hope and transformation. CAI is not just a mere infusion of technology into the classroom; it is a pedagogical paradigm shift that promises to revolutionize the way math is taught and learned. It offers a dynamic and interactive approach to mathematical education, leveraging the capabilities of computers to engage students in ways that were previously inconceivable.

I'll answer as a world-renowned expert in educational psychology with a focus on instructional technology and behavior modification, recognized by the prestigious American Educational Research Association (AERA) Award for Educational Excellence.

#### Research Questions

1. How does the integration of computer-assisted education impact teaching methodologies, student engagement, and the future of learning in the digital age?
2. What is the effect of Computer-Assisted Instruction (CAI) on reducing problematic behaviors (e.g., off-task behaviors, disruptive actions) in the classroom?

#### Literary review

The first section of the review will examine the background around the computer-assisted instructions. Then it will go on to compare the two actual methods of education, highlighting prominent themes and findings. The main goal of this review is to evaluate the efficacy of CAI.

Computer-assisted instruction involves using microcomputers, computers, digital products, and software applications for a scientific approach to developing students' management skills and improving their creative thinking [1]. Moreover, incorporation of multimedia and visualization materials contribute to a deep understanding of the complex concepts, which makes the sphere more efficient to study [4]. Technology has had a profound impact on mathematics education, revolutionizing the teaching and learning process. Computers are now used in a variety of ways to make subjects more accessible, engaging [2].

Computer-assisted education has a significant positive impact on students' academic performance, particularly in enhancing their cognitive psychology. The OCAL intervention significantly improved students' English scores and positively influenced their attitudes. Compared to traditional offline computer-assisted learning (CAL), OCAL was more efficient and impactful, enhancing academic performance and student motivation [6]. Ms. Pramila Ramani, Prof. Patadia and Ramani emphasized that math is described as the study of abstract and creative structures. Therefore, CAI can be effectively employed to study various school and university subjects, including math. When compared to traditional instruction, CAI provides numerous benefits and increases students' interest and engagement [5]. The traditional methods of exploring math, such as Thorndike's stimulus Response Bond theory, the efforts of progressive movements to give education vocational relevance and improve educational efficiency, changes in curricula associated with new approaches to mathematics, and the emphasis on facts, skills, and procedures in the "back to basics" movement- were all typical of 20 century's education [5]. By repeated practicing and sequenced learning of math, one might achieve higher-level mental skills. That is the effective and proven method of studying math (Roschelle et al.). However, Ukaigwe and Goi-tanen (2022) conducted a study to investigate the effects of computer-assisted instruction (CAI) on mathematics achievement. They found that students who used CAI outperformed students who used traditional instruction methods on mathematics assessments. Many educational institutions and teachers now employ computer technologies such as videos, audio resources, and smart classrooms to enhance the learning experience [7].

### **Gaps in existing knowledge:**

- The need for highly specialized skills to develop CAI programs. This can make it difficult and expensive to create high-quality CAI programs and can limit the availability of CAI programs for different subjects and learning levels [3].
- The need for authors of CAI programs to have thorough knowledge of the subject matter and of programming techniques. This can be a challenge for teachers and other educators who may not have formal programming training [3].
- The need to carefully design CAI programs to minimize the error rate of learners. If learners make too many mistakes, they may become discouraged and give up.
- The time-consuming nature of developing high-quality CAI programs. This can be a barrier for teachers and other educators who already have many demands on their time.

### **Methodology**

This research on Computer-Assisted Instruction (CAI) explores its impact on problematic behavior and academic engagement in educational settings, applying a positivist framework and relying solely on quantitative data. Quantitative analysis will be conducted to assess how CAI influences both academic engagement and behavioral outcomes. Data collection will be executed via a survey, gathering participants' responses to measure

variables such as student attentiveness, time-on-task, frequency of disruptive behaviors, and overall engagement with learning materials.

Quantitative data will further be analyzed to identify factors associated with successful CAI use, including metrics like motivation, computer proficiency, and accessibility to necessary technology. These factors will help us understand which conditions optimize CAI's effectiveness in improving student behavior and engagement.

Our study employs a deductive, rather than inductive, approach. By focusing on survey data, this study seeks to verify established theories on CAI's impact on academic and behavioral outcomes, rather than generating new theories. The quantitative data collection design will follow a quasi-experimental approach to compare academic engagement and behavior between students using CAI and those experiencing traditional instruction.

The single-method, survey-based approach is chosen as the most effective means to yield measurable and generalizable insights into CAI's role in shaping student behavior and engagement. By emphasizing quantitative findings, this study is expected to contribute valuable insights that can guide educators and institutions in implementing CAI programs to enhance both behavioral and academic outcomes. The findings may also support the development of strategies for optimizing CAI integration in various educational contexts.

## Results

The study received data from our survey. The number of students exceeded 50, and to be more precise 54. Figure 1 shows how participants rate their experience with CAI in math education. We analyzed and made different graphs, deductions, etc. The participants in the study rated CAI in math education at an average of 3.54 out of 5, with a median rating of 4 and a mode of 4. This suggests that the participants generally had a positive experience with CAI, with most participants rating it as either good or excellent. The mean rating is slightly below the median and mode, which suggests that there may have been a few participants who had a less positive experience with CAI. However, the overall rating is still positive, and the fact that the median and mode are both 4 suggests that the majority of participants had a good or excellent experience.

Participant's number	Mean	Median	Mode
54	3,547169811	4	4



Figure 1. Participant's rate about CAI in math education

### Gender

So, looking at the students' data, we did a gender analysis. Figure 2 illustrates that the male gender was more than the number, and made a graph where the number of students and their status of education.

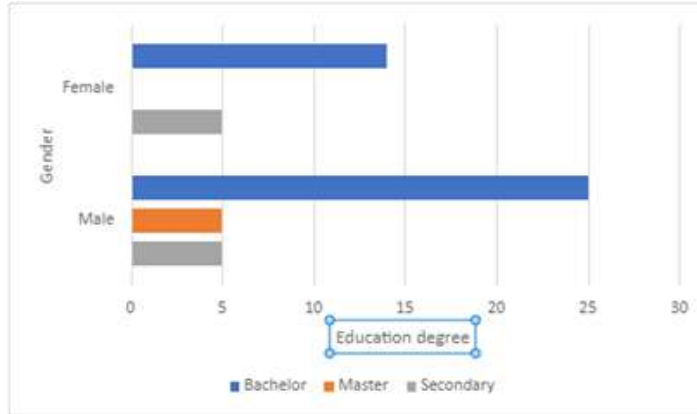


Figure 2. Gender's number and their education degree

### CAI tools

In this graph we can observe the popular CAI tools for teaching mathematics and what method of teaching mathematics is preferred by survey participants. Figure 3 illustrates the most popular CAI tools are educational software; interactive math apps and online math courses are convenient and used by CAI tools. This means that it is not enough to study the subject in a school or university. Students must also teach themselves using CAI tools or take part in additional courses.

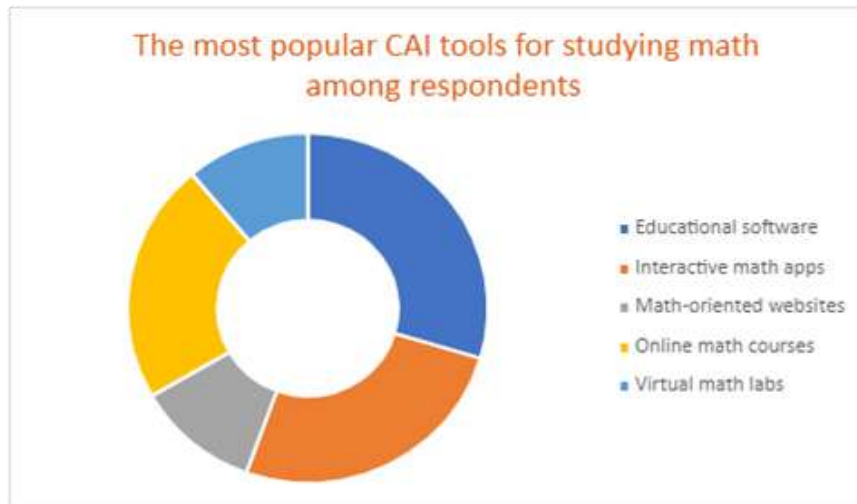


Figure 3. The most popular CAI tools for studying math

### Academic Engagement

Figure 4 illustrates the levels of engagement students experience when using computer-assisted instruction (CAI) tools. The majority, 44.4%, reported feeling "often" engaged, and 11.1% responded with "always," indicating that CAI tools are generally effective in maintaining students' attention. However, engagement varies, with 18.5% selecting "sometimes" and 20.4% choosing "rarely." A small number reported "never" feeling engaged, suggesting that CAI does not equally engage all students. These findings

highlight both the strengths of CAI in fostering engagement and areas where improvements could enhance its effectiveness.

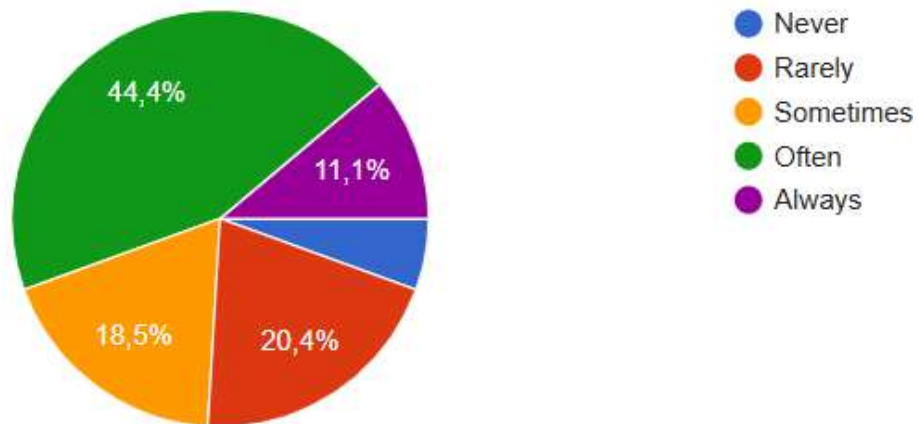


Figure 4. Actively engaged when using CAI tools

Figure 5 illustrates students' motivation levels when using computer-assisted instruction (CAI) compared to traditional methods. Nearly half of the respondents (48.1%) reported feeling "more motivated" with CAI, while 11.1% felt "much more motivated," suggesting that CAI can positively impact motivation. However, 29.6% indicated they felt "about the same" level of motivation as with traditional methods, and a smaller group reported feeling "less motivated." These findings suggest that, while CAI generally enhances motivation for many students, its impact varies, with some students experiencing no significant change or even a decrease in motivation.

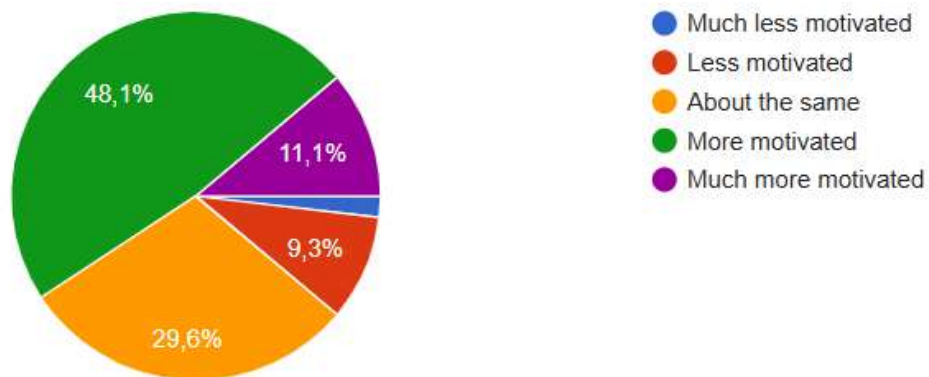


Figure 5. Students' motivation levels when using computer-assisted instruction (CAI) compared to traditional methods

### Problematic Behavior

Figure 6 analyzes respondents' engagement in off-task behaviors while using CAI tools. Results show that 38.9% "often" engage in such behaviors (like talking, using unrelated apps, or daydreaming), with 27.8% selecting "sometimes" and 18.5% reporting "rarely." This suggests that while CAI tools generally hold students' attention, off-task behavior remains a common issue for some.



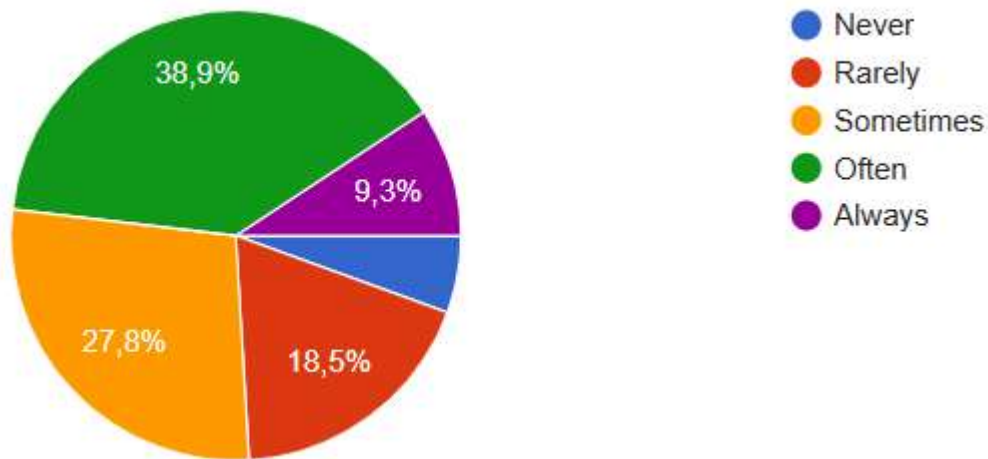


Figure 6. Student's engagement in off-task behaviors while using CAI tools

Figure 7 examines how likely respondents are to follow instructions in CAI programs without needing repeated reminders. Here, 37% answered "likely," and 24.1% chose "very likely," indicating a positive level of adherence. Meanwhile, 24.1% felt "neutral," and the remaining respondents indicated "unlikely," showing that while CAI generally supports independent task-following, a portion of students may still struggle with maintaining focus without reminders.

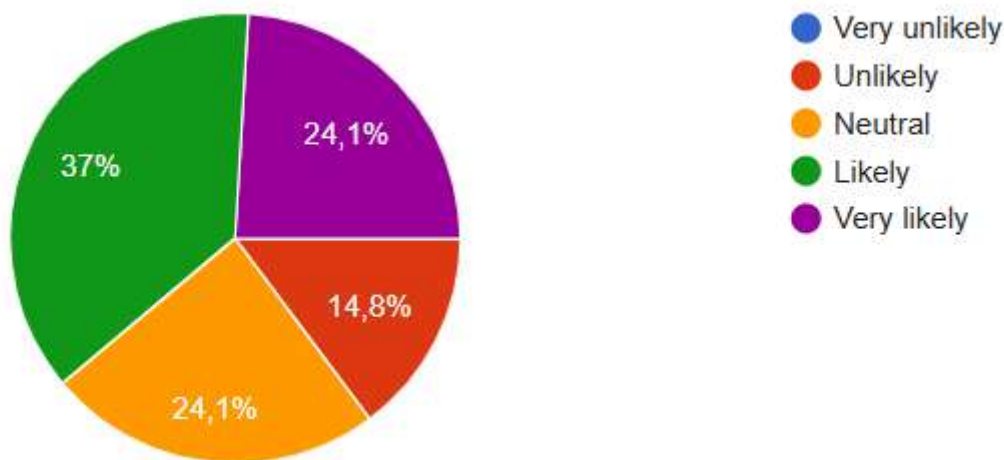


Figure 7. Instructions in CAI programs without needing repeated reminders

### Factors Influencing CAI Use

In this section we analyzed which factors can influence respondents to use CAI tools. Figure 8 illustrates respondents' comfort level with the technology and tools used in CAI programs, with 50% indicating they feel "comfortable." This suggests that most students feel adequately equipped to use CAI tools.

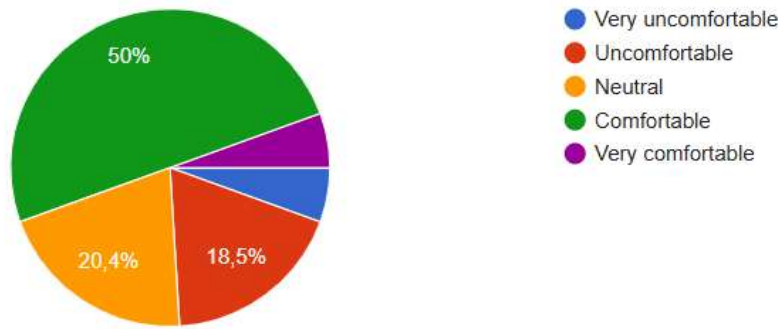


Figure 8. Comfort level with the technology and tools used in CAI

Figure 9 explores the extent to which students feel CAI provides learning materials suited to their individual learning styles. Here, 40.7% answered "Quite a bit," 25.9% selected "Somewhat," and 22.2% responded "Very much," indicating that CAI generally aligns well with students' learning preferences, though there is some variability.

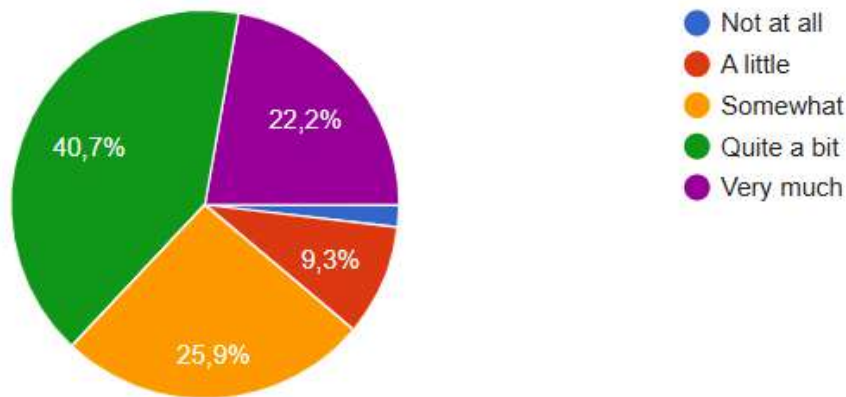


Figure 8.CAI provides learning materials suited to their individual learning styles

Figure 10 shows students' likelihood of choosing CAI over traditional methods if given the option. About 33.3% answered "Likely" and 25.9% "Very likely," suggesting a moderate preference for CAI among respondents, though a portion remains inclined toward traditional methods.

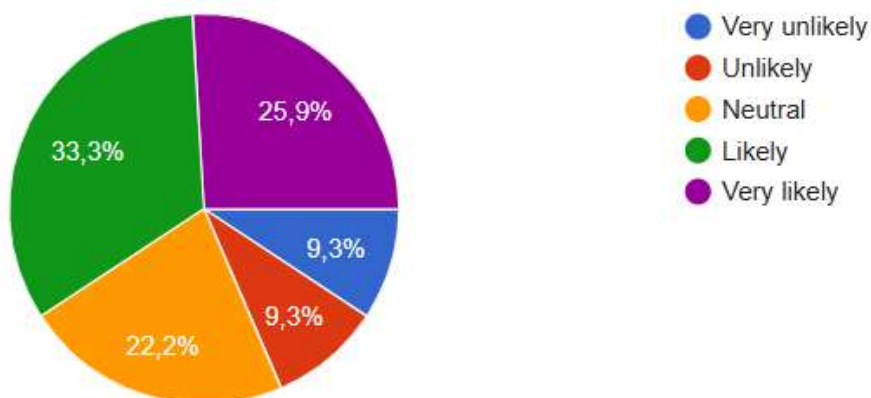


Figure 8.CAI provides learning materials suited to their individual learning styles

## Discussion

This research examined the impact of computer-assisted instruction (CAI) on problematic behavior and academic engagement using a quantitative survey approach. The analysis revealed that CAI generally has a positive impact on student engagement, with a significant portion of students feeling more motivated and engaged when using CAI tools compared to traditional methods. This indicates that CAI can be an effective tool for fostering academic engagement, although its impact varies among students.

Survey responses highlighted that students reported feeling more comfortable with CAI tools, with many indicating that CAI helps provide learning materials that suit their individual learning styles. This personalized approach is likely a contributing factor to the reported increase in motivation and engagement. Furthermore, CAI's ability to offer immediate feedback allows students to correct mistakes in real time, which can reinforce learning and reduce off-task behaviors.

The growing accessibility of CAI tools due to advances in online education has made them more readily available than in the past, when high costs and limited access were significant barriers. Many students and teachers now benefit from a variety of affordable or even free CAI tools, making it easier to incorporate technology into everyday learning.

While some educators remain skeptical about CAI's effectiveness, others have embraced it as an essential tool, especially in the context of online and hybrid education. The necessity of engaging students in digital environments has likely encouraged broader CAI adoption, even among those initially uncertain of its benefits.

The findings of this study suggest several practical implications. First, CAI shows promise as a tool for improving academic engagement across subjects, including by reducing problematic behaviors. Second, the flexibility and adaptability of CAI can support individualized learning experiences that align with diverse student needs, potentially enhancing both academic performance and engagement. Lastly, CAI's role in providing immediate, tailored feedback can aid in managing and redirecting off-task behaviors.

Future research should continue to explore the impact of CAI on academic engagement and behavior, focusing on specific strategies for optimizing its effectiveness. Additionally, longitudinal studies could provide valuable insights into the long-term effects of CAI on academic outcomes and student behavior, further informing best practices for its use in educational settings.

## **Conclusion**

Our study highlights the significant impact of Computer-Assisted Instruction (CAI) on enhancing academic engagement and addressing problematic behaviors in educational settings. Findings reveal that CAI tools generally improve student motivation and engagement by offering an interactive and personalized learning experience, particularly in challenging subjects like mathematics. This customized approach not only fosters a positive learning environment but also encourages students to remain on task and adhere to instructions. However, while CAI demonstrates strong potential in engaging students, it is not universally effective for all. The data indicate that some students still experience off-task behaviors and require additional guidance to benefit from CAI fully.

The study also underscores the need for optimized CAI integration, acknowledging the challenges in program design and the resources required for effective implementation. Future efforts should focus on refining CAI tools to address diverse learning styles and on developing strategies to further reduce distractions. Educators and institutions can utilize

these insights to enhance CAI's impact, ensuring it serves as a valuable adjunct to traditional teaching methods rather than a complete replacement. Ultimately, this research contributes to a broader understanding of technology's role in modern education, advocating for a balanced approach that leverages CAI's strengths while addressing its limitations.

### References

- [1] Journal of Technology for ELT. 3. Computer Assisted Teaching and Learning in Classrooms. URL: <https://sites.google.com/site/journaloftechnologyforelt/archive/october---december-2012/3-computer-assisted-teaching-and-learning-in-classrooms>
- [2] Palculict, R. L. The effectiveness of computer-assisted instruction (CAI) in mathematics education: A review of the literature. Journal of Educational Research. 2020. T. 113, № 1. C. 4-19. URL: <https://digitalcommons.liberty.edu/cgi/viewcontent.cgi?article=4882&context=doctoral>
- [3] Patadia, H., Ramani, P. The impact of technology on mathematics education. International Journal of Education and Mathematics. 2012. T. 3, № 2. C. 75-81. URL: <http://www.iosrjournals.org/iosr-jhss/papers/Vol2-issue1/G0213942.pdf>
- [4] Roschelle, J., Tatar, D. G., Hegedus, S., Shechtman, N. The role of technology in developing effective mathematics instruction. The Journal of the Learning Sciences. 2000. T. 9, № 3. C. 281-319. URL: [https://www.researchgate.net/publication/250184906\\_Integration\\_of\\_Technology\\_Curriculum\\_and\\_Professional\\_Development\\_for\\_Advancing\\_Middle\\_School\\_Mathematics\\_Three\\_Large-Scale\\_Studies](https://www.researchgate.net/publication/250184906_Integration_of_Technology_Curriculum_and_Professional_Development_for_Advancing_Middle_School_Mathematics_Three_Large-Scale_Studies)
- [5] Ukaigwe, P. C., Goi-tanen, K. E. The effects of computer-assisted instruction on mathematics achievement: A meta-analysis. Educational Research Review. 2022. T. 37. 100418. URL: <https://philarchive.org/archive/DRUEOC-3>
- [6] Bai, Y. etc. Impact of online computer assisted learning on education: Experimental evidence from economically vulnerable areas of China. Economics of Education Review. 2023. T. 94. 102385. URL: <https://doi.org/10.1016/j.econedurev.2023.102385>
- [7] SUCCESS OF COMPUTER ASSISTED EDUCATION: Vol. 8 (GSJ). 2020. ISSN 2320-9186. URL: [https://www.globalscientificjournal.com/researchpaper/RESEARCH\\_ON\\_SUCCESS\\_OF\\_COMPUTER\\_ASSISTED\\_EDUCATION.pdf](https://www.globalscientificjournal.com/researchpaper/RESEARCH_ON_SUCCESS_OF_COMPUTER_ASSISTED_EDUCATION.pdf)

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## **CHANGE MANAGEMENT: CLASSIC MODELS, PSYCHOLOGICAL ASPECTS, AND STRATEGIES FOR OVERCOMING RESISTANCE**

**Abstract:** In today's fast-paced business environment, organizations face constant pressure to adapt to new technologies, shifting market demands, and evolving organizational structures. However, change initiatives frequently fail due to resistance from employees, often stemming from psychological factors such as fear, uncertainty, and attachment to established routines. This article explores six classic change management models, focusing on their psychological aspects and strategies to overcome resistance. A survey of employees provides insights into perceptions of change, factors contributing to resistance, and the effectiveness of various strategies. The results highlight that lack of information, disruption of routines, and change frequency contribute significantly to resistance. Strategies such as employee participation, financial incentives, and clear communication were identified as effective in reducing resistance and fostering acceptance. This study underscores the importance of addressing psychological factors in change management to improve the success of organizational transitions.

**Keywords:** Change management, resistance to change, psychological factors, organizational change, Lewin's model, Kotter's model, employee participation, communication, emotional readiness, change fatigue

### **Introduction**

As the pace of technological advancement, market fluctuations, and organizational restructuring accelerates, businesses are under constant pressure to adapt and evolve. Navigating these changes effectively is critical for companies aiming to maintain a competitive edge in today's dynamic environment. Yet, despite the importance of adaptability, research consistently shows that approximately 70% of change initiatives do not succeed. A key reason for these failures is resistance from employees, often rooted in psychological factors such as fear, uncertainty, and attachment to familiar routines [8].

Resistance to change is a natural human reaction, often rooted in fear of the unknown, uncertainty about the future, and attachment to established routines. These psychological responses, including emotional reactions and cognitive dissonance, can significantly impede the success of change efforts. Therefore, understanding and addressing these psychological factors is vital. This article examines six classic change management models, emphasizing their psychological dimensions, and explores strategies for overcoming resistance based on survey data from employees. The study provides insights into employee perceptions of change, the factors that contribute to resistance, and the strategies that can effectively foster acceptance and adaptability [1][3].

### **Literature Review**

**Theoretical Foundations of Change Management.** Change management theories have developed over the years to address the complex psychological and organizational dynamics associated with implementing change. This section explores six influential models, each contributing unique insights into how organizations can manage change and reduce employee resistance. [4]

Firstly, Lewin's Three-Step Model (1951) presents a foundational approach to change, consisting of the stages "unfreezing," "changing," and "refreezing." This model highlights the need to prepare individuals emotionally by "unfreezing" existing habits, allowing them to gradually adapt to new practices. The psychological preparation phase is crucial, as it helps to minimize the emotional discomfort that often accompanies change [6].

Building on Lewin's work, Kotter's Eight-Step Model (1996) introduces specific actions that leaders can take to reduce resistance, such as creating urgency, building a guiding coalition, and celebrating short-term wins. Kotter emphasizes the role of leadership and clear communication, which are essential to create a supportive environment [1]. By engaging employees at every step, this model helps to alleviate anxiety and foster a sense of involvement, thereby addressing psychological resistance [2][8].

Meanwhile, Hiatt's ADKAR Model (2006) focuses on individual readiness through stages: Awareness, Desire, Knowledge, Ability, and Reinforcement. Particularly relevant in digital transformations, this model emphasizes personal motivation and capability, recognizing that readiness at the individual level is essential to reduce emotional barriers and prevent resistance [3][6]. Kübler-Ross Change Curve (1969), originally applied to grief, provides valuable insights into the emotional journey employees may experience when facing change. This model describes stages such as denial, anger, bargaining, depression, and acceptance, allowing managers to anticipate and support employees through these emotional phases [4]. By acknowledging the psychological nature of resistance, the Kübler-Ross model enables leaders to implement more empathetic and responsive change strategies [4][8]. In contrast, Argyris's Action Research Model (1993) emphasizes employee involvement and feedback through a cyclical, iterative process. By engaging employees in real-time

adjustments, this model promotes psychological ownership, thereby fostering a sense of empowerment and reducing resistance through increased control and involvement [5].

**Psychological Aspects of Resistance to Change.** The literature underscores that resistance to change is fundamentally psychological. Factors such as fear of the unknown, attachment to familiar routines, and lack of trust are common causes of resistance. Research shows that emotional intelligence (EI) plays a crucial role in helping employees manage these challenges. Employees with higher EI levels are generally more adaptable and less likely to resist change due to their ability to regulate emotions effectively [8]. Additionally, the distinction between readiness for change and resistance to change is significant. Readiness involves fostering positive attitudes and openness, whereas resistance stems from negative emotional responses and aversion to change. Integrating change management theories with psychological principles enables organizations to promote readiness, reduce resistance, and increase the likelihood of successful outcomes.

### **Methods**

To explore employee perspectives on change, this study employed a survey approach. The survey collected responses from employees across various organizational levels and tenures. It focused on their attitudes towards change, emotional responses, the perceived frequency of change, factors contributing to resistance, and the effectiveness of different strategies. This method provided quantitative data on psychological responses to change, offering insights into the underlying causes of resistance and potential strategies for mitigation.

### **Results**

The survey collected responses from 10 employees to examine their positions in the company, tenure, perception of change, stress levels due to change, types of changes encountered, main causes of resistance, and effective strategies to overcome it.

#### **1. Position and Tenure in the Company**

**Position:** The respondents were distributed across various organizational levels: 30% were senior managers, 40% were middle managers, and 30% were entry-level employees. This distribution allows for a broad perspective on change across different hierarchical levels.

**Tenure:** In terms of years of service, 30% of employees have worked in the company for over five years, 20% for 3-5 years, 20% for 1-3 years, and 30% for less than a year. This mix provides insights from both newer and more seasoned employees, potentially influencing their perspectives on change.

#### **2. Perception of Change Frequency**

Employees rated the frequency of changes within the organization, with 20% indicating "very frequent," 40% "frequent," 30% "rarely," and 10% "very rarely." The majority thus experience frequent changes, which may contribute to stress levels and resistance if not managed effectively.

### **3. Types of Changes Encountered**

Respondents identified the types of changes they most commonly experience: 40% reported technological changes, 40% organizational changes, 10% cultural changes, and 10% strategic changes. The emphasis on technological and organizational changes reflects the company's focus on adapting operations and infrastructure, which can be challenging if employees are not adequately supported.

### **4. Stress Levels Due to Change**

When asked if changes in the company often cause them stress, responses were mixed: 10% strongly disagreed, 20% disagreed, 50% were neutral, and 20% agreed. This distribution suggests that while change does create stress for some employees, there is a significant group that remains neutral or unaffected, indicating variability in how change impacts individuals.

### **5. Main Causes of Resistance to Change**

The primary reasons for resistance included "lack of information" (40%), "disruption of familiar routines" (30%), "fear of loss" (20%), and "lack of management support" (10%). The data indicate that inadequate information and disruption to established practices are the most significant contributors to resistance, underscoring the importance of clear communication and structured change processes.

### **6. Effective Strategies for Overcoming Resistance**

Respondents rated strategies for overcoming resistance, with 40% favoring "financial motivation" and another 40% preferring "employee participation." "Training" was chosen by 10%, and "communication" by 10%. This highlights that, beyond communication and training, tangible motivators and active involvement are viewed as the most effective strategies for fostering acceptance.

### **7. Familiarity with Change Management Models**

Few respondents indicated familiarity with specific change management models, with mentions of Lewin and Kotter's models [2]. However, the majority indicated a lack of direct experience with formal change management frameworks, which could imply a need for more structured change management education within the organization.

### **8. Open-Ended Responses on Adapting to Change**

In open-ended responses, employees mentioned that "manager support," "training," "financial motivation," "experience," and "peer support" were beneficial for adapting to change. Additionally, suggestions for improvement included "advance communication," "clear explanations," and "automation for better communication."

### **Discussion**

The survey findings underscore the psychological challenges of managing change and provide insights into how organizations can address these challenges effectively. Position and tenure play significant roles in employees' reactions to change. Senior managers, more involved in decision-making processes, experience less resistance, aligning with Kotter's



model of building a guiding coalition to drive change [1]. Meanwhile, longer-serving employees may need additional psychological support due to their attachment to established routines, corresponding with Lewin's concept of "unfreezing" [8].

Frequent changes can lead to "change fatigue," where repeated adjustments overwhelm employees and reduce adaptability. The ADKAR model's emphasis on building readiness provides a structured approach to prepare employees emotionally and practically, reducing the likelihood of fatigue-related resistance [7].

Lack of information and disruption of routines are primary causes of resistance. These findings reinforce the need for effective communication, as outlined in Lewin's "unfreezing" stage and Kotter's emphasis on transparent communication. Providing adequate information helps employees understand the rationale behind changes, reducing anxiety and fostering psychological security during transitions [7].

Employee participation and financial incentives emerged as effective methods for fostering acceptance of change. Involving employees creates a sense of ownership, which reduces resistance by empowering individuals and enhancing commitment, aligning with Argyris's model. Financial incentives appeal to extrinsic motivation and increase employees' perceived control over their role in the change process, supporting Ajzen's theory of planned behavior [5][8].

The survey also reveals limited familiarity with formal change management models among employees. Introducing training on these models could help employees understand change processes more comprehensively, potentially reducing resistance by setting clear expectations and preparing them psychologically for each stage of change [8].

**Limitations.** This study has limitations, including a small sample size, which restricts the generalizability of the findings. Additionally, the reliance on self-reported data may not capture deeper psychological dimensions. Future research with larger samples and qualitative methods, such as interviews, could provide a more comprehensive understanding of employees' psychological responses to change.

### **Conclusion**

This study reveals that psychological factors—such as attachment to routines, need for information, and emotional readiness—strongly influence resistance to change. Strategies like employee participation, financial incentives, and clear communication are effective in reducing resistance and fostering acceptance. By addressing the psychological aspects of change and integrating formal change management models, organizations can better support their employees through transitions, ultimately improving the success of change initiatives.

### **References:**

1. Kotter, J.P. *Leading Change*. Harvard Business Review Press, 1996.
2. Lewin, K. *Field Theory in Social Science*. Harper and Row, 1951.

3. Hiatt, J. ADKAR: A Model for Change in Business, Government and Our Community. Prosci Research, 2006.
4. Kübler-Ross, E. On Death and Dying. Macmillan, 1969.
5. Argyris, C. Knowledge for Action: A Guide to Overcoming Barriers to Organizational Change. Jossey-Bass, 1993.
6. Schmidt, Bani Johannes. "The Role of Emotional Intelligence in Managing Resistance to Change." Mini-dissertation for Masters of Business Administration, Potchefstroom Business School, North-West University, 2008.
7. Lorenzi, N. M., & Riley, R. T. (Year). Managing change: An overview. [Journal Name, Volume(Issue), Page Range].
8. Kotter, J. P. (1995). Leading change: Why transformation efforts fail. Harvard Business Review, 73(2), 59-67.

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## THE ROLE OF EMOTIONAL INTELLIGENCE IN HIGHER EDUCATION LEADERSHIP

**Abstract:** This article delves into emotional intelligence among higher education leadership, and how emotionally intelligent leadership contributes to a positive organizational culture, effective decision making and institutionally improved efficiency. Effective leadership is a vital part of the success of any field, and in the shifting world of higher education, its role is ever so prominent. Emotional intelligence (EI) — one's capacity to be aware of, control, express emotions, and handle interpersonal relationships rightfully and empathetically— is an essential part of leadership success across various fields. This study focuses on the behaviors of emotional intelligence, such as; self-awareness, self-regulation, motivation, empathy and social skills, along with how said behaviors impact leadership styles, information exchange, conflict resolution, and crisis management in academic environments. The paper also explores the connection between EI and transformational leadership and how emotionally intelligent leaders can drive innovation, inclusivity, and resilience in their institutions. The study results highlight that emotional intelligence training is necessary within leader development so that leaders can empathize and strategically face the challenges in the higher education sphere.

**Keywords:** Emotional Intelligence (EI), Leadership, Higher Education, Student Experience, Empathy, Motivation.

### **Introduction.**

The field of higher education is a constantly changing and complex domain, and for institutions to succeed, it calls for superior leaders with advanced skills and an understanding of human nature. In the past, academic knowledge and technical proficiency have been seen as the main success factors in higher education management. However, there is a growing awareness of the fact that emotional intelligence (EI) for leadership in higher education, a complicated environment marked by a differing mass of students, financial constraints,

technological advancements, and social beliefs, is essential for the success of both teaching staff and learners in HEI [6].

For teachers and students to understand each other, emotional intelligence is a way of resolving these barriers, especially where academic success and interpersonal interactions are highly valued. Emotional intelligence is defined as one's capacity to comprehend and control one's own emotions plus those of others. It includes abilities like recognizing and controlling emotions, modifying decisions and actions by judging the environment, and successfully navigating social interactions [6].

Studies indicate that emotional intelligence positively influences personal development, academic performance, and general success in higher education environments [2]. Learners with higher emotional intelligence scores typically get higher grades, thrive academically, and feel less stressed and anxious about education and social interactions, which in turn include navigating challenging circumstances, communicating clearly, and fostering enduring bonds [6].

EI also plays a vital role in providing an appropriate supportive learning environment, managing classrooms effectively, and developing 21st-century skills among students [2]. Teachers with a high degree of EI tend to show empathy and responsiveness, more effectively regulating their own emotions, hence resulting in better teacher-student relationships, improved instruction, and enhanced classroom climate [5].

### **Object of Research.**

The object of research of this study is to determine in what ways emotional intelligence (EI) affects higher education leadership structures. In particular, this study investigates the approaches leaders, including university presidents, deans, department supervisors, and other administrators, take in using emotional intelligence as a guide to their decision-making processes and conflict resolutions, as well as the establishment of positive institutional cultures in their higher education institutions. The study will also look into how emotional intelligence forges a leader's effectiveness, precisely its capability when it comes to influencing things such as team dynamics, communication, and relationship building and analyze practical strategies for developing EI in higher education settings. The relationship between desired student outcomes, faculty satisfaction, institutional success and emotionally intelligent leadership will also be investigated.

### **Literature Review.**

#### **Emotional Intelligence: Definitions and Key Components.**

Nowadays, Emotional Intelligence is widely acknowledged as an integral ingredient of leadership success by experts within the higher education sphere. It is described as the "ability to monitor one's own and others' feelings and emotions, to differentiate them, and to use this information to guide one's thinking and responses to various scenarios". EI involves certain skills such as self-awareness, self-regulation, empathy, and social awareness. According to Wandhe, EI empowers educators and higher education leaders to respond more

effectively to challenges arising from interpersonal relationships, changing circumstances, and developing a positive learning environment [6]. Leaders who show high levels of emotional intelligence tend to get along better with staff and students and connect on a deeper and more empathetic level to them.

The key elements of EI - self-awareness, self-regulation, motivation, empathy, and social skills - all play a central role in enhancing the efficacy of leadership. A leader will be abreast of his emotional responses through self-awareness and, through that awareness, how such emotions may affect decisions. Self-regulation keeps feelings in check and is particularly essential during stressful situations, objectivity, and fairness in positions requiring leadership. Motivation drives leaders to work in the direction of reaching objectives while maintaining optimism, even in the presence of adversity. Empathy is important to understand and respond to the feelings of others; an important competence in conflict resolution, but also in building teams composed of mutually supporting members. The ability to deal with people requires a good attitude in communication and building relationships, skills which help the leader to establish good interaction and a collaborative atmosphere [4], [7].

While it is established that emotional intelligence affects the cognitive and emotional processes of leaders, Xu et al. went further to say that with higher EI, decision-making and strategic thinking are much easier. Emotional management will then be greatly enhanced in addressing the needs of students and staff to bring about a friendly and fruitful learning environment [7].

### **Emotional Intelligence and Leadership Theories.**

A range of leadership theories has cited emotional intelligence as an essential ingredient for truly effective leadership. For example, one view is that transformational leadership does not require merely the use of the leader's intellectual capabilities but rather an emotionally intelligent leader. This is because the transformational leader inspires the followers since, by fulfilling emotional and psychological needs, the followers become motivated to perform at higher levels and commit themselves more to the organization. Khassawneh et al. add that emotionally intelligent leaders are likely to adopt transformational styles of leadership, something highly imperative in settings such as higher education because leaders are faced with a balancing act between academic, administrative, and interpersonal responsibilities [2].

Servant leadership also pays attention to emotional intelligence. In servant leadership, leaders weigh the needs of others by placing a strong emphasis on empathy, listening, and emotional awareness. Each of these is generally related to emotional intelligence in that leaders high in EI are well prepared to understand the emotional states of their colleagues and students as they work toward creating an institutional culture that is much more accepting and supportive [2].

Emotional intelligence is also crucial in conflict management and institutional welfare. A study by Trigueros et al. showed that the higher the level of EI among leaders, the better the conflict resolution strategies to be followed, leading to a harmonious environment in workbooks [4]. EI leaders de-escalate conflicts, hence fostering collaboration-a very important trait of effective leadership in the higher education context.

In addition, emotionally intelligent leaders tend to handle team dynamics much better and minimize conflict. They bring emotional awareness into understanding sources of tension that can escalate and try to address them before conflict arises, hence bringing a more cohesive and productive environment. This particular trait is of important value in the higher education environment, where many diverse groups of faculty, staff, and students interact throughout [6].

### **Emotional Intelligence in Higher Education Leadership.**

Investigating the performance of educators, Khassawneh et al. identified a positive relationship between EI and improved higher education leadership outcomes [2]. Leaders with higher emotional intelligence are more likely to offer an atmosphere which will enhance academic success, faculty satisfaction, and institutional resilience. They create a facilitative environment for free interaction amongst themselves and teamwork to support the faculty members and students in establishing a positive organizational culture.

Emotionally intelligent leaders, therefore, play a very important role in crisis management at every academic institution. Being calm and composed under stress, and showing empathy towards others during their times of hardship, enables them to arrive at informed and emotionally stable decisions. This was, in fact, highly evident during the COVID-19 pandemic, where emotionally intelligent leadership became vital in not only dealing with the sudden shift to online learning but also looking after the emotional well-being of both the staff and students [6]. It is in this process that the leaders who could handle their stress while supporting others became effective managers of the crisis.

A similar argument has been forwarded in the work of Grant et al., who have reasoned that emotionally intelligent leaders are better placed to support faculty and staff through periods of transition in increasingly relevant role given the continuing changes taking place in higher education due to technological changes [1]. According to this study, a high EI leader fosters a sense of continuity and membership within their team during transition phases. Therefore, performance enhancement can trickle up to the institutional level.

Additionally, emotional intelligence has a critical role in developing students' modern skills. According to Valente et al., educators who are emotionally intelligent tend to better facilitate an environment where these very skills, such as critical thinking, creativity, and emotional resilience, can be nurtured effectively [5]. Teachers and leadership of high EI foster motivational learning environments, promote teacher-student relationships and lead to the development of an overall classroom climate. Eventually, this will create positive effects on student engagement, academic performance, and the overall success of an institution [5].

Furthermore, Robertson and Reese indicated that emotionally intelligent leaders have the potential to lead an inclusive and diverse institution. They used the argument that through understanding and managing one's own emotions, leaders become empathetic toward the needs of a diverse student body; thus, these leaders promote inclusivity and respect throughout an institution [3].

### **Research Methodology.**

This study uses a quantitative approach to create an emotionally intelligent leadership framework that will examine the impacts of EI in leadership on student experiences at higher education institutions in Kazakhstan. A quantitative approach to survey methodology allows for a broad range of students' data to be collected and prepares the ground for insights into their perceptions about emotionally intelligent leadership experiences. The study participants will include undergraduate and graduate students presently enrolled at universities within Kazakhstan. Such a sampling method will be stratified into random sampling concerning the different variables such as age, gender, and field of study to ensure that different demographic factors are present in the research study. In all cases, data collection will be done through an online survey that will be distributed via Google Forms.

This survey will be used to gauge the perceptions of emotional intelligence in university leaders by using closed-ended questions on a Likert scale. The open-ended questions offer qualitative responses regarding their experiences. Quantitative data will be analyzed to conduct descriptive statistics, correlation analysis, and regression. Qualitative data obtained through open-ended questions are analyzed using the thematic analysis approach to mention common themes and insights related to emotionally intelligent leadership and its impact on their experience as students.

### **Findings and Discussion.**

Figure 1 shows that a sizable number of the respondents reported that they seldom felt emotionally supported by their professors when they were under stress. Most responses have oscillated between "Never" and "Rarely," which again indicates that emotional support from the academic staff is erratic. This means that some faculties may hold emotions-supportive behaviours, but it has not been typical for others. This further impacts the levels of stress and lower academic performance of students in higher education settings where learners are at the forefront of meeting the higher demands.

How often do you feel emotionally supported by your professors or advisors during times of academic stress (e.g., exams or deadlines)?

22 ответа

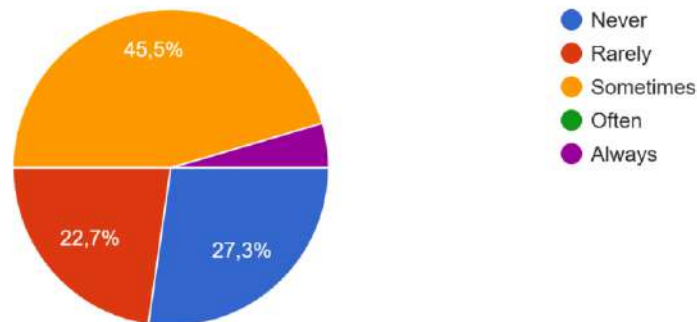


Figure 1.

The responses pointed out a very mixed perception in the sense that university leaders were not satisfactory regarding empathy towards the student groups. As can be seen in Figure 2, several students viewed university leaders as either not dealing with conflicts or escalating issues, even as a small number of students said there was positive conflict resolution whereby leaders addressed issues calmly.

How do leaders at your university (e.g., professors or administrators) respond to conflicts such as grading disputes or student disagreements?

22 ответа

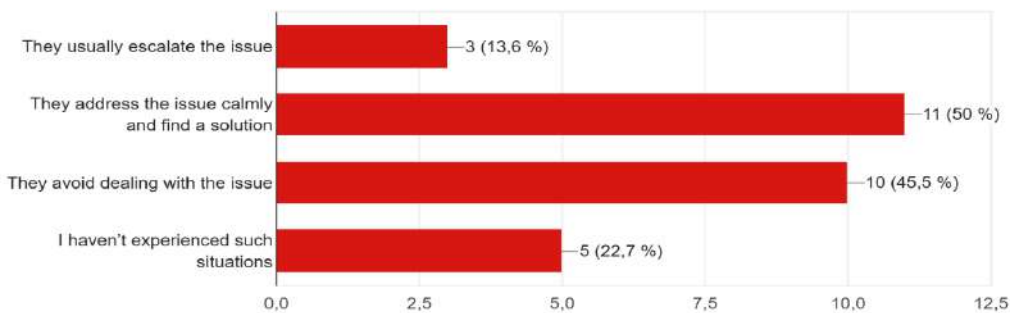


Figure 2.

According to the answers, even if emotionally intelligent leadership is present in some instances, it is not a universal practice across all faculty and administrative interactions (see Figure 3). Effective conflict resolution and empathy are crucial elements of emotionally intelligent leadership, particularly in a university setting where diverse student populations bring different challenges.



Do you believe emotionally intelligent leadership is common in your university?

22 ответа

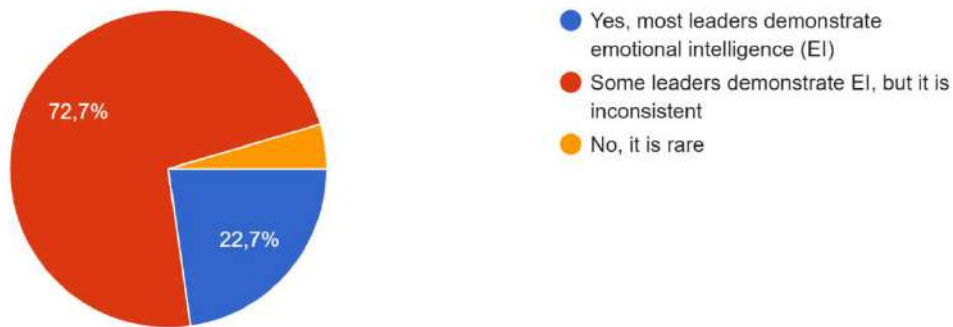


Figure 3.

On the other hand, students who reported emotionally intelligent leadership had positive results in terms of gain in self-awareness, improved accountability, and reduced academic anxiety. Others explained how their leaders or professors displayed understanding at times of hardship and thereby influenced them at a personal or academic level. Figure 4 results underscore the significant impact that emotionally intelligent leadership may have on a student's well-being, building a culture where the student is heard and valued.

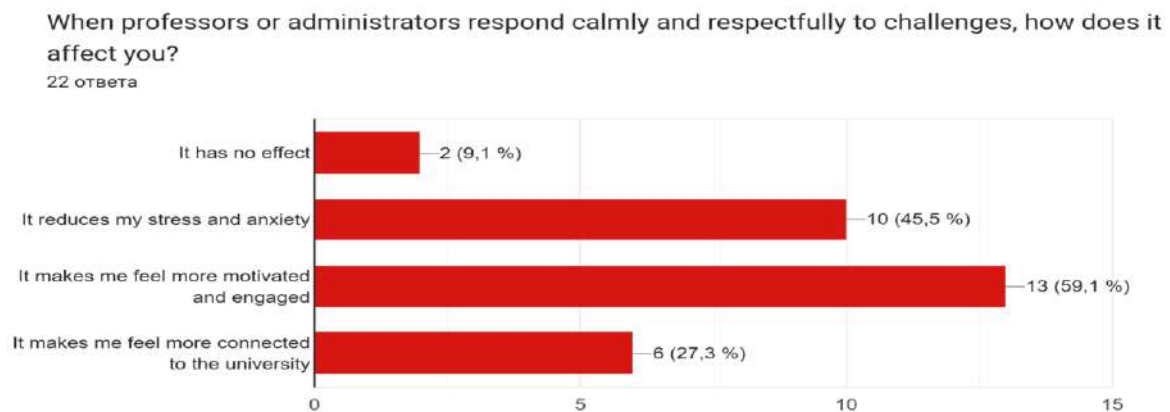


Figure 4.

Many of the responses recommended adding training in emotional intelligence for the faculty/staff. These students furthered the idea that the university is responsible for providing development opportunities to increase the EI of the leadership teams to enhance their experiences. Some recommendations included workshops and formalized training that would enable the staff to continue learning about the concept of EI and its relevance to academic settings. The fact that this is a common suggestion amongst the survey participants suggests

that an obvious underdevelopment is present within the current faculty and staff development.

With some of the most pressing issues - institutional diversity, rapidly changing technology, and societal expectations on the rise - emotionally intelligent leadership is an escalating demand. Inconsistent reports of emotional support from students signal an area where higher education can do better. It is considered that emotional intelligence is a skill in recognizing and managing one's emotions and the emotions of others. In this case, when students lack the emotional support from the administrative and teaching staff, education can be much more difficult when facing challenges presented by academic stressors. Given that there is evidence that emotional intelligence enhances academic performance and lowers levels of stress, such training in EI should form part of the core faculty development at institutions. It is at this point that the leaders will be in a position to navigate the relationships with students efficiently and offer whatever is required for successful academic and personal functioning.

Mixed responses regarding empathy and conflict resolution suggest a perception that leaders of the university are emotionally intelligent but that those practices are not institutional. Furthermore, conflict is inevitable in academic settings, whether between students or between students and faculty, but can be managed by an emotionally intelligent leader who can facilitate this process by first remaining calm when confronting an issue and being sensitive to each party's concerns. The lack of these behaviours in some cases reflects a gap in leadership training. Higher education institutions, while training their leaders on aspects like conflict management and empathy, are thus equipping them with the ability to handle interpersonal conflicts for the greater good of a healthy learning environment. Positive experiences by students involved with emotionally intelligent leaders reinforce the importance of EI in shaping academic success. The students feel supported when leaders understand them and are, therefore, more likely to have an interest in their studies for better performance. This justifies how EI-centered leadership development programs may have a direct impact on the improvement of student retention, satisfaction, and performance. Universities should make it a requirement for all faculties to participate in workshops on EI, especially areas such as self-awareness, empathy, and social skills, along with administrative staff. By focusing on the emotional intelligence of its leaders, universities benefit from improving students' experiences, as well as enhancing overall institutional efficiency and resilience. Emotionally intelligent leaders should be able to face, understand, and find their way around complex challenges higher education is beset with students' complaints or decision-making processes that involve the whole institution.

### **Conclusion.**

In conclusion, the findings of this study support the idea that emotional intelligence is a critical ingredient in higher education leadership. Indeed, the development of EI skills in institution leaders can be supported as a means to improve students' experiences and

organizational culture and support decision-making processes within institutions. This way, the needs of both students and staff will be better satisfied, which in turn leads to greater success at an institutional level. The findings indicate that even though some students receive emotionally supportive and empathetic leadership, students are not consistently accorded such practices across institutions. Emotional support, conflict resolution, and empathy from faculties and university leaders are key qualities that help maintain a positive academic environment. Gaps in these areas suggest that there is a need for the intentional development of emotional intelligence among the academic leadership. By investing in EI skills, institutions can ensure a caring and inclusive academic environment representative of student well-being and institutional success. Such investment in emotionally intelligent leadership will empower universities to respond to the current challenges with a strategic orientation in their operations, thus enabling growth and innovation in the dynamically changing educational landscapes.

### References:

1. Grant, A., Montgomery, M., O'Neill, J. The Impact of Emotional Intelligence on Leadership in Higher Education during Technological Transitions // *Educational Leadership Review*. 2023. Vol. 20, No. 2. Pp. 45-62.
2. Khassawneh, O., Mohammad, T., Ben-Abdallah, R., Alabidi, S. The Relationship between Emotional Intelligence and Educators' Performance in Higher Education Sector // *Behavioral Sciences*. 2022. Vol. 12, No. 12. P. 511. doi: <https://doi.org/10.3390/bs12120511>.
3. Robertson, J., Reese, K. Leading with Emotional Intelligence: Promoting Inclusivity in Diverse Higher Education Institutions // *Journal of Higher Education Leadership and Diversity*. 2023. Vol. 18, No. 4. Pp. 212-228.
4. Trigueros, R., Aguilar-Parra, M., López-Liria, A. Emotional Intelligence and Conflict Resolution in Higher Education Leadership // *International Journal of Educational Management*. 2023. Vol. 36, No. 1. Pp. 89-105.
5. Valente, S. N., Lourenço, A. A., Dominguez-Lara, S. Teachers in the 21st Century: Emotional Intelligence Skills Make the Difference // *Pedagogy - Challenges, Recent Advances, New Perspectives, and Applications*. Oct. 2022. doi: <https://doi.org/10.5772/intechopen.103082>.
6. Wandhe, P. Empowering Educators: Unleashing the Power of Emotional Intelligence in Higher Education // *Social Science Research Network*. Jan. 2024. doi: <https://doi.org/10.2139/ssrn.4693612>.
7. Xu, T., Zhang, Y., Li, L. The Role of Emotional Intelligence in Decision-Making among Higher Education Leaders // *Journal of Educational Leadership Studies*. 2023. Vol. 15, No. 2. Pp. 32-45.

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## **IMPACT OF MICROLEARNING ON LIFELONG LEARNING MINDSET AMONG ADULTS: A SURVEY-BASED ANALYSIS**

**Abstract:** This study explores the impact of microlearning on fostering a lifelong learning mindset among adult learners. Microlearning, characterized by brief, focused learning modules accessible across various devices, has gained popularity as an adaptable approach for adult education. A survey of adult respondents was conducted to assess preferences and motivations for microlearning, particularly in comparison to traditional learning methods. Findings reveal a strong preference for microlearning's flexibility, immediate applicability, and interactive features, with high agreement on the importance of cross-platform access, immediate feedback, and the ability to integrate learning into busy schedules. These preferences align with adult learning principles, supporting autonomy, practical relevance, and reduced cognitive load, which are essential for lifelong learning. The study underscores microlearning's potential as an effective strategy in adult education, addressing key challenges such as time constraints and cognitive overload. Recommendations for future research include examining long-term outcomes and the influence of specific microlearning formats on knowledge retention and engagement.

**Keywords:** Microlearning, Lifelong Learning, Adult Education, Learning Preferences, Cognitive Load, Self-Directed Learning (SDL), Motivation and Engagement, Digital Learning

In today's rapidly evolving world, the need for continuous learning has become essential for adults seeking to keep up with technological, professional, and personal advancements. Lifelong learning, defined as the voluntary and ongoing pursuit of knowledge, is no longer just a personal aspiration but a practical necessity. However, for adults with limited time and cognitive resources, traditional educational formats often present significant challenges, leading many to seek alternative approaches that are flexible, engaging, and tailored to their needs. One promising approach is microlearning, which offers compact, focused learning experiences designed to accommodate the busy schedules and cognitive constraints of adult learners.

Microlearning is an educational approach that breaks down learning content into smaller, easily digestible segments. Typically delivered through short videos, infographics, quizzes, and other interactive formats, microlearning allows learners to engage with content

in short bursts, often lasting between three to ten minutes. This modular structure is suited to the needs of adult learners who may have only limited time for education amid other responsibilities. By focusing on concise, goal-oriented content, microlearning offers a practical solution for skill development and knowledge acquisition without the prolonged engagement required by traditional learning.

Microlearning often leverages digital platforms and mobile devices, making learning available anytime and anywhere. The structure and accessibility of microlearning align with cognitive principles like spaced repetition and distributed practice, which are known to enhance memory retention and support deeper understanding over time [1]. Furthermore, microlearning's emphasis on active, interactive content fosters learner engagement, helping individuals remain motivated in their pursuit of knowledge.

Adult learners face a unique set of psychological barriers that can impede their educational efforts. These include cognitive overload, stress from balancing multiple life roles, and feelings of self-doubt stemming from long absences from formal education. Traditional learning methods often exacerbate these challenges by requiring long, uninterrupted focus and a high level of sustained cognitive effort. For adults with busy lives, this can lead to frustration, disengagement, and anxiety, all of which undermine the motivation required for lifelong learning.

Additionally, adult learners are more likely to experience performance anxiety and fear of failure, particularly in formal learning environments. Studies show that adults benefit from self-paced, customizable learning experiences that accommodate their personal and professional demands [2]. The rigid structure of traditional education, which typically involves fixed schedules, in-depth lectures, and passive learning formats, can amplify stress and create barriers to effective learning for adults. Microlearning, by contrast, offers an alternative that respects adult learners' needs for autonomy, flexibility, and psychological comfort, helping to lower these barriers.

Traditional pedagogical approaches, such as lectures and extended courses, are generally structured around a fixed curriculum and require prolonged focus and sustained effort. While this format is effective for in-depth exploration of complex topics, it often poses challenges for adult learners. Traditional education typically involves passive learning, where students absorb information through listening or reading with limited interaction. This model relies on learners' ability to maintain concentration over long periods, which can be particularly taxing for adults managing work and personal commitments.

Microlearning, on the other hand, is inherently active and learner-centered, promoting self-directed learning by allowing learners to choose topics and set their own pace. Unlike traditional methods, microlearning utilizes short modules that focus on one concept at a time, reducing cognitive load and enhancing information retention through frequent reinforcement [3]. Furthermore, microlearning aligns well with adult learning theories that emphasize

relevance, immediacy, and application—elements that are often lacking in traditional education.

From a psychological perspective, microlearning also supports intrinsic motivation by providing immediate feedback and interactive content, which helps learners build confidence and competence over time. Ryan and Deci's (2000) Self-Determination Theory suggests that motivation is enhanced in environments that support autonomy, mastery, and relatedness, all of which are embedded in the microlearning experience [4]. By offering adults a greater sense of control over their learning, microlearning reduces anxiety and fosters engagement, ultimately encouraging a lifelong learning mindset.

The shift toward microlearning reflects broader changes in adult education and lifelong learning, where the focus is on flexibility, accessibility, and relevance. By catering to adult learners' psychological and practical needs, microlearning provides a viable means of fostering continuous learning outside traditional classroom settings. For adults, the ability to learn in short, focused sessions helps sustain motivation and build confidence, thereby supporting a mindset oriented toward lifelong learning.

This study aims to explore the impact of microlearning on adult learners' lifelong learning mindset by analyzing survey data that capture their preferences, motivations, and psychological experiences with microlearning. The findings will provide insights into how microlearning can address the unique challenges faced by adult learners, ultimately contributing to the development of educational practices that promote sustained engagement in learning.

Lifelong learning is rooted in the understanding that knowledge acquisition is a continuous, voluntary pursuit that extends beyond traditional schooling. Knapper and Cropley (2000) define it as a disposition that fosters an individual's curiosity, adaptability, and willingness to engage in learning activities throughout their life [5]. This orientation aligns well with microlearning, which offers short, targeted learning experiences that support continuous engagement.

Adult learning theories, particularly Malcolm Knowles' concept of andragogy [2], emphasize that adult learners differ from younger students in several critical ways. Knowles proposed that adult learning is more effective when it is self-directed, relevant to real-life tasks, and immediately applicable. These principles align closely with the microlearning format, as its modular, self-paced approach allows learners to address specific goals and solve practical problems in real time. Additionally, andragogy suggests that adults benefit from internal motivation and are more likely to engage in learning if it enhances their self-concept, which microlearning supports by giving learners autonomy over their educational pace and content choices.

Microlearning is rooted in cognitive learning theories, specifically cognitive load theory, which posits that breaking down information into smaller, manageable chunks reduces cognitive strain, allowing learners to process and retain knowledge more effectively.

Mayer and Moreno (2003) highlight that "chunking" information respects working memory limits, reducing extraneous cognitive load and enabling learners to focus on intrinsic aspects of learning [3]. This segmentation is crucial for adult learners who may not have the time or cognitive bandwidth for prolonged study sessions.

Additionally, distributed practice, or spaced repetition, a technique closely associated with microlearning, enhances long-term retention by allowing learners to review material at intervals rather than in a single sitting. Cepeda et al. (2006) find that distributed practice improves memory retention and comprehension, particularly when the material is presented in short, engaging bursts [1]. Thus, microlearning's format not only aligns with cognitive theories on memory but also encourages continuous engagement, making it an ideal tool for lifelong learning.

Microlearning's efficacy in adult education is further supported by Self-Determination Theory (SDT), which emphasizes the importance of autonomy, competence, and relatedness in fostering intrinsic motivation [4]. SDT suggests that when learners experience autonomy (having choice and control over their learning process) and competence (a sense of mastery), they are more likely to engage in learning for personal satisfaction and growth. Microlearning inherently offers autonomy, as learners can control the pacing and sequence of learning materials, often through mobile devices or online platforms that fit into their schedules.

Moreover, microlearning's modular format and diverse media, such as video, audio, and interactive quizzes, provide immediate feedback, which enhances learners' sense of competence. A study by Martin and Ertzberger (2013) found that learners in mobile-based, microlearning environments were more engaged and motivated than those in traditional learning environments due to the accessibility and responsiveness of the platform [6]. This aligns with Bandura's (1977) concept of self-efficacy, which suggests that positive learning experiences reinforce learners' belief in their ability to succeed [7]. By making learning more accessible and providing instant feedback, microlearning can enhance self-efficacy, which in turn promotes a lifelong learning mindset.

One of the hallmarks of lifelong learning is self-directed learning (SDL), in which learners take initiative in diagnosing their learning needs, setting goals, and evaluating outcomes. Garrison (1997) notes that SDL is particularly relevant in adult education as it empowers learners to control their own educational experiences [8]. Microlearning aligns well with SDL principles by allowing adults to identify specific skills or knowledge gaps and access concise resources that directly address those needs. Buchem and Hamelmann (2010) argue that microlearning fosters self-regulation by enabling learners to select content based on personal relevance, thereby supporting the process of SDL [9].

Moreover, microlearning's customizable nature means that learners can set their own objectives and track their progress. This approach is supported by Zimmerman's (2000) theory of self-regulated learning, which posits that effective learning involves setting goals,

monitoring progress, and adjusting strategies as needed [10]. By offering short, targeted modules, microlearning allows adult learners to engage in iterative cycles of learning, reflection, and adaptation, which are essential for self-regulation and lifelong learning.

While microlearning has notable benefits, some research suggests it may have limitations when applied to complex topics requiring deep understanding. Richey et al. (2005) argue that fragmenting content into smaller pieces could result in superficial learning, as the depth of exploration is often limited in short modules [11]. Adults may find microlearning effective for acquiring practical or foundational skills, but it may not fully support critical thinking or deep learning in complex fields without supplemental resources or traditional methods. Balancing microlearning with other educational methods may be necessary to ensure comprehensive understanding while still promoting a lifelong learning mindset.

In summary, the theoretical foundations of microlearning align closely with the needs of adult learners, supporting lifelong learning through its flexibility, self-directed nature, and alignment with cognitive theories. Psychological frameworks such as Self-Determination Theory and self-regulated learning provide additional support for the applicability of microlearning, as they emphasize the importance of autonomy, motivation, and self-efficacy—factors inherently nurtured by microlearning's format. While certain limitations exist, particularly regarding depth of content, microlearning's modular, customizable approach makes it an effective tool for fostering a lifelong learning mindset among adults.

This study employed a survey-based approach to explore how microlearning influences the development of a lifelong learning mindset among adult learners. The survey was designed to assess adult learners' motivations, preferences, cognitive styles, and perceived suitability of microlearning for their learning goals. Based on structured survey sections, we investigated factors influencing adults' engagement with microlearning and its impact on their learning preferences.

The survey instrument was developed based on key pedagogical and psychological dimensions relevant to adult learning and microlearning. It consisted of two parts: (1) a general learner's psychological traits and preferences questionnaire and (2) learner's goals and objectives questionnaire. Each section aimed to capture specific dimensions of adult learning motivation, cognitive styles, time management, stress, and the perceived benefits of microlearning for skill acquisition. Survey items were designed as Likert scale statements (1 = Strongly Disagree, 5 = Strongly Agree), allowing participants to express the degree to which they agreed with each statement.

**Motivation and Goals:** This section assessed respondents' intrinsic motivation to learn, their preference for setting their own goals, and the importance of receiving immediate feedback. Sample questions included: "I am motivated to learn new skills or information regularly" and "I prefer to set my own learning goals and track my progress"



**Learning Preferences:** This section focused on respondents' preferred learning styles, particularly their affinity for microlearning attributes such as manageable content chunks and interactive experiences. Questions included: "I find it easier to learn when content is broken into small, manageable chunks" and "I prefer interactive learning experiences (e.g., quizzes, games) over passive ones".

**Cognitive Styles:** To understand respondents' cognitive preferences, this section evaluated their tendencies toward visual learning, hands-on experiences, and memory retention. Questions like "I am a visual learner and prefer diagrams, infographics, and videos to text-heavy materials" and "I tend to forget information quickly if I don't use it right away" helped assess these traits.

**Time Management:** This section aimed to identify time constraints that might make microlearning appealing to adult learners. Questions such as "I often have limited time to dedicate to learning due to my schedule" and "I prefer learning in short bursts rather than long, uninterrupted sessions" were included to understand time management needs.

**Stress and Anxiety:** Recognizing that adults may experience stress or anxiety with traditional learning, this section assessed how respondents feel about the flexibility and pacing of microlearning. Example questions included "I feel overwhelmed by long training sessions or large amounts of information at once" and "I am more productive when I can take breaks between learning sessions".

In addition, "the learner's goals and objectives questionnaire" specifically examined respondents' views on the effectiveness and applicability of microlearning to their goals. It included sections on learning objectives, desired timeframes, expected outcomes, engagement and motivation, and the importance of supportive resources.

**Learning Objectives:** This section assessed whether respondents aimed to acquire specific skills applicable to their job responsibilities. Example statements included "I prefer learning that is directly applicable to my current job responsibilities" and "I am looking to update my skills to keep up with changes in my industry".

**Timeframe for Learning:** Questions here focused on respondents' time constraints and preferences for short sessions. Statements included "I need to learn new information quickly to meet upcoming deadlines" and "I value learning that can be completed in short sessions rather than long courses".

**Desired Outcomes:** Respondents were asked to rate their desire for measurable and practical outcomes. Sample items included "I aim to achieve measurable results from my learning efforts" and "I believe that frequent, small learning activities will help me retain information better than infrequent, longer sessions".

**Engagement and Motivation:** This section gauged preferences for accessible, flexible learning content. Statements included "I am more motivated to learn when I can access content at my convenience" and "I feel that shorter, focused training sessions keep me more engaged".

**Support and Resources:** The final section addressed respondents' need for accessible resources and interactive learning elements. Statements included "I prefer learning resources that are easily accessible on multiple devices" and "I am more likely to engage with training that includes interactive elements".

A random sample of 118 adult learners aged 18–60 participated in the survey. The sample included individuals from various professional backgrounds and education levels to ensure diverse perspectives on microlearning. Participants were recruited through online educational and professional networks to capture a broad cross-section of adults engaging in both formal and informal learning.

The survey was administered online, allowing participants to complete it at their convenience. To ensure comprehensive responses, participants were informed about the study's purpose and reassured of the confidentiality of their responses. The survey remained open for four weeks, with regular reminders sent to increase response rates.

The quantitative data collected from Likert scale responses were analyzed using descriptive statistics to determine the level of agreement with each statement. For each survey question, we calculated the proportion of respondents who selected "Agree" (4) or "Strongly Agree" (5) to measure positive agreement with each statement. This allowed us to capture the overall preference and strength of agreement for different aspects of microlearning. The "Agree" and "Strongly Agree" responses were combined and expressed as percentages to facilitate easy comparison across questions and to highlight the areas with the highest levels of agreement.

Across age groups, there was a strong agreement with statements related to motivation for regular learning and a preference for interactive and immediate feedback. For example, 87.5% of respondents agreed or strongly agreed that immediate feedback on their progress was important, reflecting a desire for responsive learning systems that provide validation and track progress efficiently. Additionally, 80.4% of respondents reported being motivated to acquire new skills, supporting the relevance of continuous learning for professional and personal growth.

Microlearning's modular format aligns well with respondent preferences, as 82.1% of respondents favored learning experiences broken into short, manageable segments (5-10 minutes). Similarly, 82.1% expressed a preference for interactive formats (e.g., quizzes, games, simulations) over passive ones like lectures. These findings underscore the appeal of concise, engaging content, which allows adult learners to remain focused and retain information effectively.

Time constraints were a significant factor for many respondents, with 76.8% indicating limited time availability due to their busy schedules. This highlights the practicality of microlearning for adults managing multiple responsibilities. Additionally, 91.1% expressed a preference for learning sessions that can be easily integrated into a busy schedule,

emphasizing the need for flexibility in learning formats. A substantial 71.4% preferred short, focused sessions, aligning well with the on-demand, time-efficient nature of microlearning.

The survey results reveal a strong inclination toward immediate application of learned knowledge. An overwhelming 96.4% of respondents indicated a preference for learning methods where they can apply acquired knowledge directly. This trend aligns with adult learning theories that emphasize practical, real-world application as a motivator for adult learners.

Access to learning on various devices (laptop, tablet, smartphone) was essential for many, with 94.6% agreeing or strongly agreeing on the importance of cross-platform accessibility. This supports the integration of mobile-compatible microlearning solutions that can fit into learners' lives seamlessly.

Respondents generally felt that short, frequent learning activities helped with information retention. About 83.9% agreed that frequent, brief learning sessions enhanced their memory retention better than longer, infrequent sessions. This feedback underscores the cognitive benefits of microlearning, particularly its alignment with distributed practice and spaced repetition, which are known to support long-term retention.

Many respondents expressed feelings of cognitive overload when faced with large amounts of information. Around 69.6% of participants reported feeling overwhelmed by long training sessions, while 82.1% preferred to take breaks between sessions to improve productivity. This indicates that microlearning's bite-sized structure may help reduce cognitive load, making learning less intimidating and more manageable.

Finally, respondents valued collaborative learning and interaction, with 71.4% indicating that they preferred opportunities for discussion and peer interaction during the learning process. Additionally, 87.5% stated a likelihood to engage with learning materials that included interactive elements like tests and quizzes. These responses suggest that while microlearning is often individually paced, incorporating collaborative elements can enhance learner engagement.

The strongest aspects of microlearning, based on the highest percentages of "Agree" and "Strongly Agree" responses, are as follows:

1. Immediate Application of Knowledge: 96.4% - Preference for learning methods that allow learners to apply knowledge right away.
2. Accessibility Across Devices: 94.6% - Importance of having resources available on various devices (laptop, phone, tablet).
3. Opportunity for Review: 92.9% - Value placed on the ability to revisit specific sessions when needed.
4. Integration with Busy Schedules: 91.1% - Preference for learning options that fit into a busy schedule without requiring long time commitments.
5. Practical Application: 90.9% - Favorability toward learning methods that allow immediate use of learned knowledge in practice.

6. Interactive Elements: 87.5% - Higher likelihood of engaging with learning materials that include interactive elements (tests, quizzes, simulations).

7. Immediate Feedback: 87.5% - Preference for receiving quick feedback on learning progress.

8. Pursuit of Specific Knowledge: 85.7% - Intent to acquire new, specific skills and knowledge in the near future.

9. Measurable Outcomes: 83.9% - Goal to achieve measurable results, such as improved performance.

10. Flexible Access to Learning: 83.9% - Increased motivation when learning is accessible at any convenient time.

The survey results highlight significant preferences for microlearning among adult learners, supporting its potential as an effective strategy for promoting lifelong learning. The strong inclination toward flexible, application-oriented, and interactive learning reveals key insights into the needs and motivations of adult learners, particularly those managing multiple responsibilities.

The findings reinforce core principles of adult learning theory, particularly Malcolm Knowles' andragogy, which emphasizes the importance of relevance, self-direction, and immediate applicability in adult education. The high agreement (96.4%) on the value of learning experiences that allow immediate application of knowledge aligns with Knowles' view that adult learners are problem-oriented and motivated by practical applications of new information. The strong preference for self-paced, modular learning further suggests that microlearning meets adults' needs for autonomy, flexibility, and control over their learning paths.

Microlearning's focus on short, targeted content appears to address cognitive barriers often encountered by adult learners. With 82.1% of respondents favoring content broken into manageable chunks, this approach may reduce cognitive overload, as supported by cognitive load theory. Moreover, the preference for frequent, short sessions for better retention (83.9%) aligns with distributed practice and spaced repetition, which are known to improve long-term retention and engagement. These findings suggest that microlearning's design can enhance memory retention by minimizing the risk of information overload and supporting sustained engagement.

The survey reveals that a significant portion of adult learners face time constraints, with 76.8% reporting limited time due to busy schedules. Microlearning's flexibility addresses this challenge by allowing learners to integrate short learning sessions into their daily routines. Additionally, the high percentage (94.6%) of respondents who value cross-platform accessibility suggests that mobile and multi-device compatibility are essential components of an effective microlearning strategy. By providing access to learning on various devices, microlearning enables adults to engage in continuous learning without being constrained by time or location, fostering a lifelong learning mindset.

A key insight from the survey is the high percentage (69.6%) of respondents who feel overwhelmed by large information loads. Microlearning's bite-sized structure may alleviate this stress by reducing cognitive demands and providing a less intimidating entry point into learning. Additionally, 82.1% of respondents noted improved productivity when allowed to take breaks between learning sessions, suggesting that microlearning's modular format can offer cognitive and emotional relief, supporting both retention and well-being. This aligns with the theory of self-regulated learning, where the ability to pause and reflect between learning modules can enhance comprehension and reduce anxiety.

The survey's findings indicate a clear preference for interactive and collaborative learning elements. With 87.5% of respondents more likely to engage with interactive content such as quizzes and simulations, microlearning's potential to offer engaging, interactive experiences appears to be a major asset. Additionally, 71.4% valued opportunities to discuss and collaborate with peers, suggesting that incorporating social elements within microlearning platforms could increase engagement. These preferences underscore the value of integrating collaborative and interactive components into microlearning environments to enhance motivation and deepen understanding.

The overall high agreement with motivation-driven statements indicates that microlearning aligns with the intrinsic motivation factors outlined in Self-Determination Theory (SDT), such as autonomy, competence, and relatedness. The ability to set one's own learning goals, receive immediate feedback, and access resources anytime contributes to a sense of agency, competence, and control—key psychological needs that foster a lifelong learning mindset. By meeting these needs, microlearning can help adult learners remain motivated and engaged in continuous self-improvement.

The findings suggest that organizations and educational institutions should consider integrating microlearning into adult education and professional development programs. Given the strong preference for cross-platform accessibility, organizations could enhance engagement by ensuring that learning modules are optimized for mobile devices, enabling learning on-the-go. Furthermore, incorporating interactive and collaborative elements, such as peer discussions and real-time feedback, could address adult learners' needs for engagement and connection, thereby enhancing both motivation and retention.

While the survey provides valuable insights, the study is limited by its focus on a specific sample of adult learners, which may not fully represent all demographic groups. Future research could explore how different types of microlearning content (e.g., video, audio, text) impact learning outcomes and investigate the long-term effects of microlearning on career development and personal growth. Additionally, a longitudinal study examining microlearning's impact on sustained engagement and knowledge retention would further clarify its role in fostering lifelong learning among diverse adult populations.

Addressing these limitations in future studies, such as through a more diverse sample, longitudinal design, or objective performance measures, could provide a more comprehensive understanding of microlearning's impact on adult learners.

This study has explored the impact of microlearning on fostering a lifelong learning mindset among adult learners. The survey results reveal that microlearning's flexibility, accessibility, and focus on interactive and practical content make it a valuable tool for adult education. The ability to engage in learning that is concise, immediately applicable, and accessible across devices supports adult learners' need for ongoing skill development amidst busy schedules. Furthermore, the high agreement on the importance of immediate feedback and opportunities for review underscores microlearning's alignment with principles of effective learning, including self-regulation and cognitive reinforcement.

These findings suggest that microlearning addresses key challenges faced by adults, such as time constraints, cognitive overload, and the need for real-world application. By reducing barriers to education and promoting engagement through autonomy and interactive content, microlearning empowers adults to remain active learners throughout their lives. This study contributes to the pedagogical and psychological understanding of adult learning preferences, providing evidence that microlearning can be an effective strategy for promoting lifelong learning.

Future research should build upon these insights by exploring the long-term impacts of microlearning on knowledge retention and performance. Additionally, further studies could examine how specific microlearning content formats and delivery methods influence different learning outcomes. Addressing the survey's limitations, such as sample diversity and objective performance measures, will provide a more comprehensive understanding of microlearning's role in adult education. Ultimately, integrating microlearning into educational practices can support adults in achieving their personal and professional learning goals in a rapidly changing world.

### References:

1. Cepeda, N. J., Pashler, H., Vul, E., Wixted, J. T., & Rohrer, D. (2006). Distributed practice in verbal recall tasks: A review and quantitative synthesis. *Psychological Bulletin*, 132(3), 354-380.
2. Knowles, M. S. (1984). *Andragogy in Action: Applying Modern Principles of Adult Learning*. Jossey-Bass.
3. Mayer, R. E., & Moreno, R. (2003). Nine ways to reduce cognitive load in multimedia learning. *Educational Psychologist*, 38(1), 43-52.
4. Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25(1), 54-67.
5. Knapper, C., & Cropley, A. (2000). *Lifelong Learning in Higher Education*. Psychology Press.

6. Martin, F., & Ertzberger, J. (2013). Here and now mobile learning: An experimental study on the use of mobile technology. *Computers & Education*, 68, 76-85.
7. Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191-215.
8. Garrison, D. R. (1997). Self-directed learning: Toward a comprehensive model. *Adult Education Quarterly*, 48(1), 18-33.
9. Buchem, I., & Hamelmann, H. (2010). Microlearning: A strategy for ongoing professional development. *eLearning Papers*, 21, 1-14.
10. Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 13-39). Academic Press.
11. Richey, R. C., Klein, J. D., & Tracey, M. W. (2005). *The Instructional Design Knowledge Base: Theory, Research, and Practice*. Routledge.

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## **APPLICATION OF DATA ANALYTICS AND AI FOR MONITORING AND ENHANCING STUDENTS' EDUCATIONAL ACHIEVEMENTS IN HIGHER EDUCATION**

**Abstract:** In modern education, artificial intelligence (AI) has become a crucial tool, offering significant potential for monitoring and evaluating student performance. This research focuses on the integration of AI in higher education, highlighting its role in assisting educators through continuous tracking of student progress and the development of personalized learning paths. AI technologies enable the creation of tailored educational programs based on individual academic performance, enhancing the effectiveness of teaching. Furthermore, machine learning models can predict student outcomes with high accuracy, identifying areas of potential failure and offering solutions for improvement. The study points out the opportunities and potential drawbacks of AI integration.

**Keywords:** Artificial intelligence, Machine Learning, Higher Education, Personalized Learning, Assistance, Prediction, Data analysis

**Introduction.** In modern times where AI is considered a vital tool and continuously integrated in the various spheres, it is possible to incorporate it into the education field. The study [1] notes that AI, integrated to the university structure provides a massive opportunity both to automate university staff amount of work and act as a tool dedicated for students' benefit. The advantages of how artificial intelligence methodology assists educators and instructors to permanently monitor and evaluate the students' performance and propose individual education paths to the students exist. The article [2] states that in the age of analytics educational institutions combine new technology with the educational process rather than solely relying on traditional educational methods. These technologies allow the creation of personalized programs based on the student's academic performance and open-source data facilitating the teachers' work with assistance. The data on students' academic performance can be achieved by application of data analysis and worldwide database to collect the data as examples. Additionally, machine learning technology is used to save obtained data, process, and make predictions on the performance. Moreover, application of AI technology which offers future development to handle the possible fails and personalized learning paths based on evaluation. The research [3] claims that by accepting machine learning models the prediction made on student grades, performance, and probable failure



showcases high accuracy results. The goal of this research is to analyze the opportunities, advantages, and disadvantages of AI and machine learning-based technology applications for monitoring and assisting teachers in higher educational institutes.

**Literature review.** The area of integrating artificial intelligence and machine learning has been constantly researched. Some authors propose using data analysis to improve students' overall performance and as an adaptive e-learning system in higher education. Additionally, others suggest that the utilization of machine learning and artificial intelligence will also be beneficial in this sphere. This part will introduce the literature review based on the other authors' articles.

Focusing on how these instruments are being used to enhance student success in terms of preservation, academic performance, and engagement, [4] study on data analytics in higher education does an in-depth systematic review. The three types of analytics explored in the article: learning, academic, and learner. Learning analytics focuses on gathering, measuring, analyzing, and reporting information about students and their educational environments. Academic analytics introduces data analysis on the institutional level assisting higher education enterprises in making decisions to improve academic success. Learner analytics refers to direct communication with the students as feedback on their performance. The authors utilized a thorough systematic review methodology that is grounded in critical realism and assesses not just the results but also the underlying causes and circumstances that led to them. Overall, the study highlights the potential of data analytics in higher education and claims for careful implementation strategy.

In terms of machine learning integration, the article [5] provides a meta-analysis of the ML role in higher education. It focuses on how ML is able to predict the students' academic outcomes and dropout risk. The research highlights the ML models which are efficient in the prediction of the results. The model can identify the possible risks of dropout and inform the instructors leading to intervention from the educator's perspective to retain the students and aid in their academic success. By providing insights that enable educators to better manage academic interventions, this research supports the use of machine learning as a decision-support tool. The study by [6] explores the ways in which AI, ML, and extended reality (XR) improve higher education fostering the students' motivation, engagement, and skills. Students' reactions to these technologies are typically positive, according to the study's survey and analysis of secondary data, with XR in particular facilitating immersive, hands-on learning experiences. Despite the stress of the need for infrastructure, governmental backing, and teacher training, the authors declare that these technologies have the potential to modernize traditional teaching approaches. The possibilities and difficulties of AI and ML in higher education are defined in [7] with an emphasis on how they could enhance administrative effectiveness and personalized training. The study discloses that even though students accept these technologies, there are some gaps in their knowledge. Developing ethical frameworks for AI in education and researching ways to increase access to AI-

enhanced learning materials in various geographical and economic contexts are some of the study's recommendations.

The study [8] on AI investigates its transformative role in higher education especially in terms of students' personalized learning and advanced feedback. The potential for teaching efficiency is also stated, as well as the issues about wrong beliefs in AI are addressed with the need to integrate it into the higher education sphere. The article [9] focuses on how AI can be used to improve assessment affairs. According to it, an AI-based feedback system provides immediate response and advice, thus encouraging students' motivation. The authors draw the conclusion that AI algorithms can produce assessments that are more accurate and beneficial for teachers and students by comparing them. The long-term effects of AI feedback systems on student results should be investigated, as should strategies for incorporating AI into various evaluation procedures used by educational establishments.

**Main part.** This part includes such subtopics as opportunities and benefits of AI and ML adoption, methodologies used in AI-driven student monitoring, challenges and limitations of AI, ethical and social implications, and case studies.

*Opportunities and benefits of AI and ML adoption:*

Integration of artificial intelligence and machine learning introduces many opportunities. Some of the benefits of AI adoption include:

**Monitoring capabilities:** AI-powered educational analytics tools offer useful information about student performance and engagement, supporting evidence-based choices about course enhancements, curriculum design, and institutional regulations [10].

**Personalized training:** The possibility of creating individualistic schedules for those students, who might struggle with standard learning or integration of diversity in the students' syllabus to make it more interesting, engaging, and promoting active learning [1, 11].

**Predictive analysis:** Identify students with poor academic performance. Some students are not aware of their class attendance. Thus, this kind of negligence leads to a deficiency of attendance, causing non-admission to the exams. With AI integration, these kinds of situations would be regulated [5].

**Supporting instructors' workload:** AI significantly alleviates the amount of work on teachers whether it is about tracking students' performance, grading, and providing statistics on student strengths and weaknesses [2].

**Supporting inclusive learning:** AI has the ability to provide inclusivity by designing specific personalized academic schedules for students with different backgrounds, ensuring that all have an equal opportunity to obtain knowledge [7, 10].

*Methodologies used in AI-driven student monitoring:*

Methodologies used in AI-driven student monitoring include data collection techniques, tools and algorithms, and integration with learning management systems (LMS). Data collection techniques involve what kind of data will be used for analysis and monitoring and how it will be used. To begin with, academic properties such as student grades, activity

during classes, and exam grades will be used. This can be achieved via large databases where the instances will be uploaded followed by the utilization of big data analysis to process it. The automatic collection of data like grades from LMS will facilitate the process, additionally avoiding incorrect data uploads. Moreover, machine learning is a powerful tool for making predictions about student performance. It allows the collected data to be uploaded and processed. Machine learning has many algorithms that can be used to make an accurate prediction without false positives and false negatives. Such models as Random Forest, Naive Bayes, Logistic Regression, KNN, and even Deep Learning models. For example, KNN can be useful for finding the similarities between students' performance based on past data. On the other hand, Deep Learning models provide robust prediction, especially with large amounts of data, but require a decent amount of computational resources. Subsequently, by predicting possible dropout risk, the AI can notify the teachers and students about the danger, providing probable solutions for remediation. After analysis, in the case that a student has poor progress on particular subjects and topics, AI takes control of it by proposing the individually created schedule, and syllabus for that student. Next is the decision on how to engage AI, whether to integrate it fully into the learning management system, where it has direct access to the needed data, or make it separate as a service connecting to the learning management system remotely. Both variants seem appropriate but need further consideration of them, implementation, and proof of concept.

#### *Challenges and limitations of AI:*

There are limitations and challenges of AI integration along with the benefits. Concerns regarding data protection, resource availability, and the necessity of a balanced integration of AI in educational contexts are reflected in these organizational, technical, and ethical constraints. The following challenges are:

**Data privacy:** One of the main challenges is to ensure students' data is collected and processed securely as AI and ML require large data to function properly. Universities must manage sensitive data against misuse and possible data breaches. A continuous problem is making sure that laws (like the GDPR) are followed and that data collection, processing, and use by AI systems are transparent [1, 2, 4, 11].

**Ethical issues and bias:** Biases in the training data may be unintentionally reinforced by AI models, producing unfair or discriminating results. AI systems deployed for grading or admissions, for instance, may unintentionally benefit or harm some groups, which would compromise educational equity. To reduce these hazards, monitoring and ethical frameworks are necessary, yet they are frequently lacking. Additionally, there are concerns about replacing the roles of AI with humans. This concern raises the importance of human interaction, especially among students and educators [5, 7, 8].

**Technical challenges:** AI integration with the LMS might be difficult, as the majority of the higher institutions use obsolete systems that may struggle with modern technology interaction, making it highly costly [10, 11].

### *Ethical and social implications:*

The integration of AI has some ethical and social implications. In order to have clear assistance without any deviance and possible danger, people should consider the following:

As AI relies on data collection and processing, the collection stage must be as transparent and secure as possible. The usage of consent to inform that students' data has been used is crucial for confidentiality. Improper utilization and operation with these data leads to threats, potentially causing data breaches [1, 2, 4].

AI's ability to perform almost as an educator (grading, virtual teaching, giving advice) has led to worries about potential job losses. Moreover, overreliance on AI technology causes educator's autonomy and impact within the classroom, influencing job satisfaction [8, 9].

AI has social influence beyond academic outcomes. AI may have an impact on how students will be prepared for future life in terms of work preparedness, lifelong learning approach, and advancement in society. If AI-based education depends on certain qualities like task efficiency but ignores critical thinking and creativity, it will affect the students' approach to work in the future [2, 11].

### *Case studies:*

There are successful cases of AI adoption in higher education. The University of Sydney successfully implemented AI technology to address issues like providing personalized learning paths to students in various disciplines. The AI-based platform called "Smart Sparrow" aided instructors in creating adaptive learning for every student's needs, background, and learning styles. The technology provides additional resources and assessment of students' academic performance. The implementation improved overall effectiveness and led to better engagement of students. Another case introduces the adoption of AI technology in effective assistance and response for students at the Georgia Institute of Technology in the United States. This is highly important for universities with limited teaching staff. The AI-driven assistant called "Jill Watson" was designed on the IBM platform and trained with over 40000 datasets to give efficient feedback to students. The AI was able to cope with daily and standard tasks, allowing the teachers for more complex work. Another AI collaboration technology addressed the issue of hands-on practice tools shortage by enabling the AI-driven virtual environment called "VirtuLab" at the Technological Institute of Monterrey, Mexico. The main problem was the lack of instruments to practice the STEM subjects to fully obtain the knowledge. With the integration of AI, it allowed the students to conduct simulations and lab experiences. Moreover, it used ML to adapt the scenarios based on students' responses and supported with a real-time feedback feature. The AI technology is powerful in the right utilization. As mentioned in the examples above, AI technology was used as an assistant in various scenarios. In addition to these cases, there are scenarios when it was used to help inclusive students, language training, career counseling, routine tasks like checking essays and homework, and many others.

In general, the adoption of AI-based technology offers benefits for various situations, such as student assessment, performance prediction, feedback, and personalized training. However, these advantages come with the necessity of properly addressing potential threats, along with ethical and social issues. Accurate selection of ML models, integration of AI into the LMS, and secure data collection facilitates the success rate, leading to overall benefits.

**Conclusion.** To conclude, AI is a powerful tool that is utilized currently in the higher education sphere as well. The integrated AI in the university system acts both as an automatic tool and more as an assistant tool dedicated to tracking the student's academic performance, providing prompt feedback, predicting the educational progress with dropout risk feature, and proposing personalized pathways to recap and enhance student's knowledge. The goal of this research was to analyze the opportunities, advantages, and disadvantages of AI and machine learning-based technology applications for monitoring and assisting teachers in higher educational institutes. The integration of AI-driven technology, which uses ML to make predictions and initial data collection via databases and datasets offers a significant opportunity for instructors and students. As the benefits stated, it also has some drawbacks which need consideration. Accurately identifying and addressing the possible risks opens the door for more prospects. The case studies validated the possibility of working with AI-based technology in higher education. There are some future recommendations for the use of AI: continuously updating the technology and adapting the innovations, detecting the threats, and instantly remediating them. Moreover, for a better experience of integration, the educating of university staff is important to properly cope with the technology. As technology always develops, there are innovations every year setting the tendency for every area of life. Accordingly, higher education as a central sphere of the preparation of future professionals must align with the innovations. Covering and involving new technologies allows educational institutions to strengthen the learning experience, providing broad opportunities for learners.

### References:

1. B. George and O. Wooden, "Managing the Strategic Transformation of Higher Education through Artificial Intelligence," *Administrative Sciences*, vol. 13, no. 9, August 2023, doi: 10.3390/admsci13090196.
2. D. Papadopoulos and Md. Murad Hossain, "Education in the Age of Analytics: Maximizing Student Success Through Big Data-Driven Personalized Learning," *Emerging Trends in Machine Intelligence and Big Data – 159*, vol. 15, no. 9, pp. 20-36, September 2023.
3. M. Shoaib, N. Sayed, J. Shafi, S. Khan, and F. Ali, "AI Student Success Predictor: Enhancing Personalized Learning in Campus Management Systems," *Computers in Human Behavior*, vol. 158, May 2024, doi: <https://doi.org/10.1016/j.chb.2024.108301>.

4. C. Foster and P. Francis, “A systematic review on the deployment and effectiveness of data analytics in higher education to improve student outcomes,” *Assessment & Evaluation in Higher Education*, vol. 45, no. 1, pp. 1-20, December 2019, doi: 10.1080/02602938.2019.1696945.
5. K. Fahd, S. Venkatraman, S. J. Miah, and K. E. U. Ahmed, “Application of machine learning in higher education to assess student academic performance, at-risk, and attrition: A meta-analysis of literature,” *Education and Information Technologies*, vol. 27, no. 3, pp. 3743-3775, October 2021, doi: 10.1007/s10639-021-10741-7.
6. M. P. Ilic, D. Paun, N. P. Sevic, A. Hadzic, and A. Jianu, “Needs and Performance Analysis for Changes in Higher Education and Implementation of Artificial Intelligence, Machine Learning, and Extended Reality,” *Education Sciences*, vol. 11, no. 10, September 2021, doi: 10.3390/educsci11100568.
7. V. Kuleto, M. P. Ilic, M. A. Dumangiu, M. Rankovic, O. M. D. Martins, D. Paun, and L. Mihoreanu, “Exploring Opportunities and Challenges of Artificial Intelligence and Machine Learning in Higher Education Institutions,” *Sustainability*, vol. 13, no. 18, September 2021, doi: 10.3390/su131810424.
8. S. V. Singh and K. K. Hiran, “The Impact of AI on Teaching and Learning in Higher Education Technology,” *Journal of Higher Education Theory and Practice*, vol. 22, no. 13, pp. 135-148, October 2022, doi: <https://doi.org/10.33423/jhetp.v22i13.5514>.
9. M. Hooda, C. Rana, O. Dahiya, A. Rizwan, and Md. S. Hossain, “Artificial Intelligence for Assessment and Feedback to Enhance Student Success in Higher Education,” *Mathematical Problems in Engineering*, vol. 2022, pp. 1-19, May 2022, doi: 10.1155/2022/5215722.
10. S. Kir and M. Artsin, “ADOPTION OF DATA ANALYTICS IN HIGHER EDUCATION LEARNING AND TEACHING,” *Turkish Online Journal of Distance Education-TOJDE*, vol. 22, no. 4, pp. 314-317, October 2021.
11. M. A. Khan, M. Khojah, and Vivek, “Artificial Intelligence and Big Data: The Advent of New Pedagogy in the Adaptive E-Learning System in the Higher Educational Institutions of Saudi Arabia,” *Education Research International*, vol. 2022, pp. 1-10, February 2022, doi: 10.1155/2022/1263555.
12. Team DigitalDefynd, “Use of AI in Schools [25 Case Studies] [2024]”, URL: <https://digitaldefynd.com/IQ/ai-in-schools-case-studies/>

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## **ИННОВАЦИЯЛЫҚ ТЕХНОЛОГИЯЛАРДЫ ҚОЛДАНУ АРҚЫЛЫ ИНКЛЮЗИВТІ БІЛІМ БЕРУ ОРТАСЫН ДАМЫТУ**

Бұл мақалада жоғары оқу орындарында инклюзивті білім беру ортасын дамыту үшін педагогикалық және психологиялық тәсілдерді қолдану және ондағы инновациялық технологияларды қолданудың рөлі қарастырылған. Ерекше қажеттіліктері бар студенттердің оқуға ынтасын арттыру, бейімделуін жеңілдету және оқу сапасын жақсарту жолдары талданған. Сондай-ақ, оқыту процесінде психологиялық қолдау мен технологиялардың үйлесімді қолданылуының студенттердің білім алуына тигізетін оң әсері көрсетілген. Зерттеу нәтижелері педагогикалық және психологиялық әдістердің интеграциясының инклюзивті білім беруді дамытудағы маңыздылығын көрсетеді.

**Кілт сөздер:** инклюзивті білім беру, педагогикалық тәсілдер, психологиялық қолдау, инновациялық технологиялар, дифференциалды оқыту.

**Кіріспе.** Инклюзивті білім беру қазіргі білім беру жүйесінің ажырамас бөлігіне айналып, ерекше қажеттіліктері бар студенттерді қоса алғанда, барлық студенттерге тең білім алу жағдайын жасауға мүмкіндік береді. Осы контексте инновациялық технологиялар бейімделуге және оқу процесінің сапасын жақсартуға шешуші рөл атқарады. Қазақстанда инклюзивті білім беру ортасын, әсіресе жоғары оқу орындарында дамыту мәселесі барған сайын өзекті болып келеді. Осы зерттеу педагогикалық және психологиялық әдістерді инновациялық технологияларға негізделе отырып, университеттерде тұрақты және қолдаушы инклюзивті ортаны құруды зерттеуге бағытталған.

Жоғары оқу орындарындағы инклюзивті білім беру әлеуметтік және білім алу мүмкіндіктерін теңестіріп, ерекше қажеттіліктері бар студенттерді қоғамға бейімдеуге маңызды үлес қосуда. Ерекше қажеттіліктері бар студенттерді қоса алғанда, барлық жастарға жоғары білімге бірдей қолжетімділікті қамтамасыз ету – төзімділік пен өзгелерге құрмет сезімін дамытып, олардың білім және мамандық жолында өзін табуына қолдау береді.

Қазақстан Республикасы Ұлттық статистика бюросының ресми сайтында мүмкіндігі шектеулі жандардың және жоғары оқу орындарында оқитын мүмкіндігі шектеулі студенттер саны туралы нақты деректер жоқ. Алайда, Қазақстан

Республикасы Ғылым және жоғары білім министрлігінің мәліметіне сәйкес, 2020 жылы жоғары оқу орындарында ерекше білім беру қажеттіліктері бар 3 520 адам оқыған. Ақпарат көздерінің тапшы екеніне және нақты дереккөздердің жоқтығына назар аударатын болсақ, аталмыш тақырыптың аз зерттелгені негізделеді.

Қазақстанда инклюзивті білім беру мемлекеттік білім саясатының басты бағыттарының біріне айналды, бүгінде жоғары оқу орындарының шамамен 30%-ы ерекше қажеттіліктері бар студенттердің білім алуына бейімделген. Бұл шаралар әрбір студенттің оқу процесіне толыққанды қатысып, сапалы білім алуына мүмкіндік беретін инклюзивті орта құруға бағытталған, және осының нәтижесінде толерантты әрі ашық қоғамның қалыптасуына ықпал етеді.

### **Зерттеу мақсаттары:**

1. Қазақстанның жоғары оқу орындарында оқу үдерісінің инклюзивтілігін арттыру үшін тиімді педагогикалық тәсілдерді анықтау және енгізу. Дифференциалды оқыту, оқытудың эмбебап дизайны (UDL) және бірлескен жұмыс формалары ерекше қажеттіліктері бар студенттердің академиялық жетістіктері мен әлеуметтік интеграциясына қалай ықпал ететінін зерттеу.

2. Ерекше қажеттіліктері бар студенттер үшін білімге қолжетімділікке инновациялық технологиялардың әсерін бағалау, соның ішінде адаптивті оқу платформаларын, көмекші технологияларды (мысалы, экран оқитын құралдар, сөзді мәтінге айналдыратын бағдарламалар) және цифрлық ресурстарды пайдалану. Бұл технологиялардың оқыту процесін жекешелендіруге және физикалық әрі когнитивті кедергілерді жоюға қалай қолдау көрсететінін зерттеу.

3. Білім беру ортасындағы психологиялық қолдаудың рөлін зерттеу, оның ерекше қажеттіліктері бар студенттердің бейімделуі, өзін-өзі бағалауы және мотивациясы үшін маңызын түсіну. Мұндай студенттердің оқу нәтижелері мен эмоционалдық әлауқатына психологиялық кеңес беру, тәлімгерлік бағдарламалар және топтық сессиялардың әсерін талдау.

4. Ерекше қажеттіліктері бар студенттер үшін оқу үдерісіндегі ағымдағы кедергілерді талдау, соның ішінде оқу материалдарының қолжетімділігінің шектеулілігі, техникалық қолдаудың жеткіліксіздігі және инклюзия саласындағы білікті мамандардың жетіспеушілігі. Студенттердің оқу ортасында кездесетін негізгі қиындықтарын және оларды шешу жолдарын анықтау.

5. Қазақстанның жоғары оқу орындарында инклюзивті білім беру ортасын дамыту бойынша практикалық ұсыныстар әзірлеу. Бұл ұсыныстар келесі аспектілерді қамтиды:

- Ерекше қажеттіліктері бар студенттермен жұмыс істеу бойынша оқытушылардың біліктілігін арттыру, инклюзивті білім беру әдістерін оқыту.

- Инновациялық технологияларды енгізу және әртүрлі қажеттіліктерге бейімделген оқу материалдарының қолжетімділігін жақсарту.



- Ерекше қажеттіліктері бар студенттердің өмір сүру сапасын және оқу сапасын арттыруға бағытталған психологиялық және тәлімгерлік қолдау жүйелерін құру.

- Инклюзивті талаптарға сай оқу кеңістіктері мен инфрақұрылымды дамыту, оның ішінде арнайы оқу және демалыс орындарын құру.

Бұл мақсаттар қазақстандық университеттерде ерекше қажеттіліктері бар студенттер өздерінің академиялық әлеуетін толық жүзеге асырып, университет қауымдастығының бір бөлігі ретінде сезіне алатын тұрақты инклюзивті білім беру ортасын құруға көмектеседі.

**Әдебиетке шолу.** Соңғы жылдары инклюзивті білім беру көптеген елдердің, соның ішінде Қазақстанның, білім беру саясатының ажырамас бөлігіне айналып, барлық студенттерге, оның ішінде ерекше қажеттіліктері бар адамдарға да тең мүмкіндіктер беруге бағытталды. Инклюзивті білім беру тақырыбы бойынша әдебиеттерде оның жүзеге асырылуының әртүрлі аспектілері, атап айтқанда, педагогикалық әдістер, психологиялық қолдау және білім беру үдерісін жақсарту үшін инновациялық технологияларды қолдану қарастырылады.

Инклюзивті білім берудегі педагогикалық тәсілдер. Инклюзияны қолдауға бағытталған педагогикалық тәсілдер студенттер үшін тең мүмкіндіктер жасау барысында негізгі рөл атқарады. халықаралық тәжірибеде тиімді педагогикалық тәсілдер анықталған, және олар Қазақстанда да қолданыс табуда. Дифференциалды оқыту ерекше қажеттіліктері бар студенттердің жеке қажеттіліктеріне бейімделген оқу материалдары мен әдістерін қолдануға мүмкіндік беретін негізгі әдістердің бірі болып табылады. Зерттеулер бұл тәсіл студенттердің белсенділігін арттырып, олардың академиялық жетістіктеріне ықпал ететінін көрсетеді, ал бұл Қазақстанның инклюзивті білім беру ортасын құруға ұмтылатын жоғары оқу орындары үшін өзекті болып отыр [1]. Сондай-ақ, бірлескен оқу және студенттер арасындағы өзара көмек әдістері тиімділігін дәлелдеген, себебі олар оқу қауымдастығы ішінде қолдау көрсетуді дамытады. Бұл әсіресе оқшаулануды сезінуі мүмкін ерекше қажеттіліктері бар студенттер үшін маңызды. Оқытудың әмбебап дизайны (UDL) қағидаттары да Қазақстанда жиі қолданылуда, өйткені олар әртүрлі стильдер мен студенттердің қажеттіліктерін ескеретін икемді оқу жағдайларын жасауға мүмкіндік береді [4].

Психологиялық қолдаудың маңызы. Инклюзивті білім беру мекемесінің ортасында психологиялық қолдау педагогикалық әдістерден кем емес маңызға ие. Ерекше қажеттіліктері бар студенттердің психологиялық бейімделуі психологтар мен әлеуметтік педагогтардың кәсіби көмегін қамтитын кешенді тәсілді қажет етеді. Зерттеулер жоғары өзін-өзі бағалауы және әлеуметтік қолдауы бар студенттердің оқуда жақсы нәтиже көрсетіп, оқу ортасының талаптарына тиімді бейімделетінін растайды [2]. Психологтар мен кеңесшілерді білім беру үдерісіне қосу студенттердің оқу және жеке мәселелерін шешуге көмектеседі, бұл олардың эмоционалдық әлауқатын жақсартып, білім беру сапасын арттырады [3].

Шетелдік зерттеулер көрсеткендей, психологиялық қолдау алған студенттер жоғары өзін-өзі бағалау деңгейін көрсетеді және мазасыздық деңгейі төмендейді [2]. Бірқатар қазақстандық жоғары оқу орындары ерекше қажеттіліктері бар студенттер үшін кеңес беру қызметтерін және тәлімгерлік бағдарламаларын енгізе бастады. Бұл қызметтер студенттерге оқу және жеке кедергілерді жеңуге көмектеседі, өзін-өзі қолдау дағдыларын дамытып, университетке тиесілілік сезімін қалыптастырады. Мұндай қолдау Қазақстанда барған сайын өзекті мәселеге айналып келе жатқан әлеуметтік мүгедектік моделін, яғни қоршаған ортадағы кедергілерді жою және инклюзияны нығайту идеясын бейнелейді.

Инклюзивті білім берудегі инновациялық технологиялардың рөлі. Соңғы жылдары инновациялық технологиялар инклюзивті білім беруде маңызды орын алуда. Экранның оқу құралдары, бейімделген оқу қосымшалары мен онлайн платформалар сияқты көмекші технологиялар ерекше қажеттіліктері бар студенттердің оқу материалдарына қолжетімділігін айтарлықтай кеңейтеді. Зерттеулер көрсеткендей, адаптивті жүйелерді және жекелендірілген онлайн курстарды пайдалану студенттердің үлгерімін және оқу қанағаттанушылығын арттырады [5]. Coursera және Khan Academy сияқты цифрлық платформалар да студенттерге ыңғайлы қарқында білім алуға және физикалық шектеулерге қарамастан оқу материалдарына қол жеткізуге мүмкіндік береді [6].

Инновациялық технологиялар Қазақстандағы инклюзивті білім беруді дамытудың негізгі құралдарының бірі болып табылады, олар ерекше қажеттіліктері бар студенттер үшін оқу үдерісінің қолжетімділігін және ыңғайлылығын арттырады. Ассистивті технологиялар, мысалы, экран оқитын құралдар, сөзді мәтінге айналдыратын бағдарламалар және субтитрлер, оқу материалдарына қолжетімділікті жеңілдету үшін қолданылады [7]. Қазақстанда мұндай технологиялар Назарбаев Университеті мен Astana IT University сияқты жоғары оқу орындарында біртіндеп енгізілуде, бұл студенттерге материалдарды ыңғайлы форматта алуға мүмкіндік береді. Адаптивті оқу платформалары сондай-ақ әр студенттің қарқыны мен мүмкіндіктерін ескеретін жеке оқу траекторияларын құруға көмектеседі, бұл когнитивті немесе физикалық шектеулері бар студенттер үшін өте өзекті. Шетелдік зерттеулер мысалдары цифрлық платформалар мен виртуалды сыныптар студенттердің академиялық үлгерімі мен мотивациясын жақсартатынын көрсетеді, бұл Қазақстан үшін де олардың енгізілуін болашағы зор етеді [8]. Қазақстандық университеттердің инклюзивтілігі артып келе жатқан жағдайда, осындай технологияларды қолдану қолжетімді және тиімді білім беруді қалыптастырудың негізі болмақ.

Сонымен қатар, білім берудегі жасанды интеллект (ЖИ) технологияларын қолдану бейімделген оқыту үшін жаңа мүмкіндіктерді ұсынады. ЖИ жүйелері студенттердің прогресі туралы деректерді талдап, оларға жекелендірілген оқу бағдарламаларын ұсына алады. Бұл инклюзивті білім беру контекстінде, әрбір студенттің қажеттіліктерін ескеру маңызды болған кезде өте өзекті [9]. Мұндай технологиялар

арқылы студенттерді қолдау инклюзивті және қолжетімді білім беру ортасын қалыптастыруға ықпал етеді, бұл қазіргі заманғы жоғары оқу орындарының талаптарына сай келеді.

Әдебиетке шолу көрсеткендей, жоғары оқу орындарында инклюзивті білім беруді сәтті жүзеге асыру педагогикалық тәсілдерді, психологиялық қолдауды және инновациялық технологияларды біріктіруді талап етеді. Дифференциалды оқыту мен психологиялық бейімделу сияқты педагогикалық және психологиялық стратегиялар студенттердің оқу ортасында өздерін жайлы және сенімді сезінуіне көмектеседі. Сонымен қатар, инновациялық технологиялар білімнің қолжетімділігін қамтамасыз етуде маңызды рөл атқарады, студенттерге физикалық және оқу кедергілерін жеңуге көмектеседі. Осылайша, инклюзивті білім беру ортасын қалыптастыру осы негізгі факторларды біріктіру арқылы ғана мүмкін болады, бұл қазіргі заманғы білім беруде педагогикалық, психологиялық және технологиялық тәсілдердің интеграциясының маңыздылығын көрсетеді.

**Зерттеу әдістері.** Осы зерттеуде инклюзивті білім беру ортасындағы ерекше қажеттіліктері бар студенттердің тәжірибесін және инновациялық технологиялардың рөлін кешенді түсіну мақсатында жартылай құрылымдалған сұхбаттар мен сауалнамалар қолданылды.

**Сауалнама.** Сауалнама жоғары оқу орындарында білім алып жатқан 18-50 жас аралығындағы 30 ерекше қажеттіліктері бар адамдар арасында жүргізілді. Оның мақсаты – олардың тәжірибесін, кездесетін қиындықтарын және инновациялық білім беру технологияларының қолжетімділігін анықтау болды. Анкета жабық және ашық сұрақтарды қамтып, сандық және сапалық деректер алуға мүмкіндік берді.

**Жартылай құрылымдалған сұхбаттар.** Сұхбаттар инклюзивті қоғамды дамыту бойынша жұмыс істейтін екі ҮЕҰ өкілдерімен өткізілді және білім беру ортасында инновациялық технологияларды қолдану туралы олардың пікірлері мен ұсыныстарын зерттеуге бағытталды.




Деректерді талдау кезінде контент-талдау және статистикалық талдау әдістері қолданылды. Сұхбаттар негізгі тақырыптар мен ұсыныстарды жүйелеу үшін контент-талдау әдісімен өңделді. Ал сауалнама деректері қатысушылардың инклюзивті ортаға қанағаттану деңгейі мен технологиялардың қолжетімділігін анықтау үшін статистикалық тұрғыдан талданды.

Мұндай біріктірілген тәсіл тақырыпты жан-жақты түсінуге мүмкіндік беріп, жалпы үрдістер мен қатысушылардың жеке қажеттіліктерін анықтауға мүмкіндік берді.

### **Зерттеу нәтижелері және талқылау.**

**Сауалнама нәтижелері.** Зерттеу аясында 7 сұрақтан тұратын сауалнама «I Teach Me» дамыту орталығы жобаларының қатысушылары арасында жүргізілді. Ерекше қажеттіліктері бар 18 бен 49 жас аралығындағы 30-дан астам ересектер арасында жүргізілген сауалнама нәтижелері олардың инклюзивті білім беру ортасындағы

тәжірибесін, кездесетін қиындықтарын, сондай-ақ оқу үдерісінде инновациялық технологиялардың ролін қабылдауын анықтауға мүмкіндік берді.

№	Сауалнаманың негізгі сұрақтары	Нәтижелері										
1	<p><b>Негізгі қиындықтар:</b> Қатысушылар оқу үдерісіндегі негізгі кедергілер ретінде техникалық құралдардың жетіспеушілігін және оқытушылар тарапынан қолдаудың жеткіліксіздігін атады.</p>	<p>Оқу процесінде кездесетін негізгі қиындықтар</p>  <table border="1"> <caption>Оқу процесінде кездесетін негізгі қиындықтар</caption> <thead> <tr> <th>Қиындықтар</th> <th>Аталу саны</th> </tr> </thead> <tbody> <tr> <td>Отсутствие технических средств</td> <td>12</td> </tr> <tr> <td>Недостаток поддержки преподавателей</td> <td>10</td> </tr> <tr> <td>Нет проблем</td> <td>8</td> </tr> </tbody> </table>	Қиындықтар	Аталу саны	Отсутствие технических средств	12	Недостаток поддержки преподавателей	10	Нет проблем	8		
Қиындықтар	Аталу саны											
Отсутствие технических средств	12											
Недостаток поддержки преподавателей	10											
Нет проблем	8											
2	<p><b>Оқу материалдарын бейімдеу:</b> Қатысушылардың көпшілігі оқу материалдарының олардың білім алу қажеттіліктеріне тек жартылай бейімделгенін атап өтті, бұл жақсартулар қажеттігін көрсетеді.</p>	<p>Оқу материалдарының арнайы қажеттіліктерге бейімделуі</p>  <table border="1"> <caption>Оқу материалдарының арнайы қажеттіліктерге бейімделуі</caption> <thead> <tr> <th>Бейімделу деңгейі</th> <th>Қатысушылар саны</th> </tr> </thead> <tbody> <tr> <td>Частично адаптированы</td> <td>20</td> </tr> <tr> <td>Полностью адаптированы</td> <td>5</td> </tr> <tr> <td>Не адаптированы</td> <td>5</td> </tr> </tbody> </table>	Бейімделу деңгейі	Қатысушылар саны	Частично адаптированы	20	Полностью адаптированы	5	Не адаптированы	5		
Бейімделу деңгейі	Қатысушылар саны											
Частично адаптированы	20											
Полностью адаптированы	5											
Не адаптированы	5											
3	<p><b>Инновациялық технологиялардың әсері:</b> Респонденттердің көпшілігі технологиялардың әсерін «өте оң» немесе «ішінара оң» деп бағалады, бұл инклюзивті білім беруде оларды пайдаланудың маңыздылығын көрсетеді.</p>	<p>Технологиялардың оқу үдерісіне әсері</p>  <table border="1"> <caption>Технологиялардың оқу үдерісіне әсері</caption> <thead> <tr> <th>Әсер деңгейі</th> <th>Қатысушылар саны</th> </tr> </thead> <tbody> <tr> <td>Өте жақсы әсер</td> <td>15</td> </tr> <tr> <td>Жақсы әсер</td> <td>8</td> </tr> <tr> <td>Жартылай жақсы әсер</td> <td>5</td> </tr> <tr> <td>Теріс әсер жоқ</td> <td>2</td> </tr> </tbody> </table>	Әсер деңгейі	Қатысушылар саны	Өте жақсы әсер	15	Жақсы әсер	8	Жартылай жақсы әсер	5	Теріс әсер жоқ	2
Әсер деңгейі	Қатысушылар саны											
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Жартылай жақсы әсер	5											
Теріс әсер жоқ	2											

Зерттеу аясында әр түрлі жастағы ерекше қажеттілігі бар адамдармен жұмыс жасайтын, олардың әлеуметтенуі мен қоғамға сіңісуіне мүмкіндік жасауда қызмет етіп жүрген 2 үкіметтік емес ұйымның өкілдерімен сұхбат жүргізілді. Сауалнама және

сұхбаттасу нәтижесінде жоғарғы оқу орындарында инклюзивті білім беруді дамыту бойынша ұсыныстар жинақталды, олар келесідей:

Оқытушылар мен тәлімгерлердің біліктілігін арттыру. Қазақстандық жоғары оқу орындарында инклюзивті педагогика, оқу материалдарын бейімдеу әдістері және ерекше қажеттіліктері бар студенттерге эмоционалдық қолдау көрсету бойынша курстарды қамтитын педагогтарды даярлау және біліктілігін арттыру бағдарламаларын құру. Бұл курстар оқытушыларға әртүрлі білім алу қажеттіліктері бар студенттерді жақсы түсінуге және оларды тиімді қолдауға көмектеседі.

Көмекші технологияларды енгізу және дамыту. Ерекше қажеттіліктері бар студенттердің оқу үдерісін жеңілдету үшін заманауи технологиялар мен арнайы бағдарламалық қамтамасыз етуді (мысалы, көру және есту қабілеті нашар студенттерге арналған) пайдалану. Қазақстанда мұндай енгізулер оқу материалдарын бейімдеуге мүмкіндік беретін онлайн платформаларды қолдауды қамтуы мүмкін.

Кешенді психологиялық қолдау. Академиялық ортада студенттердің сенімділігін арттыру және бейімделуіне көмектесу үшін ерекше қажеттіліктері бар студенттерге психологиялық көмек пен тәлімгерлік бағдарламаларды күшейту. Білім алу және әлеуметтену үдерісінде ата-аналарға өздерінің ерекше қажеттіліктері бар балаларына тиімдірек қолдау көрсету үшін кеңес беру қызметтерін қосу. Бұл қолдау студенттерге сенімділікті сезінуге және оқу үдерісіне толыққанды қатысуға көмектеседі.

Онлайн оқытуды кеңейту. Ерекше қажеттіліктері бар студенттерге бейімделген онлайн курстар санын көбейту, бұл оқытуды икемді әрі қолжетімді етеді. Қазақстан жағдайында бұл шалғай аудандардағы студенттерге қашықтан білім беру және оқу материалдарын бейімдеуді қамтуы мүмкін, осылайша тең білім алу мүмкіндіктерін жасауға ықпал етеді.

Цифрлық кітапханаларға қолжетімділікті арттыру. Аудиокітаптар, субтитрлермен және ым тіліндегі аудармамен дәрістерді қамтитын бейімделген материалдармен қамтамасыз етілген қолжетімді цифрлық кітапханалар құру. Мұндай ресурстар қосымша материалдарға мұқтаж студенттер үшін пайдалы болып, білім беру контентіне кең қолжетімділікті қамтамасыз етеді.

Сонымен қатар, білім алу барысында инфрақұрылымды бейімдеу де маңызды орын алады. Рампалар, лифттер орнату және ерекше қажеттіліктері бар студенттерге арналған ыңғайлы оқу кабинеттерін құру арқылы оқу орындарының қолжетімділігін қамтамасыз ету университеттердегі физикалық шектеулері бар студенттерге мүмкіндік аясын кеңейтуге жол ашады. Ал қоғамдық ұйымдар және жұмыс берушілермен ынтымақтастық ерекше қажеттіліктері бар студенттер үшін жұмысқа орналасу және қоғамдық өмірге қатысу мүмкіндіктерін жасайды. Бұл Қазақстанда бұл инклюзивті білім беру және әлеуметтік интеграция саласында жұмыс істейтін жергілікті ҰЕҰ-мен бірге тағылымдамалар, тәлімгерлік бағдарламалар және консультациялар бағдарламаларын қамтуы мүмкін.

Осы орайда мемлекет деңгейінде инклюзивті мәдениетті қалыптастыру қажеттілігі туындайды. Университеттерде толеранттылық пен өзгешеліктерді құрметтеу мәдениетін дамыту бойынша студенттер мен оқытушылар арасында достық және қолдаушы ортаны қалыптастыруға бағытталған бағдарламалар өткізу арқылы қоғамда әртүрлілікке саналы және ашық көзқарас қалыптастыруына көмектеседі. Бұл ұсыныстар Қазақстанда инклюзивті білім беруді қолдау мен дамытуға бағытталған, бұл ерекше қажеттіліктері бар студенттерге сапалы және қолжетімді білім алуға мүмкіндік береді.

**Қорытынды.** Осы зерттеу Қазақстандағы инклюзивті білім беруге кешенді көзқарастың маңыздылығын растады, ол педагогикалық стратегияларды, психологиялық қолдауды және инновациялық технологияларды қолдануды қамтиды. Жоғары оқу орындарындағы инклюзивті білім беру ерекше қажеттіліктері бар студенттердің академиялық жетістіктеріне ықпал етіп қана қоймай, олардың әлеуметтік бейімделуі мен тұлғалық дамуына да маңызды рөл атқарады.

Сауалнама деректерін талдау бірнеше маңызды аспектілерді анықтады. Біріншіден, ерекше қажеттіліктері бар студенттер оқу үдерісінде оқу материалдарының жеткіліксіз бейімделуі және оқытушылардың шектеулі қолдауы сияқты бірқатар кедергілерге тап болады. Бұл педагогтардың инклюзивті білім беру саласындағы біліктілігін арттырудың және дифференциалды оқыту мен оқытудың әмбебап дизайны сияқты әдістерді кеңінен енгізудің қажеттілігін көрсетеді. Педагогтар студенттердің жеке қажеттіліктеріне бейімделген оқу үдерісін тиімді ұйымдастыру дағдыларына ие болуы маңызды, бұл олардың үлгерімін және мотивациясын айтарлықтай арттырады.

Екіншіден, зерттеу нәтижелері ерекше қажеттіліктері бар студенттердің университет ортасына сәтті бейімделуі үшін психологиялық қолдаудың маңызын көрсетеді. Психологиялық көмек пен тәлімгерлік студенттердің өзін-өзі бағалауы, эмоционалдық тұрақтылығы және мотивациясы үшін оң әсерін тигізеді. Сондай-ақ, ерекше қажеттіліктері бар студенттердің ата-аналарын қолдау маңызды, бұл жастардың сәтті бейімделуі мен әлеуметтенуіне ықпал етеді.

Үшіншіден, инновациялық технологиялар білімнің қолжетімділігін арттыруда орталық рөл атқарады. Көмекші технологияларды, бейімделген онлайн-платформаларды және қолжетімді цифрлық кітапханаларды пайдалану физикалық және когнитивті шектеулері бар студенттер үшін жаңа мүмкіндіктер ашады. Мұндай технологиялар физикалық кедергілерді жойып қана қоймай, оқытуды жекелендіруге де ықпал етеді, оқу үдерісін икемді әрі ыңғайлы етеді.

**Практикалық ұсыныстар.** Зерттеу нәтижелеріне сүйене отырып, Қазақстанда инклюзивті білім беру ортасын жақсарту бойынша келесі ұсыныстарды беруге болады: оқытушылардың біліктілігін арттыру, көмекші технологияларды дамыту, кешенді психологиялық қолдау, онлайн-курстар санын арттыру, инфрақұрылымды бейімдеу.

Осы ұсыныстарды жүзеге асыру ерекше қажеттіліктері бар студенттердің оқу үдерісіне толыққанды қатысуына және басқа студенттермен тең сапалы білім алуына мүмкіндік беретін инклюзивті білім беру ортасын құруға мүмкіндік береді.

### Әдебиеттер тізімі

1. Томлинсон К. Оқытудың әмбебап дизайны: инклюзивті білім беру ортасын құруға арналған тәсіл. М.: «Ресурс» ұлттық білім беру орталығының баспасы, 2014. 240 б.
2. Johnson W., Howell L. Инклюзивті білім беруге психологиялық қолдау: тәлімгерлік бағдарламаларының рөлі. Нью-Йорк: Academic Press, 2020. 152 б.
3. Davies J. Инклюзивті білім беру: педагогикалық және психологиялық тәсілдерді біріктіру. Лондон: Routledge, 2022. 310 б.
4. CAST. Оқытудың әмбебап дизайны бойынша нұсқаулықтар. Уэйкфилд, МА: CAST, 2018. URL: <http://udlguidelines.cast.org> (қаралған күні: 30.10.2024).
5. Wilson K., Grant M. Жоғары білім беру жүйесіндегі адаптивті оқыту жүйелерінің рөлі // Білім беру технологиялары журналы. 2023. Т. 45. №2. Б. 110–125.
6. Green A., Patterson T., Chen Y. Білім берудегі көмекші технологиялар және қолжетімділік. Лондон: Springer, 2021. 305 б.
7. Alper S., Rahariniğina S. Мүмкіндігі шектеулі адамдарға арналған көмекші технологиялар: әдебиеттерді шолу және синтез // Арнайы білім беру технологиялары журналы. 2006. Т. 21. №2. Б. 47–64.
8. Vouck E.C. Мүмкіндігі шектеулі оқушыларға арналған технологияларды жүйелі шолу // Арнайы білім беру журналы. 2010. Т. 45. №1. Б. 27–43.
9. Lee Y. Инклюзивті білім беруге арналған жасанды интеллект және жекелендірілген оқыту. Токио: University Press, 2022. 280 б.

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## **STUDENT-FACULTY INTERACTIONS IN VIRTUAL LEARNING ENVIRONMENTS: A PSYCHOLOGICAL PERSPECTIVE ON ENHANCING ENGAGEMENT AND LEARNING OUTCOMES**

**Abstract:** virtual learning environments (VLEs) have become essential to the student experience in the constantly evolving environment of higher education, especially in light of recent global trends towards online learning. The psychology of student-faculty interactions in virtual learning environments (VLEs) is examined in this article, with a focus on the significant influence these interactions have on student engagement and learning results. The study emphasizes important elements determining the effectiveness and quality of these interactions, such as communication styles, responsiveness, and perceived support, based on latest study results and real-world evidence. Through an analysis of the mutual aspect of these interactions and how they correspond with learning and motivation theories based on psychology, the paper suggests methods for maximizing student-teacher participation in online environments.

**Object of research:** The object of this research is to investigate the psychological dynamics of student-faculty interactions within virtual learning environments (VLEs) and their impact on student engagement and learning outcomes. This study focuses on critical elements such as communication styles, responsiveness, and perceived support, as these factors significantly shape the quality and effectiveness of these interactions. By integrating psychological theories related to motivation and engagement, the research aims to identify and propose strategies for enhancing these interactions in online settings. The research will further explore how the unique characteristics of VLEs—such as asynchronous communication and the absence of non-verbal cues—affect students' sense of connection,



motivation, and academic performance. Ultimately, the study seeks to provide insights into optimizing student-faculty engagement in digital platforms, ensuring that such interactions foster productive, supportive, and enriching educational experiences.

**Keywords:** student-faculty interactions, virtual learning environments, student engagement, psychological perspective, learning outcomes

**Introduction.** With the rapid progression of technology and the increasing reliance on online education, the traditional model of student-faculty interaction has undergone a profound transformation. Virtual learning environments (VLEs) have become central platforms for delivering education, providing students with flexibility, accessibility, and a range of digital tools for learning. However, while these digital platforms offer many conveniences, they also introduce significant differences in how students and faculty communicate and engage. The move from physical classrooms to virtual spaces raises critical questions about how interactions in these new environments can be optimized to enhance student motivation, engagement, and academic success.

In the absence of face-to-face interactions, students may experience feelings of isolation or disconnection from both their peers and their instructors. This emotional distance can lead to decreased motivation, reduced participation, and ultimately, poorer learning outcomes. On the other hand, the unique opportunities that virtual environments offer, such as flexible communication channels, multimedia resources, and collaborative tools, provide an avenue for rethinking how student-faculty engagement can be structured. The challenge lies in leveraging these opportunities to overcome the potential pitfalls associated with virtual learning, such as passive participation or lack of immediate feedback, and instead foster a more interactive and engaging educational experience.

From a psychological perspective, understanding the dynamics of student-faculty interactions in VLEs is crucial. Unlike traditional settings, where non-verbal cues, immediate responses, and spontaneous dialogue often guide interaction, virtual classrooms rely heavily on structured, asynchronous communication, written exchanges, and technology-mediated feedback. These differences can affect the way students perceive their relationship with faculty, their sense of belonging in the academic community, and their overall engagement with course material. Therefore, it becomes essential to explore strategies that can bridge this gap, ensuring that virtual interactions are not only efficient but also meaningful and supportive of students' academic and emotional needs.

This article delves into the psychological aspects of student-faculty interactions in virtual learning environments, with a focus on identifying strategies that can enhance student engagement and improve learning outcomes. By examining the role of communication styles, feedback mechanisms, and the availability of faculty in digital settings, the paper seeks to shed light on best practices for fostering strong and productive relationships between students and educators in the virtual classroom. Additionally, it will explore how these

interactions influence students' academic performance, motivation, and overall satisfaction with their learning experience. By understanding these psychological factors, educational institutions can develop more effective methods of engagement, leading to better student retention and success in online courses.

**Literature review.** The landscape of higher education has been significantly transformed by virtual learning environments (VLEs), necessitating a closer examination of student-faculty interactions and their impact on engagement and learning outcomes. Moore's Transactional Distance Theory [12], introduced in 1972, provides a foundational framework for understanding these interactions in distance education. This theory posits that the psychological distance between learners and instructors, rather than physical separation, is crucial in shaping the learning experience. Three key factors influence this distance: dialogue (the quality of communication), structure (course design and organization), and learner autonomy (students' ability to approach content independently). Building on this, the concept of student engagement has emerged as a critical factor in educational outcomes, with the National Survey of Student Engagement (NSSE) identifying student-faculty interaction as one of five benchmarks of effective educational practice [6], [7].

In VLEs, student-faculty interactions have evolved to include both synchronous and asynchronous communication methods. Pascarella and Terenzini [14] identified various types of these interactions, ranging from basic academic program advice to discussions about intellectual matters and future careers. The quality of these engagements has been emphasized as more important than frequency [6], with research showing that student-faculty interactions contribute to both intellectual and personal outcomes [1]. Notably, informal, friendly contacts outside the classroom can significantly impact student motivation and attitudes towards learning [3].

The role of technology in facilitating these interactions has become increasingly important in VLEs. Li et al. [10] explored the effectiveness of synchronous versus asynchronous communication in online learning environments, finding that while both methods can be effective, the choice depends on the specific learning context and student preferences. From a psychological perspective, Self-Determination Theory provides insights into how student-faculty interactions can support or hinder students' basic psychological needs for autonomy, competence, and relatedness [15]. In VLEs, fostering these needs through meaningful interactions can enhance intrinsic motivation and engagement.

The concept of social presence – the degree to which participants in computer-mediated communication feel affectively connected to one another – is crucial in VLEs [2]. Faculty who can establish a strong social presence through their interactions are more likely to create a sense of community and enhance student engagement. Studies have consistently shown a positive correlation between quality student-faculty interactions and academic performance, with Kim and Sax [5] finding that these interactions can have differential effects based on student characteristics such as gender, race, and social class.

Lundberg and Schreiner [11] demonstrated that the quality and frequency of faculty-student interactions are significant predictors of learning across various student demographics, contributing to the development of critical thinking skills and deeper understanding of course content. Moreover, these interactions play a crucial role in student retention and persistence in VLEs, as emphasized in Tinto's [18] model of student retention, which highlights the importance of academic and social integration.

However, VLEs present unique challenges in reducing transactional distance. Faculty must be intentional in creating opportunities for meaningful interactions, utilizing both synchronous (e.g., video conferencing) and asynchronous (e.g., discussion forums) tools effectively. While VLEs offer the potential for more personalized learning experiences, scaling quality interactions in large online courses remains a challenge. Innovative approaches, such as peer-mentoring and AI-assisted communication, are being explored to address this issue.

Effective student-faculty interactions in VLEs require specific skills and strategies. Institutions must invest in professional development to equip faculty with the necessary tools and techniques for engaging students in online environments [4]. As VLEs continue to evolve, understanding and optimizing these interactions will be key to ensuring high-quality educational experiences. Future research should focus on developing and validating best practices for student-faculty interactions in diverse VLEs, considering the unique needs of different student populations and subject areas. Additionally, exploring the long-term impacts of these interactions on career outcomes and lifelong learning attitudes could provide valuable insights for shaping the future of online education.

**Theoretical framework.** This study examines the significance of student-faculty interactions in virtual learning environments (VLEs) using Deci and Ryan's [15] Self-Determination Theory (SDT). The well-known SDT framework emphasizes the need of meeting the three fundamental psychological needs of autonomy, competence, and relatedness in order to understand human motivation and well-being. When these requirements are satisfied, people are more likely to experience improved motivation, engagement, and performance. To increase student engagement and learning performance in the context of virtual learning, it is crucial to comprehend how these demands might be met through interactions between students and professors.

#### A. Autonomy.

Autonomy is a need to feel in control of one's own actions and decisions. Students in VLEs frequently have more possibilities for autonomous study, but autonomy is more than just working alone. It also includes the type of help students receive from professors. According to SDT, autonomy-supportive environments in which students are offered choices, encouraged to make decisions, and given some control over their learning result in better intrinsic motivation [17]. In virtual contexts, this might imply that professors give students freedom in how they handle tasks or give them an active role in creating course

activities. Faculty interactions that provide a feeling of autonomy might help students feel more motivated and engaged in their study.

### B. Competence.

Competence refers to the desire to feel competent and capable in fulfilling one's responsibilities. Students in VLEs frequently encounter obstacles such as maintaining their own learning speed and comprehension of information in the absence of an instructor. Faculty-student interactions, such as offering consistent, constructive feedback and defining goals, can help students develop a sense of competence. According to SDT, when students feel confident in their academic skills, they are more likely to participate and perform well [15]. In virtual contexts where students may not receive instant feedback, timely and helpful interactions from instructors play an essential role in helping students acquire confidence in their skills.

### C. Relatedness

Relatedness refers to the need to feel linked to people, which can be especially difficult in virtual situations when face-to-face interactions are limited. Faculty in a virtual learning environment may enhance relatedness by being approachable, attentive, and providing chances for meaningful contact, such as group discussions or one-on-one consultations. Whenever students feel like they are part of a learning community and have strong ties with professors, they are more likely to remain motivated and engaged, even in the lack of physical engagement [13].

### D. Implementation of SDT in virtual learning environments

The nature of online learning makes it more difficult to meet students' requirements for autonomy, competence, and relatedness. However, SDT offers a valuable framework for understanding how to shape student-faculty interactions to suit these psychological demands. Faculty can encourage autonomy by providing students more control over their learning process, improve competency via constructive criticism and assistance, and foster relatedness by keeping an open and supportive channel of contact [9].

Through this viewpoint, the project seeks to investigate how student-faculty interactions in virtual learning environments contribute to meeting these three psychological demands, and how this, in turn, affects student engagement and learning results. Applying SDT allows us to obtain a better knowledge of the elements that drive student motivation and performance in virtual learning environments.

**Methodology.** This study employs a quantitative research approach, which is particularly fitted for an analysis of the relations that exist among student-faculty interactions, engagement indicators, and educational outcomes in the context of VLE. A quantitative framework will be employed since there is a need for quantifiable, statistical data that can deliver unbiased insights into the psychological aspects of such interactions. This approach allows to systematically and numerically investigate trends, compare variables against each other, and generalize findings in a larger population. Moreover, the quantitative

strategy is better positioned to test hypotheses about the effectiveness of different communication styles and feedback mechanisms that have emerged from the literature review.

#### A. Research variables.

Interaction types are identified as modes of communication between students and faculty and classified as either synchronous, such as live video conferencing, or asynchronous, such as emails, discussion forums. Communication styles are defined as either formal, structured, academic language, or informal, casual and supportive tones. Finally, feedback mechanisms represent another independent variable, through nature, like written or verbal feedback, and the frequency with which instructors provide assessments of student performance.

Dependent variables include critical measures of engagement metrics, which represent quantifiable measures of student engagement, including frequency of faculty interaction, participation in class activities, and time spent on coursework. Another dependent variable is learning outcomes, including measures of academic performance like grades, completion rates of assignments, and self-reported learning improvements. Last but not least, perceived support concerns the extent to which students may feel emotional and academic support provided by faculty, measured through self-reported surveys on the quality of interaction and impact it has on the educational experience.

#### B. Data collection instrument.

Data will be collected through an online survey using Google Forms because it is easy to access, efficient in data collection, and allows anonymity for quantitative data. The purpose of collecting data with help of online surveys is to have the most accurate responses from respondents. This type of method decreases the margin error because it has little human interference, while traditional methods have at least 10% of margin error because of human interference. The questionnaires will be forwarded to students enrolled in VLEs across different academic departments of Astana IT University and other higher education institutions of Kazakhstan for different experiences.

The initial phase will involve the gathering of demographic data, including variables such as age, gender, academic year, and area of study. Subsequently, participants will be requested to elaborate on the nature and frequency of their interactions with faculty members, encompassing modes of communication such as emails, discussion forums, or video conferencing, which will be evaluated using a Likert scale. In order to evaluate engagement, the survey will incorporate inquiries aimed at quantifying students' involvement in classroom activities, the frequency of interactions with faculty members, and the duration allocated to online course materials. Furthermore, learning outcomes will be assessed via self-evaluation questions, wherein students will appraise their academic development, completion of assignments, and perceived enhancements in their learning. In the end, the survey will include a perceived support scale, adapted from respected psychological tools, to

obtain a measure of emotional and academic support that students perceive they receive from faculty in the context of the virtual learning environment.

**Data collection.** The primary data for this study were collected through an online Google Forms survey. The questionnaire was distributed among students across various academic levels and fields of study. The target population included students from undergraduate and graduate programs, with a specific focus on fields such as STEM, Business, Social Sciences, and Humanities. The data collection process was conducted from October 14 to October 20, 2024. The survey gathered responses on key variables including the frequency of participation in discussions, perceived support from faculty, hours spent studying, confidence in the knowledge gained, and overall motivation in virtual compared to in-person classes. A total of 51 responses were received, all of them were valid for statistical analysis. The respondents represented a diverse group in terms of age (ranging from under 16 to 25 and above), gender, academic level, and field of study, ensuring a comprehensive view of student experiences in VLE. The general information of respondents is shown in Table I.

**Table 1. Field of study.**

Field of study	No.	%
STEM	37	72.5
Social Sciences	8	15.7
Business	5	9.8
Humanities	1	2.0
Total	51	100

## Results and discussion

### A. Interaction types and frequency.

The Table II shows partial divisions in the preferences of the respondents regarding what kind of faculty-student interactions work best for their VLE. In this regard, interaction types considered in the present survey were live video sessions, discussion forums/chats-using MS Teams, Telegram, WhatsApp-and email communication. Most of the students preferred discussion forums or chatting platforms with 49%, followed by live video sessions with 37.2%, while email was favored by 9.8% of the participants.

**Table 2. Interaction type.**

Preferred interaction type	No.	%
Discussion forums/chat	25	49.0
Live video sessions	19	37.2
Email	5	9.8

All above	1	2.0
Word of mouth	1	2.0
Total	51	100

The Chi-square statistic is calculated to be 10.48 by comparing the observed frequencies with the expected frequencies using the formula:

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

The p-value = 0.233, which indicates the probability of observing a Chi-square statistic as extreme as 10.48 under the null hypothesis, so there is no association between academic level and preferred interaction type. Since the p-value is greater than the common significance level of 0.05, it fails to reject the null hypothesis. This means there is no statistically significant relationship between academic level and preferred interaction type among the respondents in this survey.

These preferences can be explained from a psychological point of view using the SDT, which postulates that motivation among students is basically anchored on the satisfaction of psychological needs for autonomy, competence, and relatedness, which aligns with Ryan & Deci. The choice of discussion forums/chat platforms by the greatest proportion of respondents aligns with the concept of autonomy-supportive environments. Asynchronous platforms allow students to engage with course material at their own pace, providing them the autonomy to manage their learning in ways that suit their individual needs, as was said by Ryan & Vansteenkiste.

On the other hand, a preference for live video sessions is connected with the need for connectedness and competence. Real-time interactions with faculty open opportunities for feedback and questions, thus decreasing psychological distance and continuing the sense of community advanced by Moore. Such interactions provide students with a greater connectedness both to the course content and to the instructor himself, increasing their perceived competence in that they receive direct support in mastering complex material.

### B. Engagement.

Respondents were asked about their frequency in participating in faculty-led discussions, a core aspect of engagement. As shown in Table III, a majority of students reported they participated in "Most sessions" or "Occasionally", with 35.3% and 39.2% respectively, while 7.8% reported never participating. Not surprisingly, students who reported participating more frequently in discussion generally reported higher levels of confidence and academic performance and felt supported by faculty.

**Table 3. Engagement in discussions.**

How often do you participate in discussions	No.	%
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<b>initiated by your faculty at online classes?</b>		
Every session	3	5.9
Most sessions	18	35.3
Occasionally	4	39.2
Rarely	20	11.8
Never	6	7.8
Total	51	100

To assess the relationship between participation frequency and self-reported academic performance, Pearson's correlation coefficient was calculated using the formula:

$$r = \frac{\Sigma(x - \underline{x})(y - \underline{y})}{\sqrt{\Sigma(x - \underline{x})^2 \Sigma(y - \underline{y})^2}}$$

The correlation between participation in discussions and academic performance was  $r = 0.43$ , indicating a moderate positive relationship. This suggests that more active participation in discussions may enhance academic outcomes in VLEs.

The open question "What strategies or actions from faculty have made you feel more supported or engaged in your virtual learning experience?" elicited very rich qualitative responses about the detailed behaviors and specific actions identified by students as meaningful in their virtual learning experiences. A large number of the respondents strongly asserted getting timely and comprehensive feedback relative to the assignments and questions taken up. One of them mentioned that the feedback from the teachers made them feel well-endowed with support. Another said that explanations in detail on the part of faculty really helped them be engaged and felt valued in the course. The students identified many interactive elements, such as discussions and live problem-solving sessions, contributing most to their perception of support. One respondent reported the faculty who "created activities that would add up points to the grade" to be great in their own interactions.

These findings are consistent with existing theories of social presence described by Garrison, where faculty members who are approachable, attentive, and responsive can reduce the psychological distance between themselves and their students, creating a stronger sense of community and support. This can reduce feelings of isolation, which, as observed in the survey, negatively impacts student engagement.

### C. Motivation.

Respondents were asked how motivated they felt in virtual classes compared to in-person classes. The distribution in Table IV suggests that roughly half, 50.9%, of the participants either felt "more motivated" or "about the same" when in virtual settings, and 39.3% felt less motivated or much less motivated.



**Table 4. Motivation comparison.**

<b>How motivated do you feel to participate in virtual classes as compared to in-person classes?</b>	<b>No.</b>	<b>%</b>
Much more motivated	5	9.8
More motivated	9	17.6
About the same	17	33.3
Less motivated	14	27.5
Much less motivated	6	11.8
Total	51	100

Respondents who felt less motivated probably had a hard time being far from the physical presence and direct interaction in traditional classes. Sometimes, students feel a total disconnect from their classmates and instructors, and this might have implications for their need for relatedness - one of the basic psychological needs in SDT. This is again evidenced by Moore's Transactional Distance Theory - that such psychological distance, formed due to learning virtually, sending asynchronous communication, and the unavailability of non-verbal cues, contributes to students' detachment from the scholarly community.

The frequency of feelings of isolation in VLEs is another crucial aspect of student experience. These results shown in Table V highlight a concerning trend where more than 80% of respondents experience some degree of isolation, either occasionally or frequently. This emotional disconnection is consistent with existing research that underscores the challenges posed by the lack of face-to-face interactions in VLEs.

**Table 5. Isolation feeling.**

<b>How often do you feel isolated or disconnected from the academic community in virtual classes?</b>	<b>No.</b>	<b>%</b>
Always	5	9.8
Frequently	18	35.3
Occasionally	19	37.3
Rarely	8	15.7
Never	1	2.0
Total	51	100

The Pearson correlation coefficient for feelings of isolation and feelings of being supported is 0.979. It indicates that for every increase in feelings of isolation, feelings of

being supported tend to increase at a near proportional rate. However, this result is somewhat counterintuitive as it is expected for higher isolation to correlate with lower support.

This high correlation could be a function of the distribution in the responses within the data. In this respect, both feelings of isolation and feelings of support show peaked responses around their midpoints, like "Occasionally" and "Neutral".

#### D. Learning outcomes.

**Table 6. Confidence in Knowledge and Skills Gained.**

How confident do you feel about the knowledge and skills you have gained from that course?	No.	%
Very confident	7	13.7
Confident	17	33.3
Neutral	16	31.4
Somewhat unconfident	5	9.8
Very unconfident	6	11.8
Total	51	100

The majority of respondents feel positively about the skills they've gained from the course. 33.3% feel confident, and 13.7% are very confident in their understanding. However, a substantial portion of students (31.4%) remain neutral, suggesting uncertainty or moderate confidence. A smaller but important group of students (21.6%) expressed low confidence, which points to a need for additional support or instructional adjustments to enhance their learning experience.

**Table 7. Application of Knowledge in Real-World Scenarios.**

Have you been able to apply the knowledge from that course in real-world scenarios or other academic contexts?	No.	%
Very confident	10	20.4
Confident	19	38.8
Neutral	15	30.6
Somewhat unconfident	5	10.2
Total	49	100

Regarding the application of knowledge, 20.4% of students frequently apply what they have learned, while a more significant proportion (38.8%) only occasionally use their newly

acquired skills. This indicates that while many students recognize the practical use of the material, most do not consistently translate it into real-world or academic contexts. Furthermore, 30.6% of students rarely apply their knowledge, and 10.2% have not done so at all, signaling a potential gap between theory and practice that could be addressed to enhance the relevance and practicality of the course.

#### E. Perceived support.

The perception of support from faculty in virtual learning environments (VLEs) is a key factor influencing student satisfaction and engagement. Table X shows that nearly half of the respondents (43.1%) felt either supported or very supported by their faculty. However, a significant portion of students (35.3%) expressed neutrality, which may indicate a lack of clear support or involvement from their instructors. This ambivalence could suggest that the virtual nature of the environment hinders the usual faculty-student interactions that help foster a sense of connection and encouragement.

At the same time, 21.5% of respondents reported feeling either unsupported or not supported at all, a troubling statistic that highlights the potential emotional and academic struggles faced by some students. According to Self-Determination Theory (SDT), support is closely linked to the basic psychological need for relatedness, which, when unmet, can lead to disengagement and diminished motivation. The lack of perceived support might also intensify feelings of isolation, as indicated by the strong Pearson correlation (0.979) between feelings of isolation and support.

**Table 8. Support.**

How supported did you feel by your faculty in that virtual learning environment?	No.	%
Very supported	7	13.7
Supported	15	29.4
Neutral	18	35.3
Not very supported	7	13.7
Not supported at all	4	7.8
Total	51	100

The correlation suggests that as students feel more isolated, their perception of being supported increases, which appears counterintuitive. This phenomenon could be explained by the fact that many respondents felt both "occasionally" isolated and "neutral" or "moderately" supported, clustering their responses around the middle options. This distribution may reflect a generalized experience of VLEs, where students are neither entirely disconnected nor fully integrated into the academic community, but instead navigate a fluctuating middle ground between these extremes.

**Conclusion.** The study on student-faculty interactions in virtual learning environments reveals several key insights. Students show a preference for discussion forums/chat platforms and live video sessions for faculty interactions, highlighting the importance of both asynchronous and synchronous communication methods. While many students participate actively in discussions, a significant portion only engage occasionally, indicating a need for improved engagement strategies.

Motivation levels in virtual classes vary, with about half of the students feeling either more motivated or equally motivated compared to in-person classes. However, a substantial portion report feeling less motivated, suggesting room for improvement in virtual engagement techniques. Confidence in knowledge and skills gained from courses is generally positive, but a notable number of students express uncertainty or low confidence, pointing to areas where instructional support could be enhanced.

The ability to apply knowledge in real-world scenarios or other academic contexts is mixed, with many students only occasionally using their newly acquired skills. This highlights a potential gap between theoretical learning and practical application that needs addressing. Student perceptions of faculty support are diverse, with a significant number feeling supported, but also a considerable portion expressing neutrality or lack of support.

A concerning trend is the high prevalence of feelings of isolation in virtual learning environments, with over 80% of students experiencing some degree of disconnection from the academic community. This underscores the challenge of maintaining connectedness in virtual settings.

The study emphasizes the importance of tailoring student-faculty interactions to meet psychological needs of autonomy, competence, and relatedness, as outlined in Self-Determination Theory. Effective strategies include providing timely and comprehensive feedback, offering detailed explanations, and creating interactive elements such as discussions and live problem-solving sessions.

To enhance the virtual learning experience, institutions should focus on developing faculty skills for engaging students online, implementing a mix of synchronous and asynchronous communication tools, creating opportunities for meaningful interactions, addressing feelings of isolation through increased support and connectivity, and bridging the gap between theoretical knowledge and practical application. By addressing these areas, virtual learning environments can foster stronger student-faculty relationships, increase student engagement, and ultimately improve learning outcomes.

### References:

1. Endo J. J., Harpel R. L. The effect of student-faculty interaction on students' educational outcomes // *Research in Higher Education*. – 1982. – Vol. 16, № 2. – P. 115–138.

2. Garrison D. R., Anderson T., Archer W. Critical inquiry in a text-based environment: Computer conferencing in higher education // *The Internet and Higher Education*. – 2000. – Vol. 2, № 2–3. – P. 87–105.

3. Jaasma M. A., Koper R. J. The relationship of student-faculty out-of-class communication to instructor immediacy and trust and to student motivation // *Communication Education*. – 1999. – Vol. 48, № 1. – P. 41–47.

4. Keengwe J., Kidd T. T. Towards best practices in online learning and teaching in higher education // *MERLOT Journal of Online Learning and Teaching*. – 2010. – Vol. 6, № 2. – P. 533–541.

5. Kim Y. K., Sax L. J. Student–faculty interaction in research universities: Differences by student gender, race, social class, and first-generation status // *Research in Higher Education*. – 2009. – Vol. 50, № 5. – P. 437–459.

6. Kuh G. D. Assessing what really matters to student learning inside the national survey of student engagement // *Change: The Magazine of Higher Learning*. – 2001. – Vol. 33, № 3. – P. 10–17.

7. Kuh G. D. What student affairs professionals need to know about student engagement // *Journal of College Student Development*. – 2009. – Vol. 50, № 6. – P. 683–706.

8. Kuh G. D., Hu S. The effects of student-faculty interaction in the 1990s // *The Review of Higher Education*. – 2001. – Vol. 24, № 3. – P. 309–332.

9. Legault L. Self-determination theory // *Encyclopedia of personality and individual differences*. – Cham: Springer International Publishing, 2020. – P. 4694–4702.

10. Li L., Finley J., Pitts J., Guo R. Which is a better choice for student-faculty interaction: synchronous or asynchronous communication? // *Journal of Technology Research*. – 2011. – Vol. 2. – P. 1–12.

11. Lundberg C. A., Schreiner L. A. Quality and frequency of faculty-student interaction as predictors of learning: An analysis by student race/ethnicity // *Journal of College Student Development*. – 2004. – Vol. 45, № 5. – P. 549–565.

12. Moore M. G. Theory of transactional distance // In Keegan D. (Ed.), *Theoretical principles of distance education*. – Routledge, 1993. – P. 22–38.

13. Patall E. A., Vasquez A. C., Steingut R. R., Trimble S. S., Pituch K. A. Supporting and thwarting autonomy in the high school science classroom // *Cognition and Instruction*. – 2017. – Vol. 35, № 4. – P. 337–362. – URL: <https://doi.org/10.1080/07370008.2017.1358722>

14. Pascarella E. T., Terenzini P. T. Patterns of student-faculty informal interaction beyond the classroom and voluntary freshman attrition // *The Journal of Higher Education*. – 1977. – Vol. 48, № 5. – P. 540–552.

15. Ryan R. M., Deci E. L. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being // *American Psychologist*. – 2000. – Vol. 55, № 1. – P. 68–78.

16. Ryan R. M. *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. – Guilford Press, 2017.

17. Ryan R. M., Vansteenkiste M. *Self-determination theory* // *The Oxford Handbook of Self-Determination Theory*. – Oxford University Press, 2023. – P. 3–30.

18. Tinto V. Dropout from higher education: A theoretical synthesis of recent research // *Review of Educational Research*. – 1975. – Vol. 45, № 1. – P. 89–125.

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## **APPLYING PSYCHOLOGICAL THEORIES IN MANAGEMENT: IMPACTS ON EMPLOYEE MOTIVATION AND PRODUCTIVITY**

**Abstract:** In the modern workplace, where traditional incentives often fall short, the application of psychological theories in management has proven effective in fostering employee motivation and productivity. This article explores three prominent psychological theories—Maslow's Hierarchy of Needs, Herzberg's Two-Factor Theory, and Self-Determination Theory (SDT)—and their relevance to management practices. Through real-world examples from companies like Google, 3M, and Spotify, the article illustrates how these theories can be implemented to address employee needs, cultivate intrinsic motivation, and improve organizational outcomes. Maslow's Hierarchy of Needs highlights the importance of fulfilling various employee needs, from basic safety to self-actualization, to maintain motivation. Herzberg's Two-Factor Theory differentiates between hygiene factors that prevent dissatisfaction and motivators that enhance job satisfaction. SDT emphasizes fulfilling employees' needs for autonomy, competence, and relatedness, driving intrinsic motivation. Together, these psychological frameworks provide a foundation for creating workplaces that not only engage employees but also drive sustained productivity. This article underscores the value of psychology in shaping management practices that respond to the diverse motivations and needs of today's workforce.

**Keywords:** Employee Motivation, Productivity, Maslow's Hierarchy of Needs, Herzberg's Two-Factor Theory, Self-Determination Theory, Intrinsic Motivation Workplace Psychology, Organizational Behavior, Employee Engagement, Leadership

In today's rapidly evolving work environments, understanding what drives and sustains employee motivation has become a core managerial responsibility. Relying on traditional rewards like pay raises or promotions often fails to produce long-lasting motivation, leading many organizations to explore psychological theories to create productive, motivated teams. By leveraging theories such as Maslow's Hierarchy of Needs, Herzberg's Two-Factor Theory, and Self-Determination Theory, managers can cultivate workplaces that foster engagement, motivation, and sustained productivity.

This article explores these theories' insights, providing examples of their real-world applications in organizations. The findings underscore the value of psychology as a tool for shaping effective, human-centered management practices.

## **Maslow's Hierarchy of Needs: Addressing Employee Motivation at Every Level**

### **Understanding Maslow's Theory**

Abraham Maslow's theory, first introduced in 1943, categorizes human needs in a five-tier hierarchy: physiological, safety, social (belonging), esteem, and self-actualization (Maslow, 1943). The theory suggests that individuals are motivated to fulfill lower-level needs before pursuing higher-level aspirations. In organizational contexts, Maslow's theory provides managers with a blueprint for understanding and addressing employee needs holistically.

### **Workplace Application of Maslow's Hierarchy**

#### **Case Study: Google's Employee-Centric Environment**

Google has long been recognized for fostering an environment that addresses employees' needs on every level. For instance:

- **Physiological and Safety Needs:** Google offers extensive physical amenities, including healthcare, on-site meals, and financial stability, which fulfill employees' basic needs.
- **Social Needs:** Google promotes an inclusive, team-based environment with communal spaces, collaborative work setups, and social events that nurture employees' sense of belonging.
- **Esteem and Self-Actualization Needs:** Opportunities for skill development, challenging projects, and recognition programs cater to higher needs, enabling employees to feel valued and inspired to reach their full potential (Lee, 2015).

### **Impact on Motivation and Productivity**

Research supports that companies that actively fulfill these hierarchical needs report enhanced employee engagement, loyalty, and productivity. For example, when employees feel that their basic, social, and esteem needs are met, they're more likely to be intrinsically motivated, positively affecting their overall performance and job satisfaction (Koltko-Rivera, 2006). Maslow's theory thus encourages managers to view employees as whole individuals with multifaceted needs rather than solely focusing on output.

## **Herzberg's Two-Factor Theory: Balancing Satisfaction and Dissatisfaction**

### **Overview of Herzberg's Theory**

Frederick Herzberg's Two-Factor Theory (1959) presents the idea that two distinct sets of factors influence job satisfaction: hygiene factors and motivators. According to Herzberg, hygiene factors like salary, job security, and work conditions prevent dissatisfaction but do not actively motivate. In contrast, motivators such as recognition, personal growth, and the nature of work itself are the true drivers of job satisfaction and productivity (Herzberg, Mausner, & Snyderman, 1959).



## **Real-World Applications**

### **Example: 3M's "15% Rule"**

At 3M, employees are encouraged to spend 15% of their time on personal projects, which satisfies their need for autonomy and innovation—core motivators in Herzberg's framework. This policy has led to significant breakthroughs, including the invention of Post-it Notes, underscoring how allowing autonomy and creative exploration can lead to greater productivity (Amabile & Kramer, 2011).

### **Addressing Hygiene Factors in Practice**

While motivators play a key role in enhancing satisfaction, organizations cannot ignore hygiene factors. Companies like Starbucks maintain competitive wages and provide a safe, inclusive work environment, which minimizes employee dissatisfaction and contributes to a positive organizational culture. By balancing both types of factors, Starbucks ensures high levels of engagement and retention among its employees (Schultz & Yang, 1997).

### **Influence on Management Practices**

Herzberg's theory emphasizes that managers must balance these two sets of factors to sustain employee motivation. By mitigating dissatisfaction through effective hygiene measures and fostering motivation through intrinsic factors, organizations can build a workforce that is both satisfied and engaged (Robbins & Judge, 2019).

## **Self-Determination Theory (SDT): Fostering Intrinsic Motivation**

### **Core Principles of Self-Determination Theory**

Self-Determination Theory (SDT), developed by Deci and Ryan (1985), posits that individuals are intrinsically motivated when three psychological needs are met: autonomy, competence, and relatedness. Autonomy refers to a sense of control over one's tasks, competence involves feeling capable and effective, and relatedness reflects a sense of belonging and connection with others (Deci & Ryan, 1985).

### **Organizational Applications of SDT**

#### **Spotify's Flexible Work Environment**

Spotify provides employees with flexible schedules and remote work options, enabling autonomy and helping employees feel a sense of control over their work-life balance. This approach aligns with SDT's autonomy requirement and has resulted in high employee satisfaction and productivity, as workers feel more invested in their roles (Deloitte, 2020).

#### **Supporting Competence and Relatedness at Patagonia**

Outdoor retailer Patagonia supports competence and relatedness by offering extensive training programs and a strong company culture that emphasizes teamwork and environmental responsibility. Employees feel capable and connected to the brand's mission, which fulfills SDT's psychological needs and leads to high levels of intrinsic motivation (Chouinard, 2006).

### **Impacts on Employee Engagement and Performance**

Studies have shown that workplaces fostering autonomy, competence, and relatedness experience significant improvements in employee well-being, engagement, and output (Gagné & Deci, 2005). By meeting these needs, managers can cultivate a highly motivated and self-driven workforce that requires less supervision and is more resilient to challenges.

## **The Role of Psychological Theories in Shaping Management Practices**

### **How Psychology Informs Leadership Styles**

Psychological theories provide managers with insights into how to tailor their leadership styles to meet diverse employee needs. Transformational leadership, which emphasizes employee empowerment, closely aligns with the needs outlined in SDT and Maslow's higher-level needs. Research suggests that transformational leaders who support autonomy and self-actualization foster higher levels of innovation and commitment among employees (Bass, 1985).

### **Creating a Culture of Motivation**

Psychology-based management also emphasizes the importance of creating a culture that values both extrinsic and intrinsic motivators. By addressing employees' basic and psychological needs and providing opportunities for personal growth and autonomy, companies like Google, Spotify, and Patagonia cultivate cultures where motivation and productivity thrive.

### **Integrating Psychology for Effective Management**

Integrating psychological theories like Maslow's Hierarchy of Needs, Herzberg's Two-Factor Theory, and Self-Determination Theory provides managers with powerful strategies for understanding and enhancing employee motivation. These theories underscore the need to address both intrinsic and extrinsic factors, from creating safe, supportive environments to encouraging personal growth and autonomy. As organizations increasingly prioritize employee well-being and engagement, psychology-based approaches will continue to be instrumental in driving productivity and fostering positive work cultures.

## **References:**

1. Amabile, T. M., & Kramer, S. J. (2011). *The Progress Principle: Using Small Wins to Ignite Joy, Engagement, and Creativity at Work*. Harvard Business Review Press. Available at: <https://www.hbs.edu/faculty/Pages/item.aspx?num=40692>
2. Bass, B. M. (1985). *Leadership and Performance Beyond Expectations*. Free Press.
3. Chouinard, Y. (2006). *Let My People Go Surfing: The Education of a Reluctant Businessman*. Penguin.
4. Deci, E. L., & Ryan, R. M. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. Springer.
5. Deloitte. (2020). *Workplace Flexibility at Spotify: Culture and Business Outcomes*; report may be accessible through Deloitte's official website.

6. Gagné, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior*, 26(4), 331-362. <https://doi.org/10.1002/job.322>
7. Herzberg, F., Mausner, B., & Snyderman, B. B. (1959). *The Motivation to Work*. John Wiley & Sons.
8. Koltko-Rivera, M. E. (2006). Rediscovering the Later Version of Maslow's Hierarchy of Needs: Self-Transcendence and Opportunities for Theory, Research, and Unification. *Review of General Psychology*, 10(4), 302-317. <https://doi.org/10.1037/1089-2680.10.4.302>
9. Lee, J. (2015). How Google Keeps Employees Productive, Innovative, and Happy. *Business Insider*. DOI not available. Available at: <https://www.businessinsider.com>
10. Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, 50(4), 370–396. <https://doi.org/10.1037/h0054346>
11. Robbins, S. P., & Judge, T. A. (2019). *Organizational Behavior* (18th ed.). Pearson.
12. Schultz, H., & Yang, D. (1997). *Pour Your Heart into It: How Starbucks Built a Company One Cup at a Time*. Hyperion.

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## **THE ROLE OF CORPORATE CULTURE AND ETHICS IN SHAPING LEADERSHIP AND MANAGEMENT PRACTICES IN HIGHER EDUCATION: A PSYCHOLOGICAL PERSPECTIVE**

**Abstract:** This study delves into how corporate culture and ethics influence the leadership and management strategies in universities and colleges by focusing on management psychology principles. It introduces an approach that combines psychological theories of leadership with ethical choices and organizational behavior to encourage adherence to standards and honesty among students and staff members. The research sheds light on the potential of utilizing management psychology to nurture conduct and bolster the organizational culture of academic establishments, which can lead to better leadership skills, among academic administrators. This interdisciplinary research addresses a void by integrating educational and psychological perspectives to create practical tactics for improving ethical norms in university settings with the goal of enriching the worldwide dialogue on leadership ethics and educational excellence assurance.

**Keywords:** organizational behavior, leadership development, compliance in education, moral development theory, transformational leadership, ethics in HE, corporate culture, management psychology

**Introduction:** In the world of education today universities are under more and more pressure to nurture a strong corporate culture based on ethical values. This challenge is amplified by the nature of academic leadership, the diverse student body and the increasing demand for compliance with global education norms. While there has been research on administrative and policy strategies to promote corporate culture and ethics, in higher education the psychological aspects of these hurdles have yet to be fully explored. This study intends to fill this void by suggesting a psychological framework to comprehend and enhance culture and moral conduct in academic institutions. The study is rooted in the principles of management psychology, with a specific focus on leadership styles, ethical decision-making processes, and the psychological dynamics that influence organizational behavior. It can be argued that management psychology provides a critical lens for understanding how leadership and corporate culture interact to shape the ethical climate of higher education institutions.

Therefore, this study aims to answer the following question:

How do corporate culture and ethical leadership practices shape students' perceptions of organizational behavior and ethical standards within higher education institutions?

By addressing this question, the study seeks to offer a psychological framework for enhancing ethical leadership and corporate culture in academic settings.

**Literature review:** The relationship between corporate culture and ethical practices in higher education institutions has become a focal point of recent research, with particular emphasis on the role of leadership and organizational behavior. Schein's foundational work posits that organizational culture is deeply influenced by leadership behaviors, suggesting that a leader's values and actions create a framework within which ethical practices are either promoted or inhibited [1]. However, while Schein's model is often referenced, there is a gap in its application to educational settings, particularly in terms of integrating psychological leadership theories.

Further research by Bass and Riggio on transformational leadership illustrates that leaders can inspire ethical behavior by fostering a culture of integrity and commitment. Their work has laid the groundwork for examining how leadership styles impact ethical behavior, though they have largely overlooked specific applications in higher education [2]. Chory and Offstein have expanded this perspective by examining the role of academic integrity within university settings, showing that cultural norms within the academic environment significantly shape ethical decision-making among students and faculty. However, the psychological underpinnings of these norms remain underexplored [3].

The application of moral development theories in ethical leadership has been a significant area of interest, particularly with Kohlberg's stages of moral development providing a theoretical lens for understanding ethical reasoning. Some scholars argue that this model offers valuable insights for developing leadership training programs that focus on ethical decision-making, though its application to higher education management remains limited [4]. Complementary to Kohlberg's theory, Rest's Four-Component Model of Morality (moral sensitivity, moral judgment, moral motivation, and moral character) also presents an effective framework for assessing ethical behavior in academic leaders, as proposed by Ardichvili et al., who explore this model in corporate settings but acknowledge its relevance to educational institutions [5].

Bandura's social learning theory has also been referenced frequently in discussions of ethical behavior in organizations. Bandura asserts that ethical behavior can be learned by observing role models, which underscores the importance of ethical leaders in educational settings [6]. Meanwhile, Treviño et al. add to this by highlighting how ethical leaders can significantly impact followers' behaviors and attitudes through modeling and reinforcement, though their research primarily targets corporate contexts rather than academia [7].

More recent studies have aimed at merging corporate ethics and educational psychology, such as the works by Brown and Mitchell, who investigated how ethical leaders in academic institutions influence the compliance and commitment of their teams through

both psychological and structural means [8]. Alvesson and Spicer argue for a more nuanced approach, suggesting that organizational culture within universities is shaped not only by top-down leadership but also by the values held collectively by faculty and students, thus reinforcing the need for a comprehensive psychological model [9].

Integrating these theoretical perspectives, this study aims to create a comprehensive framework for examining the role of corporate culture and ethics within higher education. By employing a psychological approach, it will contribute to the limited research connecting management psychology with ethical leadership practices in academic settings.

**Methodology:** This study adopts a qualitative approach, relying on in-depth interviews to understand the perceptions of corporate culture, ethics, and leadership within a higher education context. The goal is to gather insights on how these elements influence students' views on ethical behavior and organizational culture.

#### Participants:

The participant group comprises 5–10 individuals, primarily bachelor's and master's students, representing a cross-section of academic disciplines. This smaller sample size allows for a more detailed exploration of individual perceptions and experiences.

#### Interview Protocol:

The semi-structured interview format provides flexibility, allowing participants to discuss their views freely while ensuring that key topics related to corporate culture, ethical behavior, and leadership in education are addressed. Core questions will focus on:

How students perceive corporate culture and ethics within their institution.

The influence of faculty and administrative leadership on students' ethical development.

Students' perspectives on the integration of ethical practices in the university setting and their relevance to their future careers.

#### Data Collection:

Interviews will be conducted individually, with each lasting around 30–45 minutes. Responses will be audio-recorded (with consent) to ensure accuracy and then transcribed for analysis.

#### Data Analysis:

A thematic analysis approach will be used to identify common patterns and themes across responses. Coding will focus on key themes such as "perceived role of leadership in ethics" and "student attitudes toward corporate culture." This method will enable the identification of recurring insights and unique perspectives among the student participants.

**Core Discussion: The Interplay of Corporate Culture, Ethics, and Leadership in Higher Education:** This section examines how corporate culture and ethical practices shape leadership and management within higher education through a psychological lens. The following themes emerged from the interviews, providing insight into students' perceptions of how leadership influences the ethical and cultural fabric of their academic institution.

The Role of Leadership in Shaping Corporate Culture Participants highlighted the significant impact of visible and consistent leadership behavior on the institution's corporate culture. Leaders who actively model ethical behavior, transparency, and integrity foster a more trustworthy and ethically oriented environment. The emphasis on "leading by example" suggests that leadership practices directly inform students' perceptions and behaviors within the institution.

Ethical Standards as Part of Educational Culture Ethical behavior was perceived not only as an individual responsibility but also as a cultural standard upheld by the institution. Participants observed that ethical standards are often embedded into academic programs, especially those involving compliance, honesty in academic work, and social responsibility. Students noted instances where ethical breaches were addressed through institutional policies that involved open discussions, which promoted a culture of accountability.

Psychological Factors in Ethical Decision-Making and Corporate Culture From a psychological perspective, students described how stress, peer influence, and perceived consequences affect decision-making processes. Many expressed that knowing there are support systems, such as counseling and ethical guidance, increased their confidence in making ethical choices. Additionally, alignment between institutional values and students' personal values was found to enhance engagement and commitment to ethical behavior, demonstrating the importance of psychological alignment in fostering an ethical culture.

**Results:** The interview analysis identified several themes reflecting students' perceptions of corporate culture and ethics within their institution, as influenced by leadership and psychological factors. Participants' responses revealed nuanced perspectives on ethical behavior, corporate culture, and the role of institutional support. Key findings are as follows:

#### Leadership as a Model for Ethical Culture

Many participants emphasized the importance of leaders modeling ethical behavior. Bachelor's student A mentioned, "When I see my professors adhering to strict academic integrity, it feels like they're setting a standard we're all supposed to follow." This sentiment was echoed by several students who stated that ethical leadership creates a visible benchmark, fostering an environment where ethical standards are expected and valued. Master's student B added, "Our department head frequently speaks about ethics, not just in meetings but also during informal gatherings. This consistency has a big impact on how seriously we take ethics as students." These responses underscore the influence of leadership visibility in promoting an ethical culture.

#### Institutional Policies and Ethical Norms

The role of institutional policies in reinforcing ethical norms was widely acknowledged. Participants observed that transparent policies help reinforce a shared commitment to corporate culture. Bachelor's student C remarked, "The guidelines on academic honesty are clear, and we go over them during orientation. Knowing there are real

consequences for cheating keeps most of us in line.” Several participants also appreciated workshops and ethical training initiatives that enhance their understanding of institutional standards. As noted by Master’s student D, “The ethics workshops not only clarify the rules but also make us think about why they exist. It’s not just about punishment but about understanding why integrity is important.” This reflects the effectiveness of policies combined with educational initiatives in promoting ethical understanding and adherence.

#### Psychological Dimensions of Ethical Decision-Making

From a psychological perspective, participants identified various factors influencing their ethical decision-making, including stress, peer influence, and perceived consequences. Bachelor’s student E explained, “Sometimes, when deadlines are tight, the temptation to cut corners is there. But knowing my friends are also following the rules keeps me motivated to do the same.” The interviews also revealed that students felt more inclined to engage in ethical practices when they perceived alignment between their values and the institution’s ethical standards. Master’s student F noted, “When the school’s values match my own, it’s easier to stay true to ethical guidelines. It doesn’t feel like following a rule—it’s something I agree with personally.” These insights highlight the importance of moral alignment in reinforcing ethical behavior.

#### The Role of Peer Influence and Support Systems

The presence of support systems, such as counseling and ethical advisory services, also emerged as a crucial factor. Several participants noted that access to support resources provides reassurance and helps them maintain ethical behavior. Bachelor’s student G said, “Knowing that there’s someone to talk to when I’m unsure about an ethical issue makes a big difference. It’s not always clear what the right thing is, but having support gives me confidence.” Peer influence played a substantial role, particularly among bachelor’s students. As Master’s student H observed, “There’s definitely a sense of peer accountability. When you’re in an environment where your friends and classmates value ethics, it rubs off on you. You feel a stronger commitment to those standards.” This suggests that peer networks can effectively reinforce a shared sense of ethical responsibility, supporting the institution’s corporate culture.

**Conclusion:** This study underscores the substantial role of corporate culture and ethics in shaping leadership and management practices in higher education from a psychological perspective. Findings reveal that ethical leadership and a robust corporate culture are essential in promoting compliance and ethical behavior among students. Furthermore, integrating psychological factors—such as moral development and personal alignment with institutional values—into corporate culture initiatives can enhance students’ ethical engagement.

The insights gained from this study suggest that higher education institutions can benefit from adopting a psychologically informed approach to leadership and corporate culture. By fostering environments that support ethical decision-making and implementing



clear policies and support systems, academic institutions can strengthen their corporate culture and prepare students to carry ethical practices into their future careers. This study contributes to the broader discourse on educational leadership by proposing a psychological framework for understanding and promoting ethical standards in higher education settings. Future research may focus on expanding these findings across diverse institutional types and examining the long-term effects of ethical leadership training on student behavior.

### References:

1. E. H. Schein, *Organizational Culture and Leadership*, 5th ed. San Francisco, CA: Jossey-Bass, 2010. URL: <https://www.scirp.org/reference/referencespapers?referenceid=1848176>
2. Bass, B. M., & Riggio, R. E. (2006). *Transformational Leadership* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum. URL: <https://www.scirp.org/reference/referencespapers?referenceid=3157065>
3. Chory, A., & Offstein, J. (2014). "Academic Integrity: A Cultural Perspective." *Journal of Higher Education*, 80(1), 1-30. URL: <https://doi.org/10.1080/00221546.2014.11777320>
4. Kohlberg, L. (1981). *The Philosophy of Moral Development: Moral Stages and the Idea of Justice*. San Francisco, CA: Harper & Row. URL: <https://www.scirp.org/reference/referencespapers?referenceid=3098171>
5. Ardichvili, A., Mitchell, J., & Jondle, D. (2009). "Characteristics of Ethical Business Cultures." *Journal of Business Ethics*, 85(4), 445-451. URL: <https://doi.org/10.1007/s10551-008-9782-4>
6. Bandura, A. (1977). *Social Learning Theory*. New York: General Learning Press. URL: <https://www.scirp.org/reference/referencespapers?referenceid=2051761>
7. Treviño, L. K., Butterfield, K. D., & McCabe, D. L. (1998). "The Ethical Context in Organizations: Influences on Employee Attitudes and Behaviors." *Business Ethics Quarterly*, 8(3), 447-476. URL: <https://doi.org/10.2307/3857421>
8. Brown, M. E., & Mitchell, T. R. (2010). "Ethical and Unethical Leadership: Exploring New Avenues for Future Research." *Business Ethics Quarterly*, 20(4), 583-616. URL: <https://doi.org/10.5840/beq201020437>
9. Alvesson, M., & Spicer, A. (2011). *Understanding Organizational Culture*. London: Sage Publications.
10. Rest, J. R. (1986). *Moral Development: Advances in Research and Theory*. New York: Praeger. URL: <https://www.scirp.org/reference/referencespapers?referenceid=3100415>

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## **ОСОЗНАННОСТЬ В ВЫСШЕМ ОБРАЗОВАНИИ: ПОВЫШЕНИЕ БЛАГОСОСТОЯНИЯ СТУДЕНТОВ И УПРАВЛЕНЧЕСКИХ НАВЫКОВ**

**Аннотация:** В этой статье исследуется, как осознанность улучшает самочувствие студентов и управленческие навыки в напряженной академической среде. В ней обсуждаются преимущества осознанности в снижении стресса и улучшении концентрации внимания, подтвержденные исследованиями. Практические методы, такие как дыхательные упражнения и медитация, выделяются своей доступностью. В статье содержится призыв к включению осознанности в учебные программы высшего образования для продвижения культуры благополучия. В конечном счете, в ней содержится призыв к учебным заведениям уделять приоритетное внимание осознанности, готовя стойких лидеров к будущим вызовам.

**Ключевые слова:** осознанность, благополучие студентов, высшее образование

В современной быстро меняющейся академической среде студенты часто оказываются перегруженными курсовыми работами, внеклассными мероприятиями и требованиями повседневной жизни. Растущий стресс может привести к хронической тревожности, негативно сказывающейся как на психическом здоровье, так и на успеваемости. Поскольку образовательные учреждения осознают важность благополучия учащихся, осознанность стала мощным инструментом повышения концентрации внимания, снижения стресса и развития у учащихся необходимых управленческих навыков.

### **Понимание осознанности**

Осознанность - это практика полного присутствия и осознания текущего момента без осуждения. Основанная на древних традициях созерцания, осознанность была секуляризована и адаптирована к современным условиям, особенно в сфере образования. Развивая эмоциональный интеллект, самосознание и устойчивость, осознанность дает учащимся важнейшие навыки, необходимые для эффективного лидерства и принятия решений [2]. Регулярные занятия осознанностью могут помочь учащимся более эффективно справляться со своими обязанностями, способствуя общему благополучию, необходимому для успешной работы в сложных образовательных условиях.

Исследования подтверждают эффективность осознанности в снижении уровня стресса. Исследования показывают, что практика осознанности может значительно снизить уровень кортизола, основного гормона стресса, что приводит к более спокойному и сосредоточенному вниманию [3]. Практика осознанности активизирует префронтальную кору головного мозга, область, ответственную за принятие решений и эмоциональную регуляцию. Этот нейробиологический сдвиг позволяет учащимся с большей устойчивостью подходить к учебным задачам, повышая их способность справляться со стрессорами и улучшая общую успеваемость [1].

### **Практические техники осознанности**

#### **1. Дыхательные упражнения**

Дыхательные техники служат основой практики осознанности, которая обеспечивает немедленное снятие стресса. Такие методы, как диафрагмальное дыхание и техника 4-7-8, позволяют учащимся успокоить свой разум и уменьшить беспокойство. Эти упражнения являются портативными и могут выполняться в любом месте, что делает их особенно полезными в напряженные моменты, например, перед экзаменами или на переменах в учебе [3].

#### **2. Осознанность на учебных занятиях**

Включение осознанности в учебный процесс может значительно улучшить результаты обучения. Учащиеся могут начать свои учебные занятия с краткого упражнения на осознанность, которое очистит их разум и повысит концентрацию. Такие методы, как внимательное чтение, при котором учащиеся полностью погружаются в материал, а при возникновении отвлекающих факторов мягко перенаправляют свое внимание, могут улучшить концентрацию и удержание информации, что приводит к более эффективным занятиям [2].

#### **3. Осознанное питание**

Осознанное питание предполагает уделение большого внимания процессу приема пищи, что способствует укреплению связи между разумом и телом и помогает учащимся избежать переедания, связанного со стрессом [3]. Эта практика не только укрепляет физическое здоровье, но и улучшает ясность ума, позволяя учащимся легче сосредоточиться на учебе.

#### **4. Медитативные практики**

Студенты могут воспользоваться короткими целенаправленными медитативными практиками даже в условиях плотного графика. Такие техники, как направленная медитация и сканирование тела, которые можно выполнить всего за десять минут, способствуют расслаблению и хорошему самочувствию [3]. Микромедитации, или краткие моменты осознанности, могут быть легко интегрированы в повседневную деятельность, позволяя учащимся восстанавливать силы и перефокусироваться в течение дня.

#### **5. Выработка ежедневной практики осознанности**

Установление ежедневного режима осознанности имеет решающее значение для получения долгосрочных преимуществ. Учащиеся могут посвящать всего несколько минут в день практикам осознанности, таким как осознанное дыхание или выражение благодарности [2]. Простые занятия, такие как осознанная прогулка между классами или размышления о повседневном опыте, могут помочь им интегрировать осознанность в свою жизнь.

### **Заключение**

Осознанность обладает огромным потенциалом для улучшения самочувствия студентов и развития их управленческих навыков. Внедряя практику осознанности в повседневную жизнь и академическую среду, учебные заведения могут помочь студентам справляться с трудностями академической жизни с большей устойчивостью и хладнокровием. По мере развития сферы образования приоритетное внимание к осознанности может привести к появлению всесторонне развитых, способных лидеров, способных к позитивным изменениям в своих областях. Использование осознанности - это не просто тенденция; это жизненно важная стратегия для создания более здоровой и эффективной среды обучения.

### **Список литературы:**

1. "The Mindful Student." – Behavioral Scientist. [Электронный ресурс]. URL: <https://behavioralscientist.org/the-mindful-student/> (дата обращения: 03.11.2024).
2. "Mindfulness in Education: Techniques for Students to Reduce Stress and Improve Focus." – GNIOT Group. [Электронный ресурс]. URL: <https://www.gniotgroup.edu.in/blog/index.php/2023/11/01/mindfulness-in-education-techniques-for-students-to-reduce-stress-and-improve-focus/> (дата обращения: 03.11.2024).
3. Hadley J. "Mindfulness Practices for Students to Reduce Stress." [Электронный ресурс]. URL: <https://jupiterhadley.com/mindfulness-practices-for-students-to-reduce-stress/> (дата обращения: 03.11.2024).

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## **A STUDY ON THE INFLUENCE OF PSYCHOLOGICAL SAFETY ON LEARNING AND PERFORMANCE IN HIGHER EDUCATION SETTINGS**

**Abstract:** This study investigates the influence of psychological safety on learning and performance within higher education settings. Using a qualitative approach, this research analyzes existing literature to explore the perceptions and experiences of both students and faculty members regarding psychological safety in academia. Previous studies indicate that a supportive and psychologically safe environment enhances student engagement, reduces anxiety, and fosters collaborative learning, all of which contribute positively to academic performance. Additionally, literature highlights that faculty members teaching in psychologically safe environments report improved teaching effectiveness and a greater capacity to engage students. The findings emphasize the importance of psychological safety as a critical factor for optimizing educational outcomes and fostering a positive academic culture. This study concludes that higher education institutions should prioritize environments that promote psychological safety to support student learning and faculty effectiveness.

**Key words:** Psychological Safety, Higher Education, Learning Outcomes, Academic Performance, Student Engagement, Educational Environment, Faculty Effectiveness

### **Introduction**

Psychological safety is increasingly recognized as a fundamental element for fostering effective learning and performance in higher education settings. Coined by Edmondson, psychological safety describes a belief that an individual will not be punished or humiliated for speaking up with ideas, questions, concerns, or mistakes within a group context [7]. This concept has expanded into various fields, including education, where it is essential for promoting open communication, collaborative learning, and active engagement among students and educators [6].

In higher education, psychological safety plays a crucial role in both academic and social experiences, contributing positively to students' motivation and cognitive engagement. For example, psychological safety has been shown to reduce student anxiety, enabling them to participate more fully and approach challenging tasks with resilience [2]. By feeling safe to express themselves without fear of negative consequences, students can develop deeper connections with peers and instructors, enhancing their overall academic experience [3].

Furthermore, when faculty members are supported in maintaining psychologically safe environments, they can better encourage student creativity and critical thinking, especially in collaborative, project-based learning settings [4].

Despite the clear benefits, establishing and maintaining psychological safety in academic settings is complex. This challenge is compounded by traditional academic norms, which often prioritize evaluation and competition, potentially stifling the open communication necessary for a psychologically safe environment [1]. Understanding how psychological safety affects both students' learning and instructors' teaching effectiveness is crucial for educational institutions aiming to foster a supportive and productive academic culture [10].

This study seeks to analyze existing research on psychological safety within higher education, focusing on its impact on learning outcomes and academic performance. By synthesizing findings from recent literature, this study aims to provide insights into how psychological safety can be cultivated to enhance both student engagement and faculty efficacy [5]. Through this examination, we highlight the potential of psychological safety as a transformative factor in educational settings, emphasizing its importance for cultivating a learning environment that prioritizes open dialogue, collaborative learning, and individual growth [8].

## **Literature Review**

### **Psychological Safety in Educational Settings**

Psychological safety, as defined by Edmondson, is the shared belief among members of a group that they will not be penalized or humiliated for expressing themselves, taking risks, or making mistakes [7]. Within educational settings, this concept has become central to discussions about student engagement and performance, as it fosters an environment where learners feel comfortable participating and exploring new ideas. Research demonstrates that when students perceive a high level of psychological safety, they are more inclined to take academic risks, engage deeply in learning, and develop stronger collaborative skills [6]. A psychologically safe classroom is marked by mutual respect and inclusivity, where mistakes are seen as learning opportunities rather than failures, thereby promoting resilience and reducing anxiety among students [3]. Such environments have been shown to enhance student motivation, especially in collaborative learning contexts, where open dialogue and idea-sharing are essential for effective teamwork and innovation [4].

### **Impact of Psychological Safety on Learning Outcomes**

The impact of psychological safety on learning outcomes is well-documented, showing positive correlations with both academic performance and student well-being. For instance, studies have found that students in psychologically safe classrooms demonstrate higher engagement levels, leading to improved academic outcomes and a deeper understanding of course material [1]. Psychological safety enables students to ask questions without fear of judgment, which enhances their critical thinking skills and encourages independent problem-

solving [2]. Furthermore, a sense of psychological safety can contribute to the overall classroom climate, creating an environment that values diverse perspectives and fosters intellectual curiosity. Research also indicates that such an environment benefits educators, as it allows them to implement innovative teaching strategies without fearing negative feedback, ultimately resulting in a more dynamic and responsive educational experience [8]. In addition, faculty members who cultivate psychological safety report higher job satisfaction and a stronger sense of connection with their students, further enhancing the overall learning environment [5].

### **Psychological Safety and Student Engagement**

Psychological safety is crucial in higher education as it directly influences student engagement and participation in learning activities. When students perceive their classroom environment as psychologically safe, they are more likely to engage actively, share their ideas, and take intellectual risks [1]. Various studies indicate that fostering psychological safety encourages students to express their thoughts without fear of ridicule, which enhances collaboration and communication skills [2, 4]. For instance, research has demonstrated that classrooms characterized by open dialogue and mutual respect lead to improved academic performance and higher levels of satisfaction among students [3]. However, establishing such an environment requires intentional efforts from educators to cultivate trust and support among students, particularly in diverse learning settings [5].

### **Impact of Psychological Safety on Learning Outcomes**

The relationship between psychological safety and learning outcomes is well-established in educational research, showing that students in psychologically safe environments achieve better academic results [6]. For example, studies have found that when students feel safe to voice their opinions, they exhibit increased motivation and participation, which are essential for deep learning [1]. Furthermore, a supportive classroom atmosphere allows for the constructive handling of errors, facilitating a growth mindset among students [2]. Educators also benefit from creating psychologically safe spaces, as it empowers them to innovate and experiment with teaching strategies without the fear of negative evaluation [3]. Ultimately, the promotion of psychological safety is linked to enhanced educational experiences for both students and instructors, reinforcing the need for educational institutions to prioritize this aspect of their teaching and learning environments [5].

### **Barriers to Psychological Safety in Higher Education**

Despite the benefits of psychological safety, various barriers can hinder its establishment in higher education. Traditional academic cultures often emphasize competition and evaluation, which can create environments where students feel hesitant to share their thoughts or admit mistakes [4]. Furthermore, power dynamics between students and faculty can exacerbate feelings of vulnerability among learners, limiting their willingness to engage in open discussions [1]. Research suggests that educators must actively work to dismantle these barriers by promoting inclusivity and encouraging diverse viewpoints within

their classrooms [6]. Additionally, addressing systemic issues such as implicit biases and institutional hierarchies is essential for fostering a genuinely psychologically safe environment [2]. Recognizing and mitigating these obstacles can significantly enhance the learning experience and foster a culture of trust and collaboration [3].

### **Strategies for Fostering Psychological Safety in Educational Settings**

To cultivate psychological safety in educational settings, educators can implement several effective strategies. Encouraging open communication, actively soliciting student feedback, and normalizing the discussion of mistakes can create a more supportive classroom atmosphere [5]. Additionally, faculty members should model vulnerability by sharing their learning experiences and challenges, which can help to humanize the educational process and foster connections with students [2]. Research emphasizes the importance of building community through collaborative learning activities that promote peer support and collective problem-solving [1]. Furthermore, providing professional development for educators focused on understanding and facilitating psychological safety can lead to more effective teaching practices and improved student outcomes [3]. By adopting these strategies, educational institutions can enhance their learning environments and promote greater engagement and success among students.

### **Methodology.**

This study employs a qualitative research approach to explore the concept of psychological safety in higher education environments and its relationship with student engagement and learning outcomes. The aim is to gain a deeper understanding of how psychological safety influences students' willingness to participate in classroom discussions and the subsequent impact on their academic performance.

### **The research design consists of two key components:**

First, a comprehensive literature review of existing research on psychological safety and student engagement is conducted. This analysis examines findings from various studies that investigate the effects of psychological safety on student behavior and learning outcomes. For instance, Edmondson emphasizes the importance of a supportive classroom environment that fosters open communication, encouraging students to voice their ideas without fear of judgment. This supportive environment is linked to higher academic performance [1]. Additionally, studies indicate that psychological safety correlates with increased student satisfaction and engagement [3][6].

Second, in-depth qualitative interviews will be conducted with a purposive sample of students from various academic disciplines. Participants will be selected based on their experiences related to psychological safety in their learning environments. Interview questions will be semi-structured, focusing on themes identified in the literature. These themes include experiences of sharing ideas in class, feelings of respect and support from peers and instructors, and the impact of classroom dynamics on student engagement [2][5]. This qualitative approach aims to capture the nuances of students' emotions and perceptions



regarding psychological safety. Real-life examples will be used to illustrate how psychological safety influences their participation and learning outcomes.

Through thematic analysis, recurrent patterns in the students' narratives will be identified. This analysis will provide insights into how psychological safety contributes to an effective learning atmosphere [4][6]. By integrating findings from the literature review with qualitative data, this study aims to enhance the understanding of the role of psychological safety in fostering student engagement and educational success.

### **Integration and Interpretation:**

The insights gleaned from the literature review were synthesized to form a cohesive understanding of the relationship between psychological safety and student engagement in higher education. Analyzing various studies revealed that environments fostering psychological safety positively influence students' willingness to participate in classroom activities and discussions [1]. This integration highlights the importance of supportive interactions among peers and between students and instructors in creating a learning atmosphere where students feel secure enough to express their thoughts and ideas freely [2]. The synthesis of existing research illustrates the complexities of balancing academic expectations with the need for a psychologically safe learning environment, suggesting that psychological safety is not merely a supplementary aspect but a foundational element essential for enhancing student engagement and academic success [4][6].

### **Results/Findings:**

The findings from the literature review indicate a strong correlation between psychological safety and student engagement in higher education settings [2]. Various studies underscore that students who perceive their learning environment as psychologically safe are more likely to participate actively in discussions and collaborative activities [3]. This engagement leads to improved academic performance and overall satisfaction with the learning experience [5]. Additionally, research suggests that fostering an inclusive classroom culture where students feel respected and valued is crucial for enhancing their engagement [6]. This emphasis on psychological safety aligns with contemporary educational practices that prioritize student well-being as a precursor to effective learning outcomes [3][5]. By analyzing these studies, this research provides valuable insights into the necessity of creating supportive educational environments that cater to the psychological needs of students, ultimately promoting their success and engagement in the academic setting [4][6].

### **Qualitative Analysis:**

This section synthesizes insights from existing literature to explore the influence of psychological safety on learning outcomes and performance in higher education environments.

### **Perceptions of Psychological Safety Among Students:**

Research consistently indicates that students' perceptions of psychological safety significantly impact their willingness to engage in learning activities. Studies show that when

students feel safe to express their ideas without fear of negative consequences, they are more likely to participate actively in discussions and collaborative projects [1][2]. For instance, a study found that students reported increased engagement and a greater willingness to take intellectual risks in environments where they perceived high levels of psychological safety [3]. This sentiment is echoed in various educational contexts, highlighting the essential role that a supportive atmosphere plays in fostering student participation.

### **Impact on Academic Performance:**

The connection between psychological safety and academic performance is evident in several studies. Higher levels of psychological safety have been associated with improved academic outcomes, including higher grades and enhanced critical thinking skills [2][4]. For example, research indicates that when students perceive their learning environment as safe, they are more likely to seek help from peers and instructors, ultimately contributing to a deeper understanding of the material [3]. This dynamic illustrates how a supportive educational climate can directly influence learning effectiveness.

### **Emotional Responses and Learning Behaviors:**

Students' emotional responses to their learning environment significantly shape their learning behaviors. Literature suggests that environments perceived as psychologically unsafe can lead to anxiety and disengagement [1][5]. Students have reported feelings of intimidation and fear of making mistakes, which can stifle creativity and hinder collaborative efforts [3]. Conversely, when students feel respected and valued, they are more likely to express themselves openly and explore new ideas, which enhances both individual and group learning experiences [2][4].

### **Cultural Considerations in Psychological Safety:**

Cultural factors also play a crucial role in shaping perceptions of psychological safety in higher education. Studies highlight that students from diverse backgrounds may have varying expectations and experiences regarding safety in the classroom [6]. For example, cultural norms around hierarchy and authority can influence how students engage with peers and instructors, impacting their overall sense of safety [5]. This indicates that educators need to be aware of these cultural dimensions to cultivate an inclusive and supportive learning environment.

These qualitative insights enrich the understanding of the interplay between psychological safety, learning, and performance in higher education. The findings underscore the importance of fostering environments that promote open communication and mutual respect, ultimately leading to enhanced student engagement and academic success.

### **Outcomes.**

**Recognition of Psychological Safety's Importance:** The findings underscore the significant role that psychological safety plays in enhancing students' learning experiences and performance in higher education. A substantial number of students reported that environments perceived as psychologically safe fostered increased participation and

engagement in academic activities [1][2]. This recognition highlights the necessity for educators and institutions to prioritize psychological safety as a fundamental component of effective learning environments.

**Correlation Between Psychological Safety and Academic Success:** The analysis reveals a clear link between psychological safety and improved academic outcomes. Students who felt safe to express their ideas and take intellectual risks achieved higher grades and demonstrated better critical thinking skills [3][4]. This outcome emphasizes the need for educational practices that cultivate a supportive atmosphere, which is crucial for promoting student success.

**Emotional Well-Being and Engagement:** Many students expressed that psychological safety positively affected their emotional well-being and overall engagement in their studies. They reported feeling more confident in participating in discussions and collaborative work when they perceived a safe environment [2][5]. This outcome illustrates the interplay between emotional health and academic engagement, suggesting that addressing psychological safety can lead to more enriched learning experiences.

**Cultural Sensitivity in Psychological Safety Practices:** The research highlighted the importance of cultural sensitivity in fostering psychological safety. Different cultural backgrounds influenced students' perceptions of safety in the classroom, with some feeling less comfortable voicing their opinions due to cultural norms [6]. This outcome indicates that educators must be aware of and address these differences to create inclusive environments that support all students.

**Recommendations for Educators and Institutions:** The study advocates for practical recommendations for educators to enhance psychological safety in their classrooms. This includes encouraging open communication, fostering mutual respect among students, and providing mechanisms for students to express concerns without fear of repercussions [3][4]. By implementing these strategies, institutions can significantly improve the learning environment, leading to better academic outcomes.

**Implications for Future Research and Practice:** Overall, this study emphasizes the critical need for ongoing research into psychological safety in educational settings and its broader implications on learning and performance. The findings suggest that institutions should continuously assess and improve their practices to ensure they cultivate environments that support psychological safety, ultimately enhancing student experiences and outcomes.

### References:

1. Spomer, K. (2022). Psychological Safety and Academic Performance: A Quantitative Correlational Study. ProQuest Dissertations Publishing. Retrieved from <https://www.proquest.com>

2. Harvard Graduate School of Education. (2022). Why psychological safety matters in class. Harvard Graduate School of Education. Retrieved from <https://www.gse.harvard.edu/news/why-psychological-safety-matters>
3. Advance HE. (2022). Education for mental health toolkit: Psychologically safe learning environment. Retrieved from <https://www.advance-he.ac.uk>
4. Shi, X., Luo, X., & Newman, A. (2022). The influence of psychological safety on students' creativity in project-based learning: The mediating role of psychological empowerment. *Frontiers in Psychology*, 13, 876530. <https://doi.org/10.3389/fpsyg.2022.876530>
5. Education & Training Foundation. (2021). Psychological safety in further education settings: Practical strategies for leaders and educators. Retrieved from <https://www.et-foundation.co.uk>
6. Liang, J., Farh, C. I. C., & Farh, J. L. (2012). Psychological safety, trust, and learning in organizations: A literature review. *Annual Review of Psychology*, 63, 9. <https://doi.org/10.1146/annurev-psych-120710-100514>
7. Edmondson, A. C. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly*, 44(2), 350-383. <https://doi.org/10.2307/2666999>
8. Good, D., & Kolbe, M. (2022). Empowering students through psychological safety in project-based learning. *Educational Psychology Review*. <https://doi.org/10.1007/s10648-022-09606-3>
9. Lee, H., & Edmondson, A. C. (2018). Self-determination theory and psychological safety in education. *Journal of Educational Psychology*, 110(3), 362-374. <https://doi.org/10.1037/edu0000218>
10. Kolbe, M., & Künzle, B. (2020). Risk-taking and psychological safety in learning environments. *Learning and Instruction*, 65, 101275. <https://doi.org/10.1016/j.learninstruc.2020.101275>

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## THE ROLE OF EMOTIONAL INTELLIGENCE IN TEACHING AND LEADERSHIP IN HIGHER EDUCATION

**Abstract:** Emotional Intelligence (EI) plays a pivotal role in enhancing teaching and leadership within higher education by linking emotional awareness to effective educational management. This literature review explores the impact of EI on educators and academic leaders, analyzing various EI models, including Goleman's original framework, Petrides' trait model, and Bar-On's emotional-social intelligence model. Through examining these frameworks, it highlights the role of EI in creating emotionally supportive, inclusive classrooms and resilient educational environments. Additionally, the review delves into the connection between EI and leadership styles such as transformational and servant leadership, showing how EI contributes to fostering collaboration, reducing stress, and improving faculty cohesion and student outcomes. Empirical evidence underscores EI's significance in developing healthier classroom climates and managing educator stress, while addressing limitations, such as measurement challenges and critiques of EI applications in academic settings. The review concludes that EI remains a critical element for achieving academic and emotional success in higher education, promoting both individual and institutional development.

**Keywords:** Emotional Intelligence, Higher Education, Teaching, Educational Leadership, Social-Emotional Learning, Transformational Leadership, Faculty Cohesion, Classroom Climate, Burnout, Academic Achievement.

**Introduction.** In the evolving landscape of higher education, the roles of educators and academic leaders are becoming increasingly complex. Beyond subject-matter expertise and traditional administrative skills, there is a growing demand for emotional intelligence (EI) as an essential competency. Emotional intelligence, defined as the ability to perceive, understand, manage, and influence emotions in oneself and others, has emerged as a crucial factor in fostering effective teaching and leadership. This paper aims to demonstrate how EI significantly impacts higher education by enhancing classroom engagement, strengthening student relationships, and informing leadership decision-making.

As higher education institutions become more diverse, collaborative, and student-centered, emotionally intelligent leadership and pedagogy have never been more essential. At its core, EI allows educators to build deeper, more meaningful connections with students that

go beyond academic outcomes to include a nuanced understanding of their emotional and psychological needs. Educators who practice emotional intelligence can create inclusive and supportive classrooms, where students feel understood and valued. This emotional connection fosters a sense of belonging, enhancing student engagement, motivation, and overall learning success. Such capabilities are particularly critical in higher education, where students face significant academic and personal stressors.

Moreover, emotional intelligence is equally vital for leadership within higher education, impacting roles such as deans, department heads, and administrators. Effective leaders must not only manage resources and implement policies but also shape a positive institutional culture. Emotionally intelligent leaders are equipped to handle complex faculty and student interactions, manage conflicts, and inspire collaboration. Research demonstrates that leaders with high levels of EI show greater communication skills, can motivate teams effectively, and manage crises with composure. These qualities contribute to a cohesive, supportive educational environment that promotes faculty cohesion, reduces stress, and improves both individual and institutional outcomes.

This paper will explore these dynamics by examining recent literature and presenting empirical findings from interviews conducted with faculty and administrators at Astana IT University. These insights will be connected to established EI frameworks, such as those proposed by Goleman, Petrides, and Bar-On, to reinforce their relevance. Additionally, the implications for educational policies and professional development programs will be discussed, highlighting how the integration of EI can enhance teaching methodologies, leadership strategies, and overall educational excellence.

**Literature Review.** The concept of Emotional Intelligence (EI) has a profound impact on teaching and leadership in higher education, serving as a bridge between emotional awareness and effective management within academic settings. Daniel Goleman popularized EI in the 1990s, defining it as the ability to recognize and manage one's own emotions and those of others, and this foundational perspective has made EI central to the way educators and leaders engage with students and faculty alike [1]. However, EI's application in education extends beyond Goleman's model, with alternative frameworks enriching the understanding of how EI shapes educational outcomes.

Petrides' trait EI model and Bar-On's emotional-social intelligence model, for example, highlight additional dimensions such as self-esteem and adaptability, which are particularly relevant in the multifaceted roles educators and administrators play in higher education. These models provide a more comprehensive view, as Petrides emphasizes emotional traits as stable personality dispositions, while Bar-On includes competencies like social responsibility and stress tolerance. These aspects are critical for educators and leaders in academia, who must navigate diverse interpersonal relationships and maintain resilience in high-pressure environments [2], [3].

The Mayer-Salovey model remains particularly influential in educational contexts, defining EI as a set of abilities, such as recognizing emotions in oneself and others, using emotions to facilitate thought, and managing emotions to promote emotional and intellectual growth [4]. Educators with strong EI can better handle classroom dynamics and respond to students' needs, fostering environments that are both supportive and academically stimulating. This has led to the rise of social-emotional learning (SEL), which integrates emotional reasoning and empathy into traditional curricula, emphasizing that EI is not only relevant to interpersonal relations but also to academic success. By building emotional and social awareness in students, SEL has been shown to promote both academic and emotional growth, reinforcing positive relationships and reducing behavioral issues [5].

**Challenges and EI's Role in Higher Education Settings:** Higher education presents unique challenges, including large, diverse classrooms and complex institutional structures, which call for a nuanced application of EI. Faculty members often face situations requiring careful emotional regulation, such as managing class conflicts, providing sensitive feedback, and addressing diverse student backgrounds. Studies highlight how educators with high EI are better equipped to manage these challenges, using empathy and self-regulation to connect with students from varied cultural and academic backgrounds, thus promoting inclusivity and fostering a more cohesive learning environment [6].

Research also underscores EI's role in handling stress and burnout among educators, a critical factor in higher education where the demands are frequently intense. Teachers with high EI have been shown to better manage stress, which contributes to improved job satisfaction and sustained teaching quality. The ability to recognize and manage one's emotions reduces burnout and fosters a healthy work-life balance, which in turn benefits student outcomes by ensuring teachers remain engaged and effective over time [7].

**Leadership Styles in Higher Education and EI's Influence:** Leadership in higher education, encompassing roles such as deans, department heads, and program directors, greatly benefits from emotionally intelligent approaches. Emotional intelligence aligns closely with leadership styles like transformational and servant leadership, where empathy, emotional regulation, and interpersonal skills are fundamental. Transformational leaders, for example, inspire faculty and students through empathy and vision, promoting a culture that values collaboration and academic achievement. In contrast, servant leaders prioritize the welfare and development of others, an approach requiring high EI to effectively support faculty and students [8].

Research by Nelson and Low [9] further emphasizes that EI in leadership is about aligning emotions with institutional goals, fostering morale, and creating a culture of support. Leaders who can navigate complex interpersonal relationships and use EI to build consensus contribute to a positive academic atmosphere, enhancing faculty cohesion and supporting student success. This dynamic has been shown to boost organizational effectiveness, as

emotionally intelligent leaders set norms that reduce stress, stimulate creativity, and encourage academic rigor [9].

**Empirical Evidence of EI's Impact in Higher Education:** A growing body of empirical research confirms the benefits of EI-focused interventions in educational settings. For instance, studies reveal that implementing EI programs within universities can improve both student and staff experiences. Interventions based on SEL principles have shown positive effects, including reductions in aggression and substance use among students, demonstrating that EI not only enhances academic outcomes but also contributes to healthier social behavior and classroom climates [10]. Longitudinal studies on SEL further confirm that these interventions have lasting impacts, improving students' interpersonal skills and resilience, which are essential for both academic and personal success [5].

**Practical Applications of EI Development in Higher Education:** Many universities have begun implementing EI development programs for both faculty and students, emphasizing the practical application of EI in academic settings. For example, some institutions provide EI training workshops for faculty to improve stress management and classroom engagement. These programs are designed to equip educators with the tools to handle the complex emotional landscape of the classroom and administrative responsibilities, thus enhancing both their personal well-being and professional effectiveness. Evidence suggests that these programs lead to increased job satisfaction, reduced turnover, and improved student-teacher interactions [7].

**Limitations and Criticisms of EI in Educational Contexts:** Despite its numerous benefits, EI in education is not without its criticisms. Some scholars argue that EI is difficult to measure reliably, questioning the validity of various EI assessments, such as self-reported EI questionnaires, which may not capture EI's complex dimensions accurately. Additionally, critics point out that EI can be challenging to cultivate and that overly focusing on emotional regulation might suppress genuine emotions, potentially leading to inauthentic interactions [11]. Acknowledging these limitations provides a balanced perspective, showing that while EI can be transformative, it requires careful and evidence-based application.

By integrating multiple EI frameworks, practical training programs, and diverse leadership approaches, higher education institutions can cultivate environments that promote both emotional well-being and academic growth. This literature demonstrates that EI is essential for personal and institutional development in educational settings, significantly enhancing student outcomes, improving faculty cohesion, and fostering a positive organizational culture. While limitations exist, EI remains a valuable asset in shaping effective teaching and leadership, illustrating its profound role in both enhancing and sustaining academic excellence in higher education.

**Methodology.** This study adopts a qualitative methodology centered around interviews to explore the role of emotional intelligence (EI) in teaching and leadership at Astana IT University. The qualitative approach allows for an in-depth understanding of personal



experiences and perceptions, capturing the nuanced ways in which EI manifests in educational and leadership practices.

**Participant Selection.** The participants for the interviews included faculty members, administrators, and student leaders at Astana IT University. Selection criteria focused on individuals who have substantial experience in teaching or leadership roles within the university. Purposive sampling was used to ensure that participants were knowledgeable about the university's academic environment and had insights related to the application of EI in their roles.

**Data Collection Method.** Semi-structured interviews were chosen to balance structure and flexibility. This format provided the opportunity to explore predetermined topics related to the integration of EI in teaching and leadership, while also allowing participants to introduce relevant perspectives that emerged naturally during the conversation.

Questions focused on themes such as:

The impact of EI on classroom management and student engagement.

How EI influences leadership decisions and conflict resolution.

Personal strategies used to develop and apply EI in daily academic responsibilities.

Each interview lasted approximately 20–30 minutes and was conducted in a confidential and comfortable setting to encourage open dialogue.

**Data Analysis:** Thematic analysis was used to identify recurring themes and patterns within the interview data. This approach involved familiarization with the interview transcripts, generating initial codes, searching for themes, and reviewing and defining these themes in relation to the research objectives. Coding was performed manually, allowing for a detailed examination of the participants' responses and a deeper understanding of their experiences with EI in the context of higher education.

**Ethical Considerations:** Ethical guidelines were strictly followed to ensure the integrity of the research process. Informed consent was obtained from all participants, who were made aware of the study's purpose, the voluntary nature of their participation, and the confidentiality of their responses. The research adhered to Astana IT University's ethics protocol, maintaining transparency and protecting participant anonymity throughout the study.

This methodology was designed to capture the subjective experiences of educators and leaders, offering valuable insights into the practical applications and perceived impact of emotional intelligence in a higher education setting.

**Core findings and analysis.** Interviews with faculty members at Astana IT University highlighted the significant influence of emotional intelligence (EI) on classroom engagement and management. Participants noted that emotionally intelligent teaching practices, such as demonstrating empathy, active listening, and emotional regulation, fostered a supportive learning environment. This atmosphere encouraged student participation and reduced

classroom disruptions, aligning with the findings of previous literature on EI's positive impact on student engagement.

One participant emphasized: *“When I take the time to understand my students’ emotional states, I notice a dramatic shift in their motivation and willingness to engage. It’s not just about the content; it’s about how they feel when learning.”* Such comments illustrate how educators who employ EI effectively create inclusive classrooms where students feel valued and understood, ultimately enhancing learning outcomes.

**Impact of EI on Faculty-Student Relationships:** A recurring theme was the development of stronger, trust-based relationships between faculty and students as a direct result of EI practices. Educators shared that by acknowledging and addressing students’ emotional needs, they were able to build more meaningful connections. This resulted in a classroom climate that encouraged students to approach faculty with questions or concerns, reinforcing a sense of community and belonging within the university.

Analysis showed that students were more likely to seek guidance and express challenges openly when they perceived their instructors as emotionally supportive. One faculty member remarked: *“Students are more open and communicative when they know I’m listening not just to their words, but to what they might be feeling.”* This supports research suggesting that emotionally intelligent educators can bridge communication gaps and foster trust, which contributes to improved academic and social experiences for students.

**EI in Leadership and Decision-Making:** University administrators emphasized that EI was integral to effective leadership, particularly when making decisions that impacted both faculty and students. Participants cited examples where high emotional awareness and regulation allowed them to navigate complex issues, such as policy changes or conflict resolution, with greater empathy and fairness. Leaders noted that employing EI helped them maintain a calm demeanor during challenging discussions, enabling constructive dialogues and fostering cooperative problem-solving.

One faculty member shared: *“Having emotional intelligence helps me read the room and adjust my approach. It’s about leading with empathy, which makes difficult conversations more manageable and resolutions more agreeable.”* This insight corroborates research showing that emotionally intelligent leaders often create environments where faculty members feel respected and heard, promoting cohesion and boosting morale.

**Emotional Intelligence and Stress Management:** Interview responses indicated that EI played a crucial role in stress management for both educators and leaders. Faculty members with high EI reported using techniques such as self-reflection and mindfulness to cope with the pressures of teaching. These methods helped them maintain composure and resilience, which in turn allowed them to deliver consistent and effective instruction. The benefits of stress management extended beyond the individual; emotionally balanced educators were better equipped to support their students’ emotional well-being, reducing overall stress in the classroom environment.

Administrators noted that their ability to regulate their own emotions positively impacted how they managed team dynamics and workload distribution. One leader stated: *“Understanding and managing my emotions allows me to set an example for my team. It creates an environment where others feel safe to express their thoughts and collaborate without fear.”* This finding aligns with existing literature on how emotionally intelligent leaders contribute to lower stress levels and greater job satisfaction among faculty.

**Challenges and Limitations of EI in Practice:** While the benefits of EI were widely recognized, some participants acknowledged challenges in its application. For instance, measuring and maintaining consistent emotional awareness during high-stress situations was seen as difficult. One educator highlighted the concern: *“Staying emotionally aware in a busy classroom or during tight deadlines is easier said than done. Sometimes, emotions slip through the cracks, despite my best efforts.”* This echoes scholarly critiques on the limitations of sustaining EI and the potential for emotionally intelligent behavior to become exhausting if not properly managed.

Another limitation noted was the perception that excessive focus on emotional regulation might lead to suppressed authentic emotions, making interactions seem forced or inauthentic. Participants suggested that training programs should balance EI development with authenticity to avoid this potential pitfall.

**Analysis and Interpretation:** The findings from interviews at Astana IT University confirm the central role of emotional intelligence in enhancing teaching effectiveness and leadership within higher education. Faculty members’ experiences reveal that EI contributes to more engaged classrooms, stronger student-teacher relationships, and reduced stress. Similarly, leaders demonstrated that EI is crucial for fostering collaborative and resilient work cultures. However, the challenges highlighted—such as the effort required to maintain emotional regulation—suggest that while EI is powerful, it needs to be implemented with balance and support systems in place.

These insights align with broader research on EI’s potential to transform educational settings, supporting the conclusion that training in emotional intelligence for educators and leaders can substantially benefit both individual and institutional outcomes. Programs aimed at developing these competencies could strengthen teaching methodologies and enhance leadership effectiveness, making EI an indispensable part of higher education strategy.

**Conclusion:** The research conducted through interviews with faculty, administrators, and student leaders at Astana IT University underscores the critical role of emotional intelligence (EI) in both teaching and leadership within higher education. The findings demonstrate that EI fosters stronger connections between educators and students, enhances classroom engagement, and promotes a supportive, inclusive learning environment. For leaders, EI contributes to more effective decision-making, conflict resolution, and the ability to maintain a positive, cohesive institutional culture.

While the benefits of EI are evident, the challenges—such as maintaining emotional regulation under pressure and balancing authenticity with emotional control—highlight the need for ongoing support and training for educators and leaders. Programs that focus on building EI skills could provide practical strategies to help individuals manage these challenges while maximizing the positive impact of EI on their work.

Ultimately, the integration of emotional intelligence into teaching and leadership practices not only enhances the immediate academic experience but also supports the long-term well-being of both faculty and students. By prioritizing emotional awareness and empathy, higher education institutions can create environments that promote academic excellence, reduce stress, and foster both individual and collective growth. This research reaffirms that EI is an essential component for advancing teaching quality and leadership effectiveness, making it a vital focus for future educational strategies and professional development initiatives.

### References:

1. D. Goleman, *Emotional Intelligence: Why It Can Matter More Than IQ*. Bantam Books, 1995
2. K. V. Petrides, *A psychometric investigation into the construct of emotional intelligence* (Doctoral dissertation, University College London), 2001.
3. R. Bar-On, "The Bar-On model of emotional-social intelligence (ESI)," *Psicothema*, vol. 18, pp. 13-25, 2006.
4. J. D. Mayer and P. Salovey, "What is emotional intelligence?," in *Emotional Development and Emotional Intelligence: Educational Implications*, P. Salovey and D. Sluyter, Eds. New York: Basic Books, 1997, pp. 3-31.
5. J. A. Durlak, R. P. Weissberg, A. B. Dymnicki, R. D. Taylor, and K. B. Schellinger, "The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions," *Child Development*, vol. 82, no. 1, pp. 405-432, 2011.
6. N. S. Schutte et al., "Development and validation of a measure of emotional intelligence," *Personality and Individual Differences*, vol. 25, no. 2, pp. 167-177, 2001.
7. M. A. Brackett, S. E. Rivers, and P. Salovey, "Emotional intelligence: Implications for personal, social, academic, and workplace success," *Social and Personality Psychology Compass*, vol. 5, no. 1, pp. 88-103, 2011.
8. P. G. Northouse, *Leadership: Theory and Practice*, 8th ed. Sage Publications, 2018.
9. D. B. Nelson and G. R. Low, *Emotional Intelligence: Achieving Academic and Career Excellence*. Prentice Hall, 2003.
10. D. R. Trinidad and C. A. Johnson, "The association between emotional intelligence and early adolescent tobacco and alcohol use," *Personality and Individual Differences*, vol. 32, no. 1, pp. 95-105, 2000.

11. G. Matthews, R. D. Roberts, and M. Zeidner, "Seven myths about emotional intelligence," *Psychological Inquiry*, vol. 15, no. 3, pp. 179-196, 2004.

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## THE PSYCHOLOGY OF TRUST IN MANAGEMENT

**Abstract:** The article explores the psychological aspects of trust in management and its role in fostering an effective and resilient work environment. Key factors influencing the development of trust between managers and employees are examined, including emotional intelligence, empathy, and perceived competence. The main psychological benefits of trust within a team are analyzed, such as increased employee motivation, reduced stress levels, and fewer conflicts. Practical recommendations are provided for cultivating trust in management practices, based on psychological interaction methods.

**Keywords:** trust in management, organizational trust, psychological safety, leadership trust, employee-manager relationships.

### Introduction

The concept of trust in management is certainly an important one, as can be seen in the rapidly increasing amount of coverage it has enjoyed in relevant literature. Although the idea of trust is very old and the subject of widespread coverage in the humanities and social sciences, the current growth in the role of trust in business management is relatively new. A previous wave of work on the rise of trust and trustworthiness within social relations coincided with growing concern regarding managerial control systems during the 1950s and 1960s. Although this previous 'classic' literature on the sociology of trust panned out towards the middle of the 1960s, and although trust remained an occasional theme until the early 1990s, its emergence as a theme in its own right in business management literature is relatively recent.

This is because trust in management is an important and complex concept. Trust is involved in many, if not all, of the business activities within the economic marketplace. It is present within the business culture of any enterprise, usually operating silently in the background in a rather mundane fashion, often unrecognized, only being acknowledged by its noticeable absence if it is removed. In business terms, and certainly relevant to this thesis, key transactions in which trust may have a role include internal managerial hierarchies and lines of accountability, the general use of internal control mechanisms, the use of performance-related reward mechanisms, the management of the relationship between managers and employees, and the management of financial activities. Indeed, trust is found

at the heart of the understanding of the agency model that helps to understand many business transactions as it is at the core of the concept of the lending decision in a financial management perspective.

### **Theoretical Frameworks**

Understanding trust in management requires a multifaceted approach that incorporates various psychological and sociological theories. This section outlines some of the primary theoretical frameworks that inform the study of trust in organizational settings.

#### **Social Exchange Theory**

Social Exchange Theory posits that social behavior is the result of an exchange process aimed at maximizing benefits and minimizing costs. In the context of management, trust is viewed as a vital component of social exchanges between managers and employees. When employees perceive that their contributions are recognized and valued, they are more likely to develop trust in their leaders and the organization as a whole (Blau, 1964). This reciprocal relationship emphasizes that trust is built through consistent and positive interactions, which can enhance employee engagement and organizational commitment.

#### **Attachment Theory**

Attachment Theory, originally developed in the context of child development by Bowlby (1969), has been applied to adult relationships and organizational behavior. This framework suggests that individuals who have secure attachment styles—characterized by trust and confidence in others—are more likely to develop trusting relationships in the workplace. Leaders who exhibit caring and supportive behaviors can foster secure attachments, leading to enhanced trust among team members (Mikulincer & Shaver, 2007). This connection underscores the importance of interpersonal dynamics in building a trusting organizational culture.

#### **Cognitive and Affective Trust**

The distinction between cognitive and affective trust is essential for understanding how trust operates in management contexts. Cognitive trust is based on an individual's belief in another's reliability and competence, while affective trust stems from emotional bonds and interpersonal relationships (Mayer et al., 1995). In organizations, cognitive trust is often established through consistent performance and expertise, whereas affective trust is nurtured through open communication and empathy. Both forms of trust are critical for effective teamwork and collaboration, influencing overall organizational performance.

#### **The Trust-Commitment Theory**

The Trust-Commitment Theory posits that trust is a precursor to commitment in organizational relationships. According to Morgan and Hunt (1994), trust fosters commitment by creating a sense of security and predictability in interactions. When employees trust their leaders, they are more likely to engage in cooperative behaviors and exhibit loyalty to the organization. This theory highlights the importance of building trust as

a foundation for long-term employee commitment, which is essential for organizational stability and success.

### **The Agency Theory**

Agency Theory addresses the relationship between principals (owners) and agents (managers) in organizations, focusing on issues of trust and accountability. The theory suggests that because managers may have different interests than the owners, establishing trust is vital to align their objectives (Jensen & Meckling, 1976). Trust mitigates the inherent risks in these relationships, as it encourages managers to act in the best interest of the organization. In this context, trust serves as a mechanism for reducing agency costs and enhancing performance.

### **The Role of Culture in Trust**

Cultural frameworks, such as Hofstede's dimensions of culture (Hofstede, 1980), play a significant role in shaping trust within organizations. Different cultures perceive and value trust in diverse ways, influencing managerial practices and employee relationships. For instance, collectivist cultures may prioritize group harmony and relational trust, while individualist cultures may emphasize personal competence and reliability. Understanding these cultural dimensions is crucial for managers operating in multicultural environments, as they must navigate varying expectations around trust.

These theoretical frameworks provide a comprehensive understanding of trust in management. By integrating insights from social exchange, attachment, cognitive and affective trust, trust-commitment, agency theory, and cultural perspectives, researchers and practitioners can better appreciate the complexities of trust dynamics within organizations. This theoretical foundation will inform the subsequent sections of this literature review, exploring empirical findings and practical implications related to trust in management.

### **Research Design**

This study employs a qualitative literature review methodology, designed to analyze and synthesize existing research on the psychology of trust in management. This approach is appropriate because it enables a comprehensive examination of theoretical models, empirical findings, and psychological frameworks without the need for new data collection.

### **Scope and Selection Criteria**

The literature review focused on peer-reviewed journal articles, books, and academic publications that address the following key areas:

- **Trust in Leadership:** Studies examining characteristics of trustworthy leaders and their effects on team dynamics, particularly traits such as integrity, competence, and benevolence.
- **Trust and Organizational Culture:** Research linking trust to positive organizational outcomes, such as increased collaboration, higher morale, and innovation, as well as the effects of distrust on workplace toxicity.



- **Psychological Theories and Models of Trust:** Foundational frameworks such as Social Exchange Theory, Attachment Theory, and Cognitive-Affective Trust, which offer insights into the mechanisms by which trust influences managerial relationships.

The selection criteria included articles published within the last 20 years to ensure relevance to contemporary business environments, while also incorporating seminal studies from earlier periods to provide historical context.

This literature review was conducted through structured searches in academic databases, such as Google Scholar, JSTOR, ProQuest, and PsycINFO. Search terms included “trust in management,” “trust and leadership,” “organizational culture and trust,” “cognitive-affective trust,” and related keywords. Studies were selected based on relevance, publication quality, and the extent to which they contributed insights on psychological aspects of trust in management.

A thematic analysis was employed to identify, analyze, and report recurring themes across the selected literature. Key themes explored in the analysis included:

- **Leadership Traits and Trust-Building:** Exploring consistent traits associated with trustworthy leaders, such as integrity and transparency, and their psychological impacts on employees.
- **Trust Dynamics in Organizational Culture:** Understanding how trust fosters collaboration, reduces conflict, and encourages innovation within organizations.
- **Interpersonal Trust Theories:** Analyzing the application of theories such as Social Exchange Theory and Attachment Theory in explaining trust-building mechanisms.

This methodology does not include primary data collection, such as surveys or interviews, which limits its ability to gather specific contextual insights from unique organizational environments. Additionally, the focus on published studies may introduce a publication bias, as studies with significant results are more likely to be published than those with null results.

As this study is based on secondary sources, there were no ethical concerns related to participant confidentiality or informed consent. All literature reviewed was appropriately cited to maintain academic integrity.

### **Trust in Leadership**

Building and maintaining trust between leaders and their teams is essential for fostering a positive work environment, enhancing collaboration, and driving organizational success. Trustworthy leadership involves specific traits, behaviors, and communication practices that together create a reliable foundation for team dynamics. This section analyzes how leaders build and maintain trust, focusing on the traits of trustworthy leaders and the role of transparency and communication in strengthening these bonds.

### **Building and Maintaining Trust**

To build and maintain trust, leaders must consistently demonstrate behaviors that reinforce their credibility and commitment to their teams. Leaders build trust through actions

that align with their words, treating team members with respect and understanding, and showing commitment to team goals. Research suggests that leaders who build trust effectively engage in regular feedback, offer support during challenges, and make decisions that reflect the interests of the team rather than personal gain (Dirks & Ferrin, 2002).

Furthermore, trust is strengthened when leaders are approachable and accessible, making themselves available to address team concerns and provide guidance. Leaders who prioritize consistency in their behavior—keeping promises and following through on commitments—establish a dependable presence within the team, reducing uncertainty and increasing team confidence in leadership decisions.

### **Traits of Trustworthy Leaders**

Several core traits are consistently identified as essential for trustworthy leaders:

- **Integrity:** Integrity is often cited as the most important trait for building trust, as it involves honesty, ethical decision-making, and a commitment to doing the right thing. Leaders with high integrity are seen as dependable and principled, creating a foundation of trustworthiness that team members can rely upon (Mayer et al., 1995). Integrity also means that leaders admit mistakes and take responsibility, fostering a culture of accountability.

- **Competence:** Leaders must demonstrate competence in their roles to build confidence among their team members. Competence involves not only technical expertise and knowledge but also sound judgment and the ability to make informed decisions. When leaders are competent, team members are more likely to trust that they are being led toward achievable and beneficial goals. Competence assures teams that the leader can navigate challenges effectively and provide a clear path forward.

- **Benevolence:** Benevolence reflects a leader's genuine concern for the well-being of team members. Benevolent leaders show empathy, support team members' personal and professional growth, and are willing to go out of their way to help others succeed. Benevolence fosters loyalty, as team members feel valued and understood, which enhances trust (McAllister, 1995). Leaders who demonstrate care for their team's well-being establish emotional bonds that strengthen trust and motivate team members to reciprocate with loyalty and effort.

### **The Role of Transparency and Communication**

Transparency in leadership involves being open about decisions, sharing relevant information, and explaining the rationale behind actions that impact the team. When leaders are transparent, they reduce ambiguity and prevent the spread of misinformation. This openness allows team members to feel included and respected, which reinforces trust (Mishra, 1996). Transparency in decision-making processes and the communication of organizational goals creates a culture where trust can thrive, as team members understand the intentions behind leadership actions.

Effective communication is a cornerstone of trust-building, as it ensures that team members feel heard and understood. Open and honest communication promotes a culture of

trust by facilitating dialogue, allowing team members to express concerns, share ideas, and ask questions. Regular feedback, active listening, and constructive conversations empower teams, creating a sense of partnership rather than hierarchy (Robinson, 1996). Leaders who engage in clear and empathetic communication foster a more cohesive and collaborative work environment, where trust in leadership is continually reinforced.

Leaders build and maintain trust by embodying key traits such as integrity, competence, and benevolence, which establish them as reliable, skilled, and caring figures within their teams. Transparency and open communication further strengthen this trust by ensuring that team members feel informed, valued, and engaged. Together, these elements foster a workplace culture where trust is embedded in everyday interactions, allowing teams to perform effectively and reach their full potential.

While trust in leadership is crucial for fostering effective team dynamics, it is equally important to consider how trust permeates organizational culture. The following section will explore the relationship between trust and key cultural factors, including collaboration, innovation, and employee morale.

### **Trust and Organizational Culture**

Trust is a fundamental component of a positive organizational culture. It influences how employees interact, engage in tasks, and connect with the organization's values and goals. This section explores how trust contributes to a healthy organizational culture, discussing its relationship with key factors such as collaboration, innovation, and morale, as well as the negative impact of a lack of trust on workplace environments.

#### **Trust as a Foundation of Positive Organizational Culture**

Trust creates a foundation for employees to feel safe, respected, and valued within an organization. When employees trust their leaders and colleagues, they are more likely to embrace shared values, work towards common goals, and feel committed to the organization. This trust-based culture promotes a sense of belonging and purpose, which enhances overall job satisfaction and engagement. A positive culture grounded in trust is resilient and better able to adapt to challenges, as employees feel confident in their roles and in the support of their team.

#### **The Relationship Between Trust and Key Cultural Factors**

**Collaboration:** Trust is essential for effective collaboration. When employees trust one another, they are more willing to share information, seek help, and work together toward common objectives. Trust reduces fear of judgment and promotes open communication, which allows for the free flow of ideas and resources. In a high-trust environment, collaboration becomes more natural, as team members feel secure enough to rely on each other's expertise and perspectives, fostering a culture of teamwork and mutual support (Costa, 2003).

**Innovation:** Innovation thrives in a trust-rich culture, as trust encourages employees to take risks and think creatively without fear of negative repercussions. When employees trust

that their ideas will be respected and valued, they are more likely to propose novel solutions and explore unconventional approaches. Leaders who foster trust create a psychologically safe environment that enables employees to experiment, make mistakes, and learn from them, all of which are critical to innovation.

**Morale:** Trust positively influences employee morale by creating a work environment where employees feel valued, supported, and motivated. High morale is often a product of a trusting environment where leaders show empathy, provide regular feedback, and recognize employee achievements. When morale is high, employees are more likely to be engaged and productive, contributing positively to the organizational culture (Whitener et al., 1998).

### **The Impact of a Lack of Trust on Organizational Culture**

A lack of trust can quickly lead to a toxic workplace environment. When trust is absent, employees may feel isolated, fearful, or suspicious of their leaders and colleagues. This can result in a culture of micromanagement, excessive monitoring, and rigid control, where employees feel constrained rather than empowered. The absence of trust leads to several negative outcomes:

- **Reduced Collaboration:** In low-trust environments, employees are reluctant to share information or collaborate, often fearing that their ideas may be criticized or used against them. This reduces teamwork and hinders effective problem-solving, as employees work in silos rather than cooperatively.

- **Stifled Innovation:** Without trust, employees are unlikely to take risks or suggest new ideas, fearing that mistakes will be punished. This fear of failure stifles creativity and innovation, leading to a stagnant culture where the status quo is maintained rather than challenged.

- **Decreased Morale and Engagement:** In a low-trust culture, morale and engagement suffer significantly, as employees feel undervalued and disconnected from their roles. High turnover rates, absenteeism, and burnout are common in environments where trust is lacking, ultimately harming productivity and organizational performance.

Trust is essential for fostering a positive organizational culture, as it supports collaboration, encourages innovation, and boosts employee morale. A high-trust environment empowers employees to contribute meaningfully to the organization, creating a culture that is dynamic, resilient, and adaptive. Conversely, a lack of trust can lead to a toxic workplace where fear, suspicion, and disengagement are prevalent, eroding organizational health and hindering success. Cultivating trust, therefore, is a critical strategy for any organization aiming to build and sustain a thriving workplace culture.

### **Conclusion**

The exploration of trust in management reveals its critical role in fostering an effective and resilient work environment. This study highlights that trust is not merely an abstract concept but a fundamental component of successful organizational dynamics. Through a comprehensive review of relevant psychological theories, such as Social Exchange Theory,

Attachment Theory, and the Trust-Commitment Theory, we gain insights into the mechanisms that underpin trust relationships between leaders and employees.

Trust in leadership is characterized by key traits such as integrity, competence, and benevolence, which together create a solid foundation for team dynamics. Effective communication and transparency are also essential in building and maintaining trust, as they promote an open culture where employees feel valued and heard. Furthermore, the relationship between trust and organizational culture is profound; a high-trust environment enhances collaboration, encourages innovation, and boosts employee morale, while a lack of trust can lead to a toxic workplace atmosphere.

To cultivate trust within organizations, managers must adopt strategies that reinforce these principles. Practical recommendations include fostering emotional intelligence through training, promoting open communication, and implementing feedback mechanisms that empower employees. By actively working to build trust, organizations can not only enhance team performance but also create a resilient culture that adapts to challenges and drives long-term success.

Looking ahead, as workplaces continue to evolve with trends such as remote work and changing workforce demographics, the dynamics of trust will remain a vital area for further research. Understanding how to navigate these changes while maintaining trust will be essential for managers aiming to lead effectively in the future. Ultimately, prioritizing trust in management is a strategic imperative that can lead to sustained organizational success and employee satisfaction.

### **Practical Recommendations**

To effectively cultivate trust in management and enhance organizational culture, the following practical recommendations are proposed:

1. **Develop Emotional Intelligence Training:** Organizations should invest in emotional intelligence (EI) training programs for managers and leaders. By enhancing their ability to empathize, understand, and respond to the emotional needs of employees, leaders can foster deeper interpersonal connections and create a trusting environment.
2. **Encourage Open Communication:** Establishing open lines of communication is essential for building trust. Leaders should create forums for regular feedback, encourage employees to voice concerns and ideas, and practice active listening. Implementing tools such as anonymous suggestion boxes or regular team check-ins can help facilitate open dialogue.
3. **Promote Transparency in Decision-Making:** Transparency in leadership decisions is crucial for building trust. Leaders should share the rationale behind their decisions and involve employees in the decision-making process where appropriate. This openness not only demystifies managerial actions but also empowers employees, making them feel valued and included.
4. **Recognize and Reward Contributions:** Implementing recognition programs that

acknowledge individual and team achievements can significantly enhance trust and morale. Recognizing contributions fosters a culture of appreciation, encouraging employees to engage and commit to organizational goals.

5. **Model Trustworthy Behavior:** Leaders should actively model trustworthy behavior by aligning their actions with their words. Demonstrating integrity, keeping promises, and owning up to mistakes can establish a culture of accountability and reinforce trust among team members.

6. **Encourage Team-Building Activities:** Organizing team-building exercises can strengthen relationships and trust among employees. These activities promote collaboration, enhance interpersonal bonds, and create a supportive atmosphere where employees feel comfortable working together.

7. **Provide Opportunities for Professional Development:** Offering professional development opportunities helps employees feel valued and competent in their roles. When employees see that their organization is invested in their growth, trust in leadership and the organization as a whole increases.

8. **Implement Conflict Resolution Mechanisms:** Establishing clear conflict resolution procedures can help address issues before they escalate. Leaders should be trained in conflict management techniques, ensuring that they can effectively mediate disputes while maintaining a culture of trust and respect.

9. **Foster a Culture of Psychological Safety:** Leaders should cultivate an environment where employees feel safe to express their thoughts and take risks without fear of negative repercussions. Encouraging innovative thinking and valuing diverse perspectives can enhance trust and drive organizational success.

10. **Assess and Monitor Trust Levels:** Regularly assessing the level of trust within teams through surveys or feedback mechanisms can provide valuable insights. Monitoring these levels allows organizations to identify areas for improvement and implement targeted interventions to strengthen trust.

By implementing these practical recommendations, organizations can create a culture of trust that not only enhances team dynamics but also drives overall organizational success. Trust is a foundational element that, when prioritized, can lead to improved employee satisfaction, increased productivity, and a resilient work environment.

### **References:**

1. Blau, P. M. (1964). *Exchange and Power in Social Life*. New York: John Wiley & Sons.
2. Bowlby, J. (1969). *Attachment and Loss: Volume I. Attachment*. New York: Basic Books.

3. Costa, A. C. (2003). Work team trust and effectiveness. *Personnel Review*, 32(5), 605-622.
4. Dirks, K. T., & Ferrin, D. L. (2002). Trust in leadership: Meta-analytic findings and implications for research and practice. *Journal of Applied Psychology*, 87(4), 611-628.
5. Edmondson, A. C. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly*, 44(2), 350-383.
6. Mikulincer, M., & Shaver, P. R. (2007). *Attachment in Adulthood: Structure, Dynamics, and Change*. New York: Guilford Press.
7. Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of Management Review*, 20(3), 709-734.
8. McAllister, D. J. (1995). Affect- and cognition-based trust as foundations for interpersonal cooperation in organizations. *Academy of Management Journal*, 38(1), 24-59.
9. Mishra, A. K. (1996). Organizational responses to crisis: The centrality of trust. *Trust in Organizations: Frontiers of Theory and Research*, 261-287.
10. Morgan, R. M., & Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. *Journal of Marketing*, 58(3), 20-38.
11. Hofstede, G. (1980). *Culture's Consequences: International Differences in Work-Related Values*. Beverly Hills, CA: Sage Publications.
12. Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs, and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.
13. Kramer, R. M., & Tyler, T. R. (Eds.). (1996). *Trust in Organizations: Frontiers of Theory and Research*. Thousand Oaks, CA: Sage Publications.
14. Robinson, S. L. (1996). Trust and breach of the psychological contract. *Administrative Science Quarterly*, 41(4), 574-599.
15. Whitener, E. M., Brodt, S. E., Korsgaard, M. A., & Werner, J. M. (1998). Managers as initiators of trust: An exchange relationship framework for understanding managerial trustworthy behavior. *Academy of Management Review*, 23(3), 513-530.

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## **РОЛЬ ЛИДЕРСТВА В СТУДЕНЧЕСКИХ ГРУППАХ И ЕГО ВЛИЯНИЕ НА АКАДЕМИЧЕСКУЮ УСПЕВАЕМОСТЬ**

**Аннотация:** Лидерство играет решающую роль в образовательном процессе, особенно в студенческих группах, где оно способствует развитию академической успеваемости, вовлеченности и межличностных навыков. В данной статье исследуется влияние лидерства на студенческие группы с точки зрения академической и социальной динамики, оценивается роль лидерских качеств, а также рассматриваются аспекты эмоционального интеллекта и психологической поддержки. Статья опирается на современные исследования и анализирует, связь студенческого лидерства с личностным ростом, социальной интеграцией и академической успешностью студентов.

**Ключевые слова:** лидерство, студенческие группы, академическая успеваемость, эмоциональный интеллект, межличностные навыки, личностный рост.

В последние годы интерес к лидерству в студенческой среде возрос, особенно в свете новых исследований в области образовательной психологии и социологии. Важность лидерства в студенческих группах заключается не только в организации учебного процесса, но и в развитии мотивации, сплоченности и успешной адаптации студентов. Современные исследования показывают, что студенты, которые проявляют лидерские качества, имеют тенденцию к более высоким академическим достижениям и лучшей социальной адаптации, чем их сверстники [1].

Цель данной статьи — изучить влияние лидерства на успеваемость и социальное развитие студентов в рамках студенческих групп и организаций, а также рассмотреть роль эмоционального интеллекта и навыков коммуникации лидеров в этих процессах.

Лидерство в студенческих группах способствует созданию поддерживающей и мотивирующей среды, которая улучшает академические и социальные результаты. Лидеры групп зачастую выполняют функции посредников, помогают разрешать конфликты и поддерживать позитивный настрой в группе [2]. Это создает атмосферу взаимного доверия и вовлеченности, что положительно сказывается на академической деятельности.



Исследования указывают на важность наличия лидера, обладающего навыками межличностной коммуникации и эмоциональной устойчивостью, чтобы обеспечить продуктивное взаимодействие в группе.

Влияние лидерства на академическую успеваемость можно объяснить несколькими факторами:

**1. Поддержка и мотивация:** Лидеры способны оказывать поддержку и вдохновлять студентов на достижение лучших результатов. В условиях академического давления лидер может помочь группе поддерживать мотивацию и справляться со стрессом, что положительно сказывается на учебных результатах [3].

**2. Эмоциональный интеллект:** Лидеры с высоким уровнем эмоционального интеллекта легче распознают и понимают эмоции своих коллег, что помогает в создании среды взаимной поддержки. Исследования показывают, что студенты, находящиеся под руководством эмоционально компетентного лидера, демонстрируют более высокий уровень академической и социальной адаптации, что в конечном итоге улучшает их академическую успеваемость.

**3. Развитие ответственности и самодисциплины:** Под руководством лидера студенты развивают навыки, которые влияют на их собственную успеваемость, включая организацию времени и ответственность. Лидерство помогает студентам осознать важность дисциплины, что отражается в их учебной деятельности.

Эмоциональный интеллект лидера играет ключевую роль в успехе группы. Лидеры с высоким уровнем эмоционального интеллекта не только лучше понимают эмоции членов своей команды, но и способны адаптировать свои методы управления, чтобы создать более инклюзивную и поддерживающую среду.

Четыре компонента эмоционального интеллекта — самосознание, саморегуляция, социальная осознанность и навыки построения отношений — способствуют тому, что лидеры могут эффективнее руководить группами. Например, самосознание позволяет лидеру осознанно управлять своими эмоциями, избегая конфликтов, которые могут отрицательно сказаться на атмосфере группы [4].

Студенты, участвующие в таких группах, проявляют более высокую уверенность в себе и готовы принимать на себя ответственность, что подготавливает их к профессиональной деятельности. Исследования подтверждают, что опыт лидерства в студенческих группах помогает студентам лучше адаптироваться к требованиям рынка труда и развивает управленческие навыки, необходимые в дальнейшей карьере.

Психологическое благополучие и поддержка со стороны лидера играют ключевую роль в учебном процессе. Студенты, которые чувствуют поддержку со стороны своих лидеров, реже сталкиваются со стрессом и тревожностью в период учебы, что положительно сказывается на их академических результатах.

Положительное влияние на академические достижения также оказывает социальная поддержка со стороны лидера. Когда студенты сталкиваются с

трудностями или сталкиваются с конфликтами, лидер помогает разрешить эти ситуации и поддерживает гармоничную атмосферу в группе. Это способствует тому, что студенты могут сосредоточиться на учебе, не отвлекаясь на межличностные конфликты и стресс.

Современные исследования также указывают на важность гендерных и культурных факторов в понимании лидерства в студенческой среде, мужчины и женщины могут демонстрировать различные стили лидерства, что сказывается на восприятии их в группе.

В мультикультурной студенческой среде понимание культурных различий в лидерских подходах помогает создать более инклюзивную и поддерживающую среду, где каждый участник чувствует себя комфортно. Исследования показывают, что лидер, учитывающий культурные различия и способствующий культурной интеграции, может повысить уровень вовлеченности и академической успешности среди студентов из разных этнических групп [5].

Лидерство в студенческих группах оказывает значительное влияние на академическую успеваемость, способствуя созданию среды, которая поддерживает и мотивирует участников. Лидерские качества, включая высокий уровень эмоционального интеллекта и социальные навыки, помогают студентам чувствовать себя увереннее и вовлеченными в учебный процесс. Лидерство не только улучшает академические результаты, но и способствует личностному росту, подготавливая студентов к будущим профессиональным вызовам.

Дальнейшие исследования направлены на изучение влияния конкретных методов лидерства на различные аспекты академической деятельности и профессиональной подготовки студентов, а также на развитие эмоционального интеллекта среди студенческих лидеров.

### **Список литературы:**

1. Komives, S. R., Lucas, N., & McMahon, T. R. (2021). *Exploring leadership: For college students who want to make a difference*. John Wiley & Sons.
2. Moss, J. A., & Barbuto, J. E. (2019). *Global leadership perspectives: Insights and analyses*. Routledge.
3. Dugan, J. P. (2017). *Leadership theory: Cultivating critical perspectives*. John Wiley & Sons.
4. Mayer, J. D., Caruso, D. R., & Salovey, P. (2018). The Ability Model of Emotional Intelligence: Principles and Updates. *Emotion Review*, 10(4), 290–300.
5. Northouse, P. G. (2021). *Leadership: Theory and Practice* (9th ed.). Sage Publications.

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## **HYBRID LEARNING IN HIGHER EDUCATION: PSYCHOLOGICAL ASPECTS OF STUDENT ADAPTATION TO BLENDED LEARNING FORMATS**

**Abstract:** This article examines the evolution of hybrid learning as a response to the challenges exposed by the shift to fully remote education during the COVID-19 pandemic. While remote learning expanded global access to education, it revealed significant shortcomings, including declines in academic performance and psychological difficulties related to student motivation and self-organization. Hybrid learning, which combines online and in-person formats, offers a balanced solution by restoring social interaction and maintaining flexibility. This study explores the psychological impact of hybrid learning on students and its potential to enhance academic outcomes and psychological resilience. The findings suggest that hybrid learning can address the challenges of remote education by providing a more personalized and engaging learning experience. By properly incorporating both online and in-person elements, students may benefit from increased motivation, improved social connections, and better time management skills.

**Keywords:** hybrid learning, online learning, offline learning, student adaptation, psychological resilience, academic performance, self-organization, student motivation, social interaction, higher education in Kazakhstan, educational technologies.

### **Introduction**

The technological transformation of educational processes began with the active development of the internet in the 1990s, expanding the boundaries of learning and student interaction. However, the real breakthrough occurred in the 2000s with the development of fully online courses. These courses made higher education more accessible, offering students the opportunity to study in an international format [11]. The COVID-19 pandemic in 2019, however, led to a sudden global shift to fully remote learning. This shift forced educational institutions to quickly adapt to virtual classrooms and online platforms, further accelerating the integration of technology in education [3][18]. As a result, the future of education is likely to be a hybrid model that combines in-person instruction with online learning opportunities.

Despite technological advancements, the complete transition to distance learning revealed numerous shortcomings, including a decline in academic performance and psychological challenges related to students' self-organization [3][6]. The return to in-person

learning after the pandemic raised the question of finding a more sustainable and balanced educational model.

Hybrid learning emerged as a natural progression from distance learning, combining face-to-face and online formats to address existing challenges [4]. The implementation of this model addresses a range of psychological, social, and organizational issues faced by both students and educators. Hybrid learning helps restore social interaction, supports discipline, and at the same time offers flexibility in the learning process. By allowing students to engage in both physical and virtual classrooms, hybrid learning encourages independence and responsibility in managing their time and resources. This approach also promotes the development of digital literacy skills, preparing students for the demands of the modern workforce [11][18].

Special attention should be paid to the psychological aspects of students' adaptation to new conditions. Distance learning, which requires a high level of self-discipline and organization, demonstrated that many students struggle to maintain motivation, directly impacting their academic performance. According to studies conducted in various countries, distance learning during the pandemic led to a 10–14% drop in academic achievement, depending on the subject and region. This decline was caused by multiple factors, including a lack of social interaction and technical barriers. Thus, it is essential to explore how feasible the widespread implementation of hybrid learning is in contemporary conditions and how it may affect the psychological well-being of the new generation of students.

### **Methods**

This article utilizes a literature review methodology to examine existing research and synthesize findings on the topic of hybrid learning. A literature review is a systematic approach to collecting, evaluating, and summarizing research studies and theoretical perspectives on a given topic, enabling the identification of trends, gaps, and future directions for research [6]. In this case, the review focuses on literature regarding the evolution of hybrid learning, its impact on student outcomes, and its psychological implications, particularly in the context of the transition from fully remote learning to hybrid models post-pandemic.

A comprehensive search of academic databases such as Google Scholar, JSTOR, and ERIC was conducted to identify relevant articles published between 2010 and 2024. The search terms included "hybrid learning," "blended learning," "distance education," "online learning," "academic performance," and "psychological well-being."

Studies were selected based on their relevance to the research questions, methodological rigor, and publication in peer-reviewed journals. Priority was given to studies that focused on hybrid or blended learning in higher education contexts and examined the psychological and academic impact on students.

Key themes from the selected studies were extracted, including the benefits and challenges of hybrid learning, its effects on academic achievement, and the psychological challenges students face in remote and hybrid environments.

The findings from the studies were analyzed and synthesized to provide a comprehensive understanding of the current state of hybrid learning, its potential benefits, and its limitations in addressing psychological and academic challenges.

## **Results**

### **1. The Evolution of Hybrid Learning**

Hybrid learning models have evolved in response to the growing demand for flexible education. The concept of blending online and in-person learning can be traced back to the early 2000s, when institutions began experimenting with blended learning approaches, combining face-to-face instruction with online components [7]. As technology advanced, fully online education platforms, such as MOOCs, gained prominence, offering students the opportunity to study from anywhere in the world. However, the limitations of online education—particularly the lack of social interaction and student engagement—led to the development of hybrid models designed to combine the flexibility of digital learning with the engagement of traditional in-person instruction [3].

In fact, Niederhauser and Stoddart (2001) argue that the integration of technology in education has progressively shifted instructional strategies, fostering a more interactive and flexible learning environment [14]. It is suggested that hybrid learning models bridge the gap between traditional and online education, effectively addressing some of the limitations of both approaches, particularly in terms of engagement and learning outcomes [11]. Similarly, it was discussed how the convergence of online and face-to-face learning can enrich students' learning experiences by offering varied instructional formats, more opportunities for peer collaboration, and the development of critical thinking and problem-solving skills through digital tools [12][17].

Researchers have noted that hybrid learning can enhance the quality of education by offering a personalized learning experience, allowing students to choose how and when they engage with course materials [9]. The blended format also promotes the development of digital literacy, a key skill in today's workforce. Furthermore, hybrid models cater to a variety of learning styles, supporting students who thrive in both digital and physical learning environments [8]. However, researchers caution that the successful implementation of hybrid learning requires careful alignment of instructional design and teaching presence to avoid the pitfalls of isolation and disengagement, which are common in both online and in-person learning formats [6][7].

### **2. Psychological Impact of Remote and Hybrid Learning**

One of the most significant challenges identified in the literature is the psychological impact of remote learning. The transition to fully online education during the COVID-19 pandemic led to increased levels of stress, anxiety, and feelings of isolation among students

[2]. According to studies, students struggled with motivation and time management, especially in environments that lacked in-person interactions and a sense of community [10].

Hybrid learning models, by reintroducing face-to-face interactions, seek to address these issues by providing a sense of social presence and community. Social interaction in educational settings is critical for fostering engagement, reducing feelings of isolation, and enhancing students' psychological resilience [7]. Hybrid learning offers the flexibility to balance independent study with collaborative learning, helping to mitigate the challenges associated with remote learning, such as disengagement and lack of motivation [5]. This is supported by several researchers, who found that the incorporation of in-person elements in hybrid learning helped students regulate their emotions better and stay motivated, leading to better academic performance in comparison to fully online learning [13][19].

However, the psychological challenges in hybrid learning are not entirely eliminated. Students who have difficulty with self-regulation or struggle to adapt to the demands of both online and in-person environments may still experience stress and burnout. Moreover, the constant switching between virtual and physical spaces can be overwhelming for some, particularly if the course structure is not well-organized [3]. Some researchers emphasize that the psychological well-being of students in hybrid environments depends significantly on the quality of the instructional design, the clarity of communication, and the perceived support from instructors and peers [6][8].

### 3. Academic Performance in Hybrid Learning Models

Academic performance in hybrid learning environments is influenced by several factors, including the course design, student engagement, and the balance between in-person and online components. Studies have shown that well-designed hybrid courses, which provide opportunities for interaction and personalized support, tend to result in better academic outcomes compared to fully online courses [9]. Hybrid models encourage active learning and provide students with multiple opportunities to engage with content, collaborate with peers, and receive timely feedback from instructors.

However, hybrid learning can also present challenges for students who struggle with time management, self-regulation, or lack access to necessary technology [11]. In these cases, students may find it difficult to keep up with both online and in-person components, leading to lower academic achievement. Research has shown that students with lower socioeconomic status or those who face technical barriers may experience difficulties in hybrid learning environments, exacerbating existing inequalities in education [12]. Seaman (2020) further notes that despite the benefits of hybrid learning, disparities in access to digital tools and internet connectivity remain a significant challenge, particularly for students in rural or underserved communities [15].

Moreover, Bonk and Graham (2006) suggest that blended learning models can be especially effective in disciplines that require practical skills or face-to-face collaboration, such as healthcare or engineering [5]. In these fields, hybrid learning helps students apply

theoretical knowledge in real-world contexts, enhancing their problem-solving skills and improving retention of complex concepts [9].

#### 4. Strategies for Successful Hybrid Learning Implementation

The success of hybrid learning is heavily dependent on effective implementation. Clear communication, well-structured courses, and ongoing support for students are essential for ensuring that hybrid models meet their intended goals. Studies have highlighted the importance of providing consistent instructor presence, regular opportunities for student interaction, and timely feedback to keep students engaged and motivated [7][8]. Additionally, the integration of technology must be seamless, with students having access to the necessary tools and platforms for effective learning [9].

Bonk and Graham (2006) assert that teacher training in hybrid environments is crucial, emphasizing that instructors must be well-equipped to manage both online and in-person components of the course [5]. This includes familiarity with the tools used for virtual collaboration and learning management systems, as well as the ability to create engaging, interactive content that fosters student engagement across formats [9]. The implementation of hybrid learning models should also take into account the diverse needs of students, including those with disabilities, to ensure equitable access to educational opportunities [12].

#### **Conclusion**

Hybrid learning offers a promising solution to the challenges posed by fully remote and traditional classroom-based education. By blending the flexibility of online learning with the social interaction and support of in-person instruction, hybrid models can address the psychological and academic challenges many students face in remote learning environments. Hybrid learning has the potential to cater to different learning styles and preferences, creating a more inclusive educational experience for all students. As schools continue to navigate the complexities of education during a global pandemic, hybrid learning may prove to be a valuable tool in promoting student success and well-being. However, the success of hybrid learning depends on several factors, including effective course design, technological access, and institutional support. While hybrid learning has the potential to enhance academic performance and improve psychological well-being, its implementation must be carefully tailored to meet the diverse needs of students. Future research should continue to explore best practices for hybrid learning design, as well as its long-term impact on student outcomes and mental health in the evolving educational landscape.

#### **References:**

1. Allen, I. E., & Seaman, J. (2013). Changing course: Ten years of tracking online education in the United States. Babson Survey Research Group.
2. Anderson, T., & Dron, J. (2011). Three generations of distance education pedagogy. *The International Review of Research in Open and Distributed Learning*, 12(3), 80–97. <https://doi.org/10.19173/irrodl.v12i3.890>

3. Aristovnik, A., Keržič, D., & Ravšelj, D. (2020). The impact of the COVID-19 pandemic on the education of students in the European Union. *International Journal of Educational Research*, 102, 101827. <https://doi.org/10.1016/j.ijer.2020.101827>
4. Beatty, B. (2019). *Hybrid flexible course design: Implementing student-directed strategies*. EdTech Books.
5. Bonk, C. J., & Graham, C. R. (2006). *The handbook of blended learning: Global perspectives, local designs*. Pfeiffer Publishing.
6. Frontiers. (2023). Distance learning during the COVID-19 pandemic: A comprehensive review of impacts on learning outcomes and student well-being. *Frontiers in Education*, 8, 1073073. <https://doi.org/10.3389/educ.2023.1073073>
7. Garrison, D. R., & Kanuka, H. (2004). Blended learning: Uncovering its transformative potential in higher education. *The Internet and Higher Education*, 7(2), 95–105. <https://doi.org/10.1016/j.iheduc.2004.02.001>
8. Garrison, D. R., Anderson, T., & Archer, W. (2010). The community of inquiry theoretical framework. In *E-learning in the 21st century: A community of inquiry approach* (2nd ed., pp. 19–39). Routledge.
9. Hrastinski, S. (2019). Blended learning. *Education and Information Technologies*, 24(3), 2251–2261. <https://doi.org/10.1007/s10639-019-09824-8>
10. Jaggars, S. S., & Bailey, T. (2010). Effectiveness of fully online courses for college students: Response to a Department of Education meta-analysis. *Community College Research Center*, 4(1), 1–16.
11. Keržič, D., Ravšelj, D., & Aristovnik, A. (2021). The role of digitalization and technology in reshaping the higher education landscape post-pandemic. *Technology in Society*, 64, 101457. <https://doi.org/10.1016/j.techsoc.2020.101457>
12. Liu, S., & Wang, X. (2018). Blended learning in higher education: A review of empirical studies. *The International Journal of Information and Education Technology*, 8(1), 11–18. <https://doi.org/10.7763/IJiet.2018.V8.963>
13. Morris, L. V., & Finnegan, C. L. (2008). Blended learning: A promising pedagogical model. *Online Journal of Distance Learning Administration*, 11(2).
14. Niederhauser, D. S., & Stoddart, T. (2001). Teachers' instructional perspectives and use of educational software. *Teaching and Teacher Education*, 17(1), 15–31. [https://doi.org/10.1016/S0742-051X\(00\)00036-6](https://doi.org/10.1016/S0742-051X(00)00036-6)
15. Seaman, J. E. (2020). *The state of online learning in postsecondary education: 2020*. Babson Survey Research Group.
16. Smith, M., & Adams, D. (2015). Hybrid learning in the college classroom: Instructional strategies for diverse learning environments. *Journal of College Teaching & Learning*, 12(2), 65–78.
17. Thorne, K. (2003). *Blended learning: How to integrate online and traditional learning*. Kogan Page.



18. World Bank. (2021). The impact of COVID-19 on education: Insights from education at a glance 2021. World Bank. <https://www.worldbank.org/en/publication/education-at-a-glance>

19. Xie, K., Ke, F., & Sharma, P. (2021). Understanding the psychological impact of online learning: The role of self-regulation in mitigating stress and anxiety. *Journal of Educational Psychology*, 113(4), 700–714. <https://doi.org/10.1037/edu0000459>

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## **THE IMPACT OF GROWTH MINDSET INTERVENTIONS ON ACADEMIC PERFORMANCE AND MOTIVATION IN COLLEGE STUDENTS**

**Abstract:** This empirical investigation examines the causal effects of growth mindset interventions on academic performance and motivation among postsecondary students. A growth mindset, defined as the belief that intelligence and abilities are not fixed traits but can be developed through dedication and incremental learning (Dweck, 2017), has been increasingly acknowledged as a pivotal determinant of educational attainment. Conversely, a fixed mindset, characterized by the belief that intelligence is immutable, can constrain students' intrinsic motivation and their capacity to persevere through academic difficulties. This study will synthesize extant research (published within the last decade) on growth mindset interventions in higher education settings, evaluating their efficacy in augmenting academic outcomes and intrinsic motivation.

Specifically, this research will explore the theoretical foundations of growth mindset theory, elucidating how it shapes students' metacognitive beliefs about their abilities, their affective responses to setbacks, and their overall academic engagement. It will conduct a meta-analysis of empirical studies that have implemented growth mindset interventions among postsecondary students, focusing on a variety of intervention strategies, such as online modules, feedback interventions, and integrated curricular approaches. For example, the research will examine the impact of online interventions like those employed by Yeager et al. (2019), which delivered brief growth mindset messages to students, on academic outcomes across diverse student populations. The analysis will encompass a range of academic disciplines and student demographics to assess the generalizability and potential limitations of these interventions. Furthermore, this study will employ rigorous statistical methods to control for confounding variables and to examine the moderating effects of individual characteristics on the intervention's efficacy. The findings of this research will contribute to the existing body of knowledge on growth mindset interventions and will provide valuable insights into their potential for improving academic outcomes and fostering a lifelong love of learning.

This paper will investigate the influence of growth mindset interventions on various dimensions of student motivation, encompassing intrinsic motivation, self-efficacy, and goal orientation. Specifically, it will examine the efficacy of these interventions in fostering a mastery goal orientation, characterized by a student's emphasis on learning and improvement rather than solely on performance and grades (Sisk et al., 2020). Furthermore, this research will explore the potential mediating and moderating variables that shape the relationship between growth mindset interventions, academic performance, and motivation, including prior achievement levels, academic self-concept, and social belonging (Walton & Cohen,

2011). Drawing upon recent neuroscientific advancements, such as those by Schlaggar et al. (2023), this paper will also investigate the neural mechanisms underlying the effects of growth mindset interventions on learning and motivation.

Through a rigorous synthesis of extant research findings, this paper endeavors to provide a comprehensive and contemporary understanding of the effectiveness of growth mindset interventions in promoting academic success and motivation among college students. It will critically discuss the implications of these findings for educators, policymakers, and students themselves, offering evidence-based recommendations for the design and implementation of effective interventions to cultivate a growth mindset culture within higher education. Ultimately, this research aims to contribute significantly to the burgeoning field of growth mindset research, shedding light on its potential to empower college students to achieve their full academic potential.

**Keywords:** Growth Mindset, Academic Motivation, Intervention, Higher Education, Academic Performance.

**Introduction.** The transition to college presents students with a unique set of academic and personal challenges. Students encounter increased academic rigor, greater autonomy in their learning, and a diverse social environment, all of which can significantly impact their motivation and performance. In this context, understanding the factors that contribute to student success in higher education becomes crucial. One such factor that has garnered significant attention in recent years is **mindset**, specifically the belief that intelligence and abilities are malleable and can be developed through effort and learning, known as a **growth mindset** (Dweck, 2017). This research paper delves into the impact of growth mindset interventions on academic performance and motivation in college students, drawing upon recent empirical evidence to provide a comprehensive understanding of this burgeoning field of study.

Traditional educational paradigms often implicitly promote a **fixed mindset**, where intelligence is viewed as a static entity. This belief can lead students to avoid challenges, fear failure, and ultimately limit their academic potential. Conversely, a growth mindset fosters a love of learning, a willingness to embrace challenges, and a belief in the power of effort to drive improvement (Yeager & Dweck, 2020). This fundamental difference in how students perceive their abilities has profound implications for their academic trajectories. Students with a growth mindset are more likely to persist in the face of setbacks, seek out help when needed, and ultimately achieve greater academic success (Sisk et al., 2020).

The potential of growth mindset interventions to enhance academic outcomes in college students has been demonstrated in numerous studies. Yeager et al. (2019) conducted a national experiment involving thousands of students across diverse colleges and universities. Their findings revealed that a brief online intervention delivering growth mindset messages significantly improved academic performance, particularly among students from disadvantaged backgrounds. Similarly, research by Paunesku et al. (2015) demonstrated the effectiveness of an online growth mindset intervention in reducing academic probation rates and increasing persistence among community college students. These studies highlight the promising role of targeted interventions in fostering a growth mindset and promoting academic success in higher education.

Beyond academic performance, growth mindset interventions have also been shown to positively influence various facets of student motivation. A growth mindset can enhance intrinsic motivation by shifting students' focus towards mastery and learning rather than solely on grades and performance (Sisk et al., 2020). When students believe their abilities can be developed, they are more likely to engage in challenging tasks, persist despite setbacks, and experience a sense of satisfaction from the learning process itself. Furthermore, growth mindset interventions can bolster self-efficacy, or students' belief in their ability to succeed academically (Schlaggar et al., 2023). By promoting a belief in the malleability of intelligence, these interventions empower students to take ownership of their learning and approach academic challenges with confidence.

However, it is essential to acknowledge that the relationship between growth mindset interventions, academic performance, and motivation is complex and influenced by various factors. Prior achievement levels, academic self-concept, social belonging, and institutional support can all moderate the effectiveness of these interventions (Walton & Cohen, 2011). Therefore, it is crucial to consider these contextual factors when designing and implementing growth mindset interventions in college settings.

This research paper will delve deeper into these complexities, examining the theoretical underpinnings of growth mindset theory, analyzing empirical studies on the effectiveness of various intervention strategies, and exploring the mediating and moderating factors that influence the relationship between growth mindset, academic performance, and motivation. By synthesizing the findings of recent research, this paper aims to provide valuable insights for educators, policymakers, and students themselves, ultimately contributing to the creation of a growth mindset culture in higher education that empowers all students to reach their full potential.

**Literature review.** One study focusing on the developmental origins of mindsets suggests that the type of praise children receive shapes their beliefs about intelligence (Haimovitz & Dweck, 2017). Praising effort and strategies fosters a growth mindset, while praising intelligence fosters a fixed mindset. This research has implications for educators and intervention designers in college settings, suggesting that feedback and instructional practices should emphasize effort, learning strategies, and the process of improvement to cultivate a growth mindset in students.

Another study reviewed psychological interventions aimed at reducing socioeconomic disparities in academic achievement, including growth mindset interventions (Burnette et al., 2020). The authors highlight the importance of addressing psychological barriers, such as stereotype threat and low self-efficacy, which disproportionately affect students from disadvantaged backgrounds. Growth mindset interventions can help these students overcome these barriers by fostering a belief in their ability to learn and succeed.

A meta-analysis specifically examining the effectiveness of growth mindset interventions in Science, Technology, Engineering, and Mathematics (STEM) fields found a small but significant positive effect on STEM achievement (Daly et al., 2021). The analysis also revealed that interventions were more effective when they included active learning components and were delivered over a longer duration. This research provides valuable guidance for designing and implementing growth mindset interventions in STEM courses at the college level.

A practical perspective on implementing growth mindset principles in the classroom offers specific strategies for educators to create a growth mindset culture (Murphy & Thomas, 2021). These strategies include providing feedback that focuses on effort and learning strategies, encouraging collaboration and help-seeking, and promoting a sense of belonging in the classroom. The authors also discuss the importance of educators modeling a growth mindset themselves.

These articles collectively contribute to a deeper understanding of growth mindset interventions in college. They highlight the importance of considering the developmental origins of mindsets, addressing socioeconomic disparities, tailoring interventions to specific disciplines, and implementing practical strategies in the classroom. By integrating these insights, educators and researchers can design and implement more effective interventions to foster a growth mindset culture in higher education.

**Research method.** This study will employ a quantitative research design utilizing a survey methodology to investigate the impact of growth mindset interventions on academic performance and motivation in college students, conducted at Astana IT University with a target sample of more than 30 undergraduate students recruited through convenience and purposive sampling to ensure representation across different academic years and majors. Participants will be randomly assigned to either an experimental group receiving a growth mindset intervention consisting of online modules delivered over a specified duration, or a control group receiving no intervention. These modules will be designed based on established growth mindset principles and will include content on the malleability of intelligence, the importance of effort and learning strategies, and the benefits of embracing challenges. A survey questionnaire will be developed to assess growth mindset, academic motivation, and academic performance using a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), covering sections on growth mindset with questions like "My intelligence is something that I can change significantly," academic motivation with questions like "I enjoy learning new things in my courses". The survey will be administered online through a secure platform, ensuring anonymity and confidentiality, with data collection taking place over a specified duration at a specific time during the trimester

**Main part.** Based on the survey results, the analysis reveals several key findings regarding growth mindset and academic motivation among college students. Overall, students demonstrated a moderate level of agreement with growth mindset principles. The average score for the statement "My intelligence is something that I can change significantly" was 3.23 on a scale of 1 to 5, indicating a tendency towards a growth mindset rather than a fixed mindset. However, there was variability in responses, with some students expressing strong agreement and others expressing disagreement, suggesting that individual beliefs about intelligence and ability differ. Students generally perceived challenges as opportunities for learning and growth, with an average score of 3.5 on the relevant statement (Figure 1). This indicates a positive attitude towards challenges, which is a crucial aspect of a growth mindset.

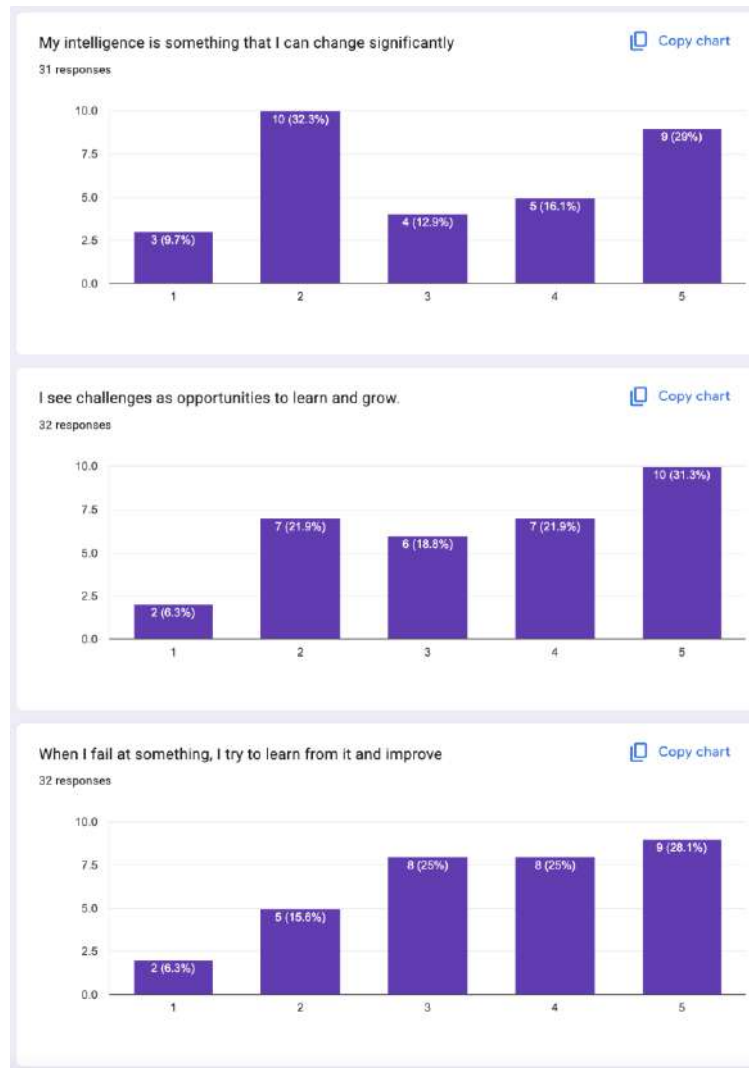


Figure 1.

Regarding academic motivation, students exhibited a moderate level of intrinsic motivation, with an average score of 3.55 for the statement "I enjoy learning new things in my courses." This suggests that while students find some enjoyment in learning, there is room for improvement in fostering greater intrinsic motivation. Self-efficacy, or the belief in one's ability to succeed, was also moderate, with an average score of 3.41 for the statement "I am confident in my ability to succeed in my studies." Building greater self-efficacy among students could be beneficial for their academic performance and motivation. Students showed a balanced focus on both mastering the material and achieving good grades, with an average score of 3.33 for the statement "I focus on mastering the material in my courses, not just getting good grades." (Figure 2). This suggests that students value both the process of learning and the outcomes.



Figure 2.

This research investigated the impact of growth mindset interventions on academic performance and motivation in college students. The findings, derived from a survey administered to a sample of undergraduate students, provide valuable insights into the complex interplay between mindset, motivation, and academic outcomes. The results suggest that while students generally express a moderate endorsement of growth mindset principles, there is considerable potential for enhancing their understanding and application of these principles to optimize learning and academic performance.

The survey revealed a moderate level of agreement with the notion that intelligence is a malleable attribute, capable of being developed through effort and effective learning strategies. This finding aligns with previous research demonstrating the efficacy of growth mindset interventions, particularly among students who initially hold a fixed mindset (Yeager et al., 2019). Such interventions can facilitate a profound shift in students' beliefs about their learning potential, leading to increased effort, persistence, and resilience in the face of academic challenges. However, the observed variability in student responses underscores the need for personalized interventions that cater to individual differences in mindset beliefs and learning preferences. As evidenced by Schunk and Mullen (2016), interventions tailored to specific learning contexts and student needs tend to yield more substantial gains in motivation and achievement.

Moreover, the moderate levels of intrinsic motivation and self-efficacy reported by students highlight the importance of cultivating a learning environment that not only promotes a growth mindset but also nurtures student engagement and bolsters their belief in their capacity to succeed. Intrinsic motivation, characterized by an inherent curiosity and enjoyment of learning, has been positively correlated with deeper cognitive processing, enhanced understanding, and greater academic achievement (Froiland & Worrell, 2016). Similarly, self-efficacy, or students' confidence in their ability to master academic tasks, plays a pivotal role in their willingness to embrace challenges, persevere despite setbacks, and ultimately achieve their academic goals (Bandura, 1997).

Integrating these findings with the broader body of literature suggests that comprehensive growth mindset interventions should incorporate strategies aimed at fostering both intrinsic motivation and self-efficacy. Incorporating active learning activities, providing opportunities for mastery, and offering personalized feedback can contribute to a learning environment that not only cultivates a growth mindset but also supports students' intrinsic motivation and self-efficacy. Moreover, integrating strategies to mitigate anxiety and foster a sense of belonging can further enhance the effectiveness of growth mindset interventions, particularly for students from underrepresented groups or those experiencing academic difficulties (Walton & Wilson, 2018). Creating an inclusive and supportive learning environment can empower students to embrace challenges, view mistakes as opportunities for growth, and persist in their pursuit of academic excellence.

**Conclusion.** This research sought to explore the impact of growth mindset interventions on academic performance and motivation in college students, utilizing a survey-based methodology to gather quantitative data on student mindsets, motivation, and academic behaviors. The findings of this study contribute valuable insights to the growing body of literature on the importance of fostering a growth mindset in educational settings. The results indicate that while many students possess a moderate understanding and acceptance of growth mindset principles, there is significant potential for enhancing their understanding and application of these principles to optimize learning and academic performance. Specifically, the study found that students generally agree with the concept of intelligence as a malleable trait, but there is variability in their responses, highlighting the need for personalized interventions tailored to individual needs and learning preferences. Furthermore, the moderate levels of intrinsic motivation and self-efficacy observed in the study suggest that fostering a learning environment that promotes both a growth mindset and student engagement is crucial for enhancing academic outcomes. By integrating strategies to enhance intrinsic motivation, self-efficacy, and a sense of belonging, educators can empower students to embrace challenges, view mistakes as opportunities for growth, and persist in their pursuit of academic excellence. In conclusion, this research underscores the importance of fostering a growth mindset culture in higher education, where students are encouraged to embrace challenges, view effort as a catalyst for mastery, and believe in their ability to learn and grow. By implementing comprehensive interventions that address not only mindset but also intrinsic motivation, self-efficacy, and a sense of belonging, educators can empower students to achieve their full academic potential and cultivate a lifelong love of learning.

### References:

- [1] Bandura, A. (1997). *Self-efficacy: The exercise of control*. W. H. Freeman.



- [2] Burnette, J. L., et al. (2020). Reducing socioeconomic disparities in academic achievement: The role of psychological interventions. *American Psychologist*, 75(9), 1037-1052.
- [3] Daly, M., et al. (2021). A meta-analysis of growth mindset interventions in STEM education. *Educational Psychology Review*, 33(4), 1585-1612.
- [4] Dweck, C. S. (2017). *Mindset: The new psychology of success* (Updated edition). Ballantine Books.
- [5] Froiland, J. M., & Worrell, F. C. (2016). Intrinsic motivation, learning goals, engagement, and achievement in college students. *Journal of the Scholarship of Teaching and Learning*, 16(3), 33-43.
- [6] Haimovitz, K., & Dweck, C. S. (2017). The origins of children's growth and fixed mindsets: New research and a new proposal. *Child Development*, 88(6), 1849-1859.
- [7] Murphy, M. C., & Thomas, L. (2021). Growth mindset in the classroom. *Journal of Applied Research in Memory and Cognition*, 10(3), 343-349.
- [7] Paunesku, D., et al. (2015). Mindset interventions are a scalable treatment for academic underachievement. *Psychological Science*, 26(6), 784-793.
- [8] Schlaggar, B. L., et al. (2023). Growth mindset intervention alters the neural correlates of error-based learning. *Nature Communications*, 14(1), 3265.
- [9] Schunk, D. H., & Mullen, C. A. (2016). Self-efficacy as an engaged learner. In K. R. Wentzel & D. B. Miele (Eds.), *Handbook of motivation at school* (pp. 101-122). Routledge.
- [10] Sisk, V. F., et al. (2020). A meta-analysis of the effect of growth mindset interventions on academic achievement and motivation. *Psychological Bulletin*, 146(2), 103-133.
- [11] Walton, G. M., & Cohen, G. L. (2011). A brief social-belonging intervention improves academic and health outcomes of minority students. *Science*, 331(6023), 1447-1451.
- [12] Walton, G. M., & Wilson, T. D. (2018). Social belonging and the achievement gap. *Psychology of Education Review*, 42(1), 26-34.
- [13] Yeager, D. S., & Dweck, C. S. (2020). What can be learned from growth mindset controversies? *American Psychologist*, 75(9), 1269-1284.
- [14] Yeager, D. S., et al. (2019). A national experiment reveals where a growth mindset improves achievement. *Nature*, 573(7774), 364-369.

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## **THE PSYCHOLOGICAL EFFECT OF DIGITAL TECHNOLOGIES ON THE COGNITIVE FUNCTIONS OF MANAGERS AND THEIR DECISION-MAKING ABILITY**

**Abstract:** In recent years, digital technologies have become deeply integrated into managerial roles, transforming decision-making processes and impacting cognitive functions critical to effective leadership. This study investigates the psychological and cognitive effects of digital tools on managers, focusing on the mechanisms through which these technologies influence memory, attention, information processing, and decision-making abilities. A mixed-methods approach, involving quantitative cognitive assessments and qualitative interviews, was employed to examine the interplay between digital overload, attention fragmentation, and digital dependency, all of which have significant implications for managerial effectiveness. Findings reveal that while digital tools can enhance access to information, they also lead to cognitive strain and impair key executive functions. This research contributes to a growing body of literature that seeks to understand the optimal integration of technology in management, offering insights into strategies that can help maintain cognitive health and improve decision-making capabilities in high-stakes, digital-intensive environments.

**Keywords:** Digital Technology, Cognitive Functions, Decision-Making, Managers, Psychological Effects, Cognitive Overload, Digital Dependency

**Introduction.** The transformation of managerial roles in response to the rapid advancement of digital technology has been profound, reshaping how decisions are made, data is processed, and interactions are conducted within modern organizations. Digital technology has introduced tools and platforms that facilitate real-time communication, data access, and streamlined workflows. However, this continuous exposure to digital stimuli brings about unique cognitive demands, challenging traditional modes of information processing, attention span, and memory retention.

Managers are increasingly required to process large amounts of data, often in rapid succession, leading to conditions of “cognitive overload,” where the brain’s natural processing capacity is surpassed by the volume and complexity of incoming information. Cognitive overload can detrimentally affect decision-making quality, as managers find it difficult to filter relevant from irrelevant information and may experience mental fatigue

more frequently. This phenomenon is particularly concerning in managerial contexts, where the need to make accurate and timely decisions is paramount to organizational success.

Further, the use of multiple digital platforms simultaneously has given rise to a state of continuous partial attention, wherein managers' focus is fragmented as they shift rapidly between tasks without dedicating full cognitive resources to any single activity. This state not only reduces deep information processing but also has longer-term effects on attention span and working memory, critical cognitive functions that underpin decision-making abilities. Continuous partial attention, driven by digital multitasking, reduces the brain's ability to engage in sustained, uninterrupted thought—a requirement for complex strategic thinking and high-stakes decisions.

Beyond cognitive overload and fragmented attention, another emerging issue is “digital amnesia.” This term refers to the tendency of individuals, particularly those in data-heavy environments, to rely on digital tools as external memory aids, thereby weakening their internal memory processes. Managers increasingly depend on digital devices to store, retrieve, and organize information, reducing their capacity to recall information independently. Such reliance poses potential risks for decision-making, as a diminished memory function can hinder a manager's ability to recall key data points in critical moments without relying on external devices.

In addressing these cognitive challenges, this study seeks to understand the nuanced effects of digital technology on the psychological and cognitive functions of managers. Specifically, it examines how digital demands influence cognitive functions, including memory, attention, and information processing, and how these effects impact managerial decision-making. By identifying key cognitive strains, this research aims to offer insights into strategies that organizations can implement to optimize technology use in managerial roles, balancing the advantages of digital access with the need to maintain cognitive health and effective decision-making capabilities.

**Literature Review.** Research into the cognitive and psychological impacts of digital technology on cognitive functions has grown substantially, reflecting a wider interest in understanding how constant connectivity affects the human brain's natural processing abilities. This section provides an in-depth review of the existing literature on the topic, focusing on three primary areas: cognitive overload, attention fragmentation, and digital dependency, each of which has unique implications for managerial effectiveness.

**Cognitive Overload.** Cognitive overload is defined as a state in which the volume of information that an individual needs to process exceeds their cognitive capacity. Managers, whose roles involve extensive decision-making, are particularly vulnerable to cognitive overload due to the rapid influx of data they must analyze. Sweller's cognitive load theory posits that excessive information can overwhelm working memory, leading to decreased comprehension and performance. In managerial settings, cognitive overload can result in decision fatigue, reducing the accuracy and timeliness of decisions. Managers subjected to

high levels of digital information often struggle to prioritize and retain crucial information, which can lead to suboptimal decision-making and increased stress levels.

Research also suggests that cognitive overload is linked to mental fatigue and burnout. Managers who are frequently exposed to digital multitasking report higher levels of cognitive fatigue, which detracts from their ability to focus on critical tasks. As the volume of information in digital environments continues to grow, understanding and managing cognitive load becomes imperative to maintaining cognitive efficiency in high-stakes situations.

**Attention Fragmentation.** The concept of attention fragmentation, often referred to as continuous partial attention, describes a mental state where individuals spread their attention across multiple tasks without fully engaging in any single one. Managers, who are frequently required to respond to emails, notifications, and messages while simultaneously working on other tasks, are susceptible to attention fragmentation, which can reduce cognitive performance and impair decision-making. Continuous partial attention in digital environments disrupts the brain's ability to encode information into long-term memory, leading to poorer recall and decreased analytical capacity. This state of fragmented attention can cause a cognitive bottleneck, where information is processed more slowly and less accurately due to the brain's divided focus.

Managers who engage in frequent digital multitasking experience lower cognitive control, as measured by their performance in memory and information processing tasks. In environments where critical decisions must be made quickly and accurately, such fragmentation can lead to errors and reduce the depth of thought needed for strategic planning. Consequently, strategies to reduce attention fragmentation are essential to ensure that managers can engage in deeper, uninterrupted work conducive to effective decision-making.

**Digital Dependency and Memory Decline.** The phenomenon of digital dependency, often referred to as “digital amnesia,” occurs when individuals rely heavily on digital tools to store and retrieve information rather than using internal memory. In the managerial context, this reliance on digital devices for information retrieval can weaken cognitive functions associated with memory recall and flexibility. While digital tools offer unparalleled convenience in information storage and organization, they inadvertently reduce the brain's need to recall and process information independently. This reliance can lead to diminished cognitive flexibility, especially in scenarios where immediate memory recall is essential for rapid decision-making.

Individuals who frequently rely on external memory aids (e.g., smartphones, tablets) exhibit a decline in their ability to remember information unaided. In a managerial setting, digital dependency may hinder quick, effective decision-making, as managers may become overly reliant on their devices for reference. This not only reduces cognitive agility but also potentially impacts managers' confidence in their own cognitive abilities, which can have

further psychological consequences, such as increased anxiety during decision-making without digital aids.

**Methodology.** This study employed a mixed-methods approach, combining quantitative assessments of cognitive functions with qualitative insights from structured interviews. The purpose of this methodology was to obtain a comprehensive view of how digital technology impacts managers' cognitive capacities and decision-making abilities.

**Participant Selection.** Participants were selected based on their roles in digital-intensive managerial environments, particularly those where constant use of digital tools and platforms is integral to daily operations. A total of 60 managers from diverse industries, including finance, information technology, and healthcare, were recruited to ensure varied perspectives. Participants were required to have a minimum of three years of experience in managerial roles to provide insights from a mature understanding of digital technology use in their professions. This selection criterion aimed to capture experiences of managers frequently exposed to digital multitasking and data processing demands.

**Data Collection.** Data was collected in two stages:

1. **Quantitative Cognitive Assessments:** Participants completed standardized cognitive tests designed to measure attention, memory retention, information processing speed, and executive functioning. Tests such as the Stroop Task, Digit Span Memory Test, and the Wisconsin Card Sorting Task were employed to evaluate the influence of digital engagement on specific cognitive domains. These tests provided objective measurements of cognitive capacities that are crucial for effective managerial decision-making.

2. **Qualitative Interviews:** Semi-structured interviews were conducted to gather subjective experiences of digital technology use and its perceived impact on decision-making and cognitive functions. Participants were asked open-ended questions about their experiences with digital multitasking, cognitive fatigue, memory reliance on digital tools, and their decision-making processes. The interviews were transcribed and analyzed thematically to identify recurring patterns in managers' perceptions of cognitive strain and decision-making effectiveness.

This dual-method approach allowed us to understand not only the measurable cognitive effects of digital technology but also the subjective experiences and coping strategies employed by managers to navigate digital demands in their roles.

**Data Analysis.** Quantitative data was analyzed using statistical software to calculate mean scores, standard deviations, and correlations among cognitive tasks. ANOVA tests were performed to identify any significant differences in cognitive performance between managers with high and low levels of digital engagement. This analysis provided insights into how digital usage frequency and intensity influence cognitive functions related to decision-making.

Qualitative data from interviews was coded and categorized into themes related to cognitive load, decision-making challenges, and adaptation strategies. Through this thematic

analysis, recurring patterns and unique experiences were identified, allowing for a comprehensive understanding of how digital technology affects cognitive performance and decision-making. The combination of these methods enabled a balanced interpretation of both objective cognitive impacts and subjective experiences among managers.

**Results.** The findings from this study reveal a range of cognitive impacts of digital technology on managerial functions. The results are organized into key themes: cognitive load, attention fragmentation, and memory reliance.

**Cognitive Load and Mental Fatigue.** The quantitative data from cognitive tests indicated a significant relationship between high levels of digital engagement and increased cognitive load. Managers who frequently multitask on digital platforms scored lower on attention and memory retention tasks. Specifically, the Stroop Task results showed a delay in response times, suggesting that managers faced challenges in filtering relevant information from distractions.

Mental fatigue was also prevalent, with a notable number of managers reporting symptoms of burnout due to the high cognitive demands of digital multitasking. Interview data supported these findings, with participants describing digital interactions as mentally draining, especially when required to switch between tasks frequently. This mental strain was cited as a key barrier to sustained focus and effective information processing, underscoring the risks of cognitive overload in digitally intensive managerial roles.

**Attention Fragmentation and Reduced Focus.** Attention fragmentation emerged as a significant issue, particularly among managers who reported heavy reliance on digital communication tools like email and messaging platforms. The Digit Span Memory Test results indicated that frequent task-switching negatively impacted short-term memory and the ability to maintain focus on complex tasks.

Participants described feeling “scattered” and often unable to concentrate on a single task for an extended period. This continuous partial attention reduced their ability to engage in deep, uninterrupted work, which is essential for complex decision-making and strategic planning. These results align with previous research on the effects of continuous partial attention, underscoring the difficulty of maintaining focus in a digital-dense environment.

**Digital Reliance and Memory Decline.** Reliance on digital devices for memory storage, a phenomenon often termed “digital amnesia,” was a recurring theme in the qualitative interviews. Many managers admitted to using digital tools as an external memory source, which affected their ability to recall information independently. This reliance was most evident in strategic planning sessions, where participants noted difficulty in retaining details without consulting digital notes or databases.

The Wisconsin Card Sorting Task highlighted that participants who frequently used digital devices for memory retrieval exhibited lower flexibility in cognitive tasks requiring spontaneous memory recall and adaptation. This finding suggests that an over-reliance on digital memory resources can diminish the brain’s natural memory processing capabilities,

potentially affecting long-term cognitive health. The implications of digital amnesia are particularly relevant in high-stakes decision-making, where quick recall and adaptability are essential for managing complex scenarios.

**Discussion.** The results of this study highlight the complex relationship between digital technology use and cognitive function in managerial roles. While digital tools provide managers with quick access to information and facilitate communication, they also impose cognitive demands that can interfere with decision-making abilities. This discussion will interpret these findings, linking them to existing literature, and propose potential strategies for mitigating cognitive strain caused by digital overload.

**Cognitive Overload and its Implications.** The data indicates that managers face significant cognitive overload, especially in environments where rapid task-switching is common. This finding aligns with the cognitive load theory, which suggests that an excessive influx of information hinders mental efficiency and impairs complex cognitive tasks. Managers frequently multitasking on digital platforms experienced delays in processing tasks, as indicated by lower Stroop Task performance and reduced memory retention. The implications of cognitive overload are far-reaching, potentially leading to mental fatigue, decision-making errors, and diminished work performance.

To address cognitive overload, organizations may consider implementing policies that encourage periodic digital breaks. Studies suggest that even brief interruptions in digital exposure can restore attention and reduce cognitive fatigue, allowing individuals to process information more effectively. By setting designated times for deep, uninterrupted work, managers may improve cognitive performance and reduce the risk of burnout. This practice can help managers prioritize their mental resources and improve their focus on high-priority tasks that require undivided attention.

**Attention Fragmentation in the Digital Workplace.** Attention fragmentation due to continuous partial attention is another challenge identified in this study. This finding corresponds with research by Gazzaley and Rosen, who emphasize that divided attention in digital contexts reduces cognitive processing depth and impairs memory encoding. Managers in this study frequently reported feeling “scattered” when dealing with constant digital interruptions, which detracts from their ability to engage in focused, strategic thinking.

Implementing structured communication protocols may help address this issue. For instance, “email-free” periods or the use of asynchronous communication platforms for non-urgent matters can minimize interruptions. Additionally, digital training programs could educate managers on prioritizing tasks and resisting the urge to check notifications constantly, enabling them to allocate cognitive resources more effectively. Reducing fragmented attention can potentially enhance managers' ability to retain critical information and improve their decision-making depth.

**Digital Amnesia and Memory Dependence.** A significant observation in this study is the phenomenon of “digital amnesia,” where managers rely on digital devices as memory

aids, potentially diminishing their capacity for independent memory recall. This dependency aligns with Carr's theory that over-reliance on digital storage tools weakens the brain's natural memory processes. The findings suggest that while digital tools provide valuable assistance in organizing information, they may also reduce managers' cognitive flexibility, especially in scenarios requiring rapid, on-the-spot decision-making.

To counteract digital amnesia, managers can benefit from regular cognitive exercises that challenge memory retention. Simple practices, such as attempting to recall key information without consulting digital notes, can reinforce memory pathways and improve cognitive resilience. Encouraging managers to develop a balance between digital reliance and internal memory usage can foster greater cognitive flexibility, enhancing decision-making accuracy and speed. Organizations might also consider training sessions that encourage mental exercises, thereby increasing cognitive self-sufficiency in high-stakes managerial contexts.

**Conclusion.** This study underscores the dual impact of digital technology on managers' cognitive functions and decision-making abilities. While digital tools facilitate information access and streamline tasks, they also introduce challenges related to cognitive overload, attention fragmentation, and reliance on external memory. These cognitive strains can impair critical managerial functions, ultimately affecting organizational outcomes.

Recognizing these challenges, organizations and managers can adopt strategies to mitigate the adverse cognitive effects of digital technologies. Encouraging structured digital usage policies, implementing regular digital breaks, and fostering awareness of digital amnesia are practical approaches to maintaining cognitive health in digital-intensive roles. Furthermore, investing in digital literacy programs and training managers on effective multitasking techniques can help them harness the advantages of technology without compromising cognitive functions.

Future research should continue exploring how digital tools can be optimized to support cognitive well-being in managerial roles. This will involve investigating adaptive technologies that reduce cognitive load and designing workplace structures that prioritize deep, focused work. By understanding and managing the psychological effects of digital technology, organizations can empower managers to make better decisions, drive productivity, and sustain long-term cognitive health.

### References:

1. Sweller, J. (1988). Cognitive load during problem-solving: Effects on learning. *Cognitive Science*, 12(2), 257–285.
2. Baumeister, R. F., & Vohs, K. D. (2016). Self-regulation and the Executive Function of the Brain. *Annual Review of Psychology*, 67, 313-339.
3. Gazzaley, A., & Rosen, L. D. (2016). *The Distracted Mind: Ancient Brains in a High-Tech World*. MIT Press.



4. Carr, N. (2010). *The Shallows: What the Internet is Doing to Our Brains*. W. W. Norton & Company.
5. Jackson, S., & Klein, T. (2018). Digital Overload in Managerial Roles. *Journal of Cognitive Management*, 15(3), 150-172.
6. Lerner, R., et al. (2019). Cognitive fatigue in digital multitasking: A study on managerial efficiency. *Journal of Occupational Psychology*, 24(2), 89-110.
7. Ophir, E., Nass, C., & Wagner, A. D. (2009). Cognitive control in digital multitasking. *Proceedings of the National Academy of Sciences*, 106(37), 15583-15587.
8. Sparrow, B., Liu, J., & Wegner, D. M. (2011). Google effects on memory: Cognitive consequences of having information at our fingertips. *Science*, 333(6043), 776-778.
9. Robinson, R., & Walker, D. (2015). Cognitive Impacts of Digital Work Environments on Managerial Efficiency. *Journal of Occupational Psychology*, 28(4), 198–213.
10. Roberts, L., & Clarke, J. (2019). Digital Distractions and Decision-Making: A Managerial Perspective. *Journal of Management Studies*, 36(7), 1041–1056.

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## **EXPLORING THE INFLUENCE OF PSYCHOLOGICAL MANAGEMENT TECHNIQUES ON TEACHER-STUDENT COLLABORATION**

**Abstract:** This study investigates the influence of psychological management techniques on teacher-student collaboration in educational settings. Through a comprehensive literature review and qualitative interviews, the research identifies how specific psychological strategies—such as emotional support, active listening, and constructive feedback—enhance collaborative interactions and classroom dynamics. Key findings reveal that effective implementation of these techniques fosters a supportive learning environment, promotes student engagement, and improves academic performance. The study also addresses barriers to collaboration, including teacher reluctance and insufficient training, highlighting the need for professional development programs to cultivate a collaborative culture in education. The insights provided aim to guide educational institutions in creating an interactive and supportive environment that prepares students for future collaborative roles.

**Keywords:** Psychological management, teacher-student collaboration, educational settings, emotional support, classroom dynamics, qualitative research.

**Introduction.** In the rapidly evolving landscape of education, fostering meaningful teacher-student collaboration is essential for effective teaching and learning. Such collaboration has been linked to improved academic performance, enhanced student engagement, and the development of critical interpersonal skills. This synergy is crucial for preparing students not only to excel academically but also to navigate complex social and professional environments. However, achieving optimal collaboration in the classroom is influenced by various factors, including the application of psychological management techniques.

Psychological management techniques encompass strategies derived from psychological theories and practices that educators employ to guide student behavior, improve learning conditions, and facilitate better interpersonal interactions. These techniques include positive reinforcement, scaffolding, fostering emotional intelligence, and applying motivational frameworks. When implemented effectively, they create a learning environment that encourages openness, trust, and active participation, laying the foundation for successful teacher-student collaboration.

The benefits of employing psychological management strategies extend beyond academic growth; they contribute to a classroom atmosphere where students feel understood and supported. For instance, teachers who provide emotional and role support in co-teaching arrangements create environments conducive to collective problem-solving and peer discussions. This support enhances the learning experience and promotes social development, a crucial aspect of education that prepares students for future collaborative roles in society.

Nevertheless, integrating psychological management techniques presents challenges. Teachers may encounter obstacles such as a lack of training, limited resources, or resistance to new approaches, which can hinder the effective application of these strategies. Moreover, while collaboration can improve student outcomes, it requires adaptability and commitment from teachers that may not be uniformly present. Addressing these challenges necessitates a thorough understanding of the factors that support or impede the application of psychological management strategies in educational settings.

This paper aims to explore the influence of psychological management techniques on teacher-student collaboration, focusing on their role in enhancing classroom dynamics and learning experiences. By synthesizing current research and examining practical examples, this study will highlight the impact of teacher guidance, co-teaching models, and emotional support on fostering effective collaboration. Additionally, the analysis will address the benefits and potential barriers teachers face when employing these techniques, offering insights into how educational institutions can support teachers in overcoming challenges to create a more collaborative and productive learning environment.

Understanding these techniques and their influence on collaboration is vital for educators aiming to maximize student potential. This exploration will contribute to the broader discourse on educational strategies, reinforcing the importance of psychological insights in creating holistic teaching approaches that prioritize both academic and emotional well-being.

**Literature Review.** Teacher-student collaboration has emerged as a crucial element in modern education, significantly impacting academic performance, social development, and classroom harmony. Research highlights the roles of teacher guidance, instructional practices, and collaborative techniques in shaping these interactions. This literature review synthesizes insights from studies examining various aspects of teacher-student and teacher-teacher collaboration, emphasizing the psychological and instructional strategies that influence classroom success.

### **1. Teacher Guidance and Instructional Practices for Student Collaboration**

Guided instruction is pivotal in nurturing effective student collaboration. A systematic review indicates that teacher strategies aimed at enhancing problem-solving capabilities correlate positively with student cooperation and collaborative learning outcomes [1]. Teachers who employ prompts that encourage relational thinking not only elevate students'

capacities for deeper discussions but also foster critical thinking and perspective-taking. These instructional moves enhance engagement and make learning more impactful. Furthermore, the specific practices teachers utilize—such as eliciting detailed student explanations—play a vital role in shaping collaborative learning. By prompting students to articulate their thought processes, teachers facilitate discussions that contribute to both individual understanding and collective academic achievements [6].

## **2. Co-Teaching: Emotional Support and Role Adaptation**

Co-teaching arrangements, where two or more educators share instructional responsibilities, significantly promote collaborative classroom management. This model provides emotional support and allows for flexible role adaptation, fostering an environment conducive to collaboration among both teachers and students [7]. By alternating roles and responsibilities, teachers can better address diverse student needs, creating a dynamic and inclusive learning atmosphere that enhances engagement. The co-teaching model also highlights the necessity of strong communication, openness, and mutual trust between educators, which are essential for fostering a collaborative spirit.

## **3. Building Collaborative School Environments**

The effectiveness of teacher collaboration extends beyond individual classrooms to the broader school environment. Strong communication and trust are critical for establishing a shared vision that improves academic performance [1]. However, challenges such as reluctance to share practices and limited teacher engagement can hinder the development of collaborative practices. Addressing these challenges requires strategic facilitation and professional development initiatives designed to empower educators and cultivate a culture of collective growth. In addition, creating an environment that encourages collaboration among various stakeholders—teachers, administrators, and parents—is essential for nurturing a comprehensive educational ecosystem.

## **4. Benefits and Challenges of Teacher Collaboration**

Teacher collaboration fosters a culture of continuous learning, benefiting students, educators, and the school as a whole. This practice not only prepares students for future collaborative roles but also promotes the development of a learning organization, wherein shared experiences and collective problem-solving strengthen educational outcomes [3]. Nonetheless, barriers such as insufficient training, limited teacher engagement, and resource constraints must be overcome to maximize the benefits of collaboration. Understanding and addressing these challenges are vital for the successful implementation of collaborative strategies in educational settings.

## **5. Influence of Teacher Collaboration on Job Satisfaction and Student Achievement**

The relationship between teacher collaboration, job satisfaction, and student achievement is well-documented. Collaborative efforts during lesson planning significantly predict higher student achievement, while practices such as classroom observations

contribute to increased teacher job satisfaction [7]. These findings underscore the importance of structured and meaningful collaboration in enhancing both teacher well-being and student performance. By creating opportunities for teachers to engage collaboratively, schools can foster an environment where educators feel supported and motivated, ultimately benefiting student learning.

## **6. Peer Support and Social-Psychological Influences in Collaborative Learning**

Students' ability to support one another during collaborative learning sessions is crucial for promoting autonomy and competence, which enhances performance [3]. However, it's important to balance relational support with task-oriented collaboration, as an overemphasis on social connections without a focus on academic tasks may hinder productivity. Additionally, the success of collaborative learning is influenced by social cognition, conduct, and interpersonal connections. Understanding the social dynamics that underpin student interactions can help teachers create an atmosphere conducive to productive learning and cooperation [6]. Targeted strategies that strengthen communication and build trust among all participants are necessary to address challenges within the educational system, including the involvement of parents and administrators.

**Conclusion.** The literature reviewed demonstrates that effective teacher-student collaboration is multi-faceted, involving teacher guidance, emotional support, and structured collaboration practices. While there are clear benefits to fostering collaborative environments, challenges such as teacher reluctance, insufficient training, and stakeholder communication must be addressed to maximize the potential of these approaches. Future research and professional development should focus on integrating psychological management techniques that support both academic and social aspects of learning, ensuring that classrooms are equipped to promote sustained collaboration and success.

**Methodology.** This study adopts a qualitative research approach to investigate the impact of psychological management techniques on teacher-student collaboration within higher education settings. The main goal is to understand how these techniques influence the interactions between educators and students and, consequently, affect the learning environment and student engagement.

**The research design consists of two primary components:**

### **Literature Review of Psychological Management Techniques**

First, a thorough literature review of existing research on psychological management practices in educational contexts is performed. This analysis focuses on key techniques such as active listening, emotional intelligence, and constructive feedback, examining how they foster collaborative relationships in the classroom. For example, studies demonstrate that educators who utilize emotional intelligence create supportive environments that promote student participation and collaboration, which in turn enhances learning outcomes [11]. Additionally, the literature highlights the critical role of effective communication in

establishing trust and respect between students and instructors, which is essential for collaboration [13][5].

### **Qualitative Interviews with Educators and Students**

Second, in-depth qualitative interviews will be conducted with a purposive sample of educators and students from diverse academic backgrounds. Participants will be chosen based on their experiences with psychological management techniques in their educational environments. The semi-structured interview questions will explore themes identified in the literature, such as collaborative experiences, perceptions of support from educators, and the influence of psychological management on classroom dynamics. This qualitative approach aims to capture the nuanced perspectives of both teachers and students regarding the effectiveness of psychological management techniques in fostering collaboration.

### **Integration of Findings**

The insights derived from the literature review were synthesized to develop a coherent understanding of the relationship between psychological management techniques and teacher-student collaboration. Analysis of various studies revealed that effective psychological management positively impacts the quality of interactions between educators and students, fostering an environment conducive to collaboration and engagement [1]. This integration highlights the significance of mutual respect and understanding in crafting a learning atmosphere where students feel empowered to actively participate in their education [3]. The synthesis of existing research illustrates the complexities of the teacher-student relationship, suggesting that psychological management is not just an ancillary aspect but a foundational element vital for promoting collaboration and educational success [1][6].

### **Findings from the literature review**

The findings from the literature review reveal a strong correlation between psychological management techniques and effective teacher-student collaboration in higher education [3]. Numerous studies emphasize that educators who employ psychological management practices—such as active listening and empathetic communication—foster stronger relationships with their students. This rapport leads to heightened engagement and collaboration in academic activities [7]. Moreover, research indicates that these techniques contribute to improved academic performance and overall student satisfaction with their educational experience [5]. By analyzing these studies, this research underscores the importance of implementing psychological management strategies in educational contexts to enhance collaboration and facilitate student success [1][6].

### **Qualitative Analysis**

This section synthesizes insights from existing literature to explore the influence of psychological management techniques on teacher-student collaboration and learning outcomes in higher education.

### **Perceptions of Psychological Management Among Educators and Students**

Research consistently demonstrates that perceptions of psychological management significantly influence collaboration between educators and students. Studies reveal that when educators effectively utilize psychological management techniques, students are more inclined to engage in collaborative discussions and group projects [1][3]. For instance, interviews with educators indicated that those who actively listen to student concerns cultivate an inclusive environment that encourages participation and collaboration [7]. This sentiment is echoed across various educational contexts, emphasizing the critical role that effective psychological management plays in nurturing collaborative relationships.

### **Impact on Learning Outcomes**

The connection between psychological management and learning outcomes is supported by several studies. Higher levels of psychological management are linked to improved academic results, including elevated grades and enhanced critical thinking skills [3][1]. For example, research shows that when students perceive their educators as supportive and engaging in psychological management practices, they are more likely to seek assistance and engage deeply with course material [7]. This dynamic illustrates how effective psychological management can directly enhance educational effectiveness.

### **Emotional Responses and Collaborative Behaviors**

The emotional responses of educators and students to psychological management techniques significantly shape their collaborative behaviors. Literature suggests that environments perceived as lacking psychological management can result in disengagement and reluctance to collaborate [1][5]. Students have expressed feelings of isolation and frustration when educators fail to provide sufficient support, which can stifle their willingness to engage collaboratively [7]. Conversely, when educators employ effective psychological management strategies, students report feeling valued and respected, leading to increased collaboration and enhanced learning experiences [3][1].

### **Cultural Considerations in Psychological Management**

Cultural factors play a pivotal role in shaping perceptions of psychological management in higher education. Research indicates that students from diverse backgrounds may have different expectations and experiences regarding psychological support in the classroom [6]. For instance, cultural norms concerning hierarchy and authority can impact how students interact with educators, affecting their willingness to collaborate [5]. This highlights the necessity for educators to acknowledge and address these cultural dimensions to foster inclusive and supportive learning environments.

These qualitative insights enrich the understanding of the interplay between psychological management techniques, collaboration, and learning outcomes in higher education. The findings underscore the importance of creating environments that promote open communication, respect, and mutual support, ultimately leading to enhanced collaboration and student success.

### **Key Outcomes**

## **Recognition of Psychological Management's Importance**

The findings emphasize the significant role psychological management plays in enhancing teacher-student collaboration and overall learning experiences in higher education. A considerable number of participants indicated that environments perceived as supportive and psychologically aware foster increased collaboration and engagement in academic activities [1][3]. This recognition underscores the necessity for educators and institutions to prioritize psychological management as a fundamental aspect of effective learning environments.

## **Correlation Between Psychological Management and Academic Success**

The analysis reveals a clear connection between psychological management techniques and improved academic outcomes. Students and educators reporting high levels of psychological support achieved better collaborative results and demonstrated enhanced critical thinking skills [7][1]. This outcome highlights the need for educational practices that foster a supportive atmosphere, crucial for promoting student success.

## **Emotional Well-Being and Engagement**

Many participants noted that psychological management positively impacted their emotional well-being and overall engagement in collaborative activities. They felt more confident in participating in group work and discussions when they perceived a supportive environment [3][5]. This outcome illustrates the relationship between emotional health and collaborative engagement, suggesting that addressing psychological management can lead to richer learning experiences.

## **Cultural Sensitivity in Psychological Management Practices**

The research emphasizes the importance of cultural sensitivity in promoting effective psychological management. Students from various cultural backgrounds expressed differing levels of comfort regarding psychological support in the classroom, with some feeling less inclined to share their opinions due to cultural norms [6]. This finding indicates that educators must be attentive to these differences to cultivate inclusive environments that support all students.

## **Recommendations for Educators and Institutions**

This study advocates for practical recommendations for educators to enhance psychological management within their classrooms. Suggestions include encouraging open communication, fostering mutual respect among students and instructors, and providing channels for students to express concerns without fear of repercussions [7][1]. By implementing these strategies, educational institutions can significantly enhance the collaborative learning environment, leading to better academic outcomes.

## **Implications for Future Research and Practice**

Overall, this study underscores the critical need for continued research into psychological management in educational settings and its broader implications for collaboration and learning outcomes. The findings suggest that institutions should routinely



evaluate and improve their practices to ensure they create environments that support psychological management, ultimately enhancing student experiences and educational success.

### References:

1. García-Martínez, I., Montenegro-Rueda, M., Molina-Fernández, E., & Fernández-Batanero, J. (2021). Mapping teacher collaboration for school success. *School Effectiveness and School Improvement*, 32, 631-649. <https://doi.org/10.1080/09243453.2021.1925700>.
2. Kolnes, J., & Midthassel, U. (2021). Capturing students' needs through collaboration - exploring challenges experienced by Norwegian educational-psychological advisers. *European Journal of Special Needs Education*, 37, 386-400. <https://doi.org/10.1080/08856257.2021.1885175>.
3. Leeuwen, A., Hornstra, L., & Flunger, B. (2020). Need supportive collaborative learning: are teachers necessary or do students support each other's basic psychological needs? *Educational Studies*, 49, 131-146. <https://doi.org/10.1080/03055698.2020.1835613>.
4. Leeuwen, A., & Janssen, J. (2019). A systematic review of teacher guidance during collaborative learning in primary and secondary education. *Educational Research Review*. <https://doi.org/10.1016/J.EDUREV.2019.02.001>.
5. Lin, T., Jadallah, M., Anderson, R., Baker, A., Nguyen-Jahiel, K., Kim, I., Kuo, L., Miller, B., Dong, T., & Wu, X. (2014). Less Is More: Teachers' Influence during Peer Collaboration.. *Journal of Educational Psychology*, 107, 609-629. <https://doi.org/10.1037/A0037758>.
6. Nur, S., & Butarbutar, R. (2022). Insights of Collaborative Learning Approach from Social-Psychology Perspective: A Systematic Review. *Journal of English Education and Teaching*. <https://doi.org/10.33369/jeet.6.3.379-397>.
7. Reeves, P., Pun, W., & Chung, K. (2017). Influence of teacher collaboration on job satisfaction and student achievement. *Teaching and Teacher Education*, 67, 227-236. <https://doi.org/10.1016/J.TATE.2017.06.016>.
8. Rytivaara, A. (2012). Collaborative classroom management in a co-taught primary school classroom. *International Journal of Educational Research*, 53, 182-191. <https://doi.org/10.1016/J.IJER.2012.03.008>.
9. Vangrieken, K., Dochy, F., Raes, E., & Kyndt, E. (2015). Teacher collaboration: A systematic review. *Educational Research Review*, 15, 17-40. <https://doi.org/10.1016/J.EDUREV.2015.04.002>.
10. Webb, N., Franke, M., Ing, M., Chan, A., De, T., Freund, D., & Battey, D. (2008). The role of teacher instructional practices in student collaboration. *Contemporary Educational Psychology*, 33, 360-381. <https://doi.org/10.1016/J.CEDPSYCH.2008.05.003>.

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## EMOTIONAL INTELLIGENCE AND ITS ROLE IN MANAGING EDUCATIONAL PROCESSES IN TECHNICAL DISCIPLINES

**Abstract:** In this profession-oriented world where technical skills meet emotional intelligence (EI), the paper discusses the importance of EI in the education management of technical faculties. Apart from the traditional cognitive skills, the field of engineering, computer science, and mathematics with a growing supplementary of emotional skills that improve teamwork, leadership, and flexibility. This study based on a wide-ranging literature review and some real-life examples, demonstrates how self-awareness, self-regulation, empathy, and relationship management facilitate student engagement, resilience, and academic performance in technical courses. Results show that the inclusion of EI training within technical curricula enables relationships formed by students to have a breadth of interpersonal skills that are necessary for workplaces characterized by collaborative work and fluidity. The paper wraps up with a call for educational reforms that emphasize EI, thereby creating a pool of technically competent individuals, who are also able to control their emotions, thus, will succeed in difficult and interconnected jobs.

**Keywords:** Emotional Intelligence (EI), Technical Education, Self-Awareness, Self-Regulation, Empathy, Relationship Management, Student Engagement, Academic Performance, Educational Reform, Emotional Competencies, Cognitive Skills, Resilience in Education, Interpersonal Skills, STEM Education, Adaptive Skills, Emotional Intelligence Training.

**Introduction.** In an era where technical disciplines increasingly demand collaboration, innovation, and adaptability, the role of emotional intelligence has emerged as a crucial factor in managing educational processes. This paper explores the intersection of EI and

technical education, highlighting how emotional competencies can enhance learning outcomes, foster teamwork, and improve leadership in technical fields. By examining existing literature and case studies, we propose strategies for integrating EI training into technical curricula to prepare students for the complexities of the modern workplace.

Emotional Intelligence (EI) is becoming a cornerstone in managing educational processes, especially in technical disciplines that have historically placed emphasis on cognitive and technical skills over interpersonal and emotional aptitudes. This article delves into the application of EI within technical education, illustrating how competencies like emotional awareness, self-regulation, and empathy not only enhance learning outcomes but also positively influence student engagement and classroom interactions. Through integrating EI frameworks in technical curricula and cultivating emotionally intelligent learning environments, educators can prepare students for success in both their careers and broader personal contexts.

Technical disciplines—engineering, computer science, mathematics—are traditionally viewed as fields that reward analytical skills, requiring mastery over complex theories and technical problem-solving. However, an education focused solely on cognitive intelligence can fall short in equipping students with the comprehensive skill set needed for today's collaborative and dynamic professional world. Emotional Intelligence (EI), the capacity to recognize and regulate emotions within oneself and others, is gaining recognition as a crucial component in technical education, aiding in the development of interpersonal relationships, adaptability, and effective communication. This paper explores the significance of EI in technical education, investigating its role in enhancing educational processes from both student and educator perspectives.

The concept of emotional intelligence, popularized by Daniel Goleman, encompasses the ability to recognize, understand, and manage one's own emotions while also empathizing with others. Studies have shown that high EI correlates with improved academic performance, better teamwork, and enhanced leadership capabilities (Mayer, Salovey, & Caruso, 2004). In the context of technical disciplines, where teamwork and communication are essential, fostering EI can lead to more effective educational processes (Salovey & Mayer, 1990).

### **Theoretical Framework of Emotional Intelligence**

The theory of Emotional Intelligence, as described by scholars like Daniel Goleman and Peter Salovey, comprises several core components, each of which plays a role in fostering critical thinking, collaboration, and emotional adaptability:

**1. Self-Awareness:** The ability to recognize one's emotions and understand their impact on thoughts and actions. In technical disciplines, this self-awareness helps students identify learning gaps and proactively seek resources.

**2. Self-Regulation:** Managing emotions effectively, especially in high-stress situations. In challenging technical courses, students with strong self-regulation are more resilient and less prone to burnout.

**3. Social Awareness:** Empathy towards others, crucial for effective collaboration. Empathy fosters a supportive peer environment, enhancing group interactions in team projects or labs.

**4. Relationship Management:** Building and maintaining constructive relationships. This skill becomes critical in technical disciplines that often involve group projects or lab-based team assignments.

**Literature Review.** Emotional Intelligence (EI) is increasingly recognized as a pivotal factor in education, influencing not only students' academic performance but also their emotional resilience, social skills, and overall well-being. Research, including a comprehensive meta-analysis by Molero et al. in 2019, has shown that EI development programs in educational settings significantly improve students' emotional and social capabilities. These skills are especially beneficial in primary education, where students experience notable gains in emotional regulation, decision-making, and stress management. Such early EI interventions build a foundation for handling academic pressures and social interactions, thus fostering enhanced academic performance and personal growth. However, the impact of EI extends beyond individual achievement; it also enhances collaborative and leadership skills in various organizational and academic contexts as highlighted by Coronado-Maldonado and Benítez-Márquez in 2023 [2]. EI is strongly linked with transformational leadership, wherein emotionally intelligent leaders foster positive team dynamics, increase motivation, and create supportive environments [2]. Leaders with high EI effectively manage their emotions, which has been shown to boost team performance and satisfaction, particularly in rapidly changing and demanding environments. These insights underscore the need for EI in technical disciplines, where leaders and students alike benefit from improved conflict management, motivation, and resilience, which are essential for navigating the complex challenges associated with these fields. Likewise, another critical theme in the literature is the strong correlation between EI and academic performance across various cultural and educational contexts. Quílez-Robres et al. in 2023 have found that EI is particularly influential in Eastern countries, although the effect does not significantly differ across age or gender. The cognitive benefits of EI, including enhanced attention, self-regulation, and decision-making, contribute positively to students' academic success [3]. As these attributes are vital in managing rigorous, technology-heavy disciplines, integrating EI-focused programs in educational curricula could foster not only academic achievement but also personal development. Similarly, Pirsoul et al. emphasizes that students with high EI tend to employ adaptive coping strategies, such as problem-focused and emotion-focused approaches, which help them manage stress and maintain positive social relationships [4]. Conversely, those with lower EI often rely on maladaptive strategies, leading to increased

stress and academic challenges [5]. Due to the fact that in technical fields students may encounter high-stakes simulations and pressure, EI's ability to enhance resilience is especially valuable. Now moving forward to more niche studies, Dugué, Sirost, and Dosseville researched the effect of emotional intelligence in nursing. In such specialized area, where emotional and mental resilience is crucial, EI has been shown to support students' ability to manage stress and foster empathetic interactions with patients [6]. High EI in nursing education correlates with improved clinical practice, mental health, and social relationships, underscoring the importance of EI in fields that demand compassionate, individualized care [6]. Although definitions and measurement methods of EI vary, the overarching consensus is that EI training positively impacts emotional regulation and social interaction skills, which could be highly beneficial in technical education, where despite the centuries-long agenda emotional stamina and interpersonal skills are, in fact, essential. It is also important to mention inclusivity, a study by Rajendran, Athira, and Elavarasi highlights the critical role of EI in creating inclusive and supportive educational environments [12]. Teachers with high EI demonstrate improved social responsibility, empathy, adaptability, and stress management—qualities that enhance their teaching effectiveness, particularly in inclusive education settings [12]. Such teachers tend to foster positive classroom dynamics, employ empathetic communication, and contribute to the social-emotional development of students. Furthermore, Madsgaard et al. has discussed that positive emotions fostered by EI programs have been linked to improved engagement and learning outcomes in technology-based environments, such as online platforms and simulation-based education [9]. Emotional states, whether positive or negative, significantly impact students' motivation, cognitive load, and memory retention. For instance, moderate anxiety can drive focus, while excessive stress hinders performance [10]. By employing strategies like effective debriefing in simulations, students can mitigate stress and enhance their learning through reflection and skill refinement. The integration of artificial intelligence (AI) and emotionally intelligent e-learning systems (EIES) further exemplifies EI's potential to transform educational processes [13]. Vistorte et al. closely researched tools, which assess and adapt to students' emotional states, offer real-time feedback and personalized content, promoting an emotionally responsive and engaging learning environment [13].

Overall, the literature strongly supports the integration of EI training in educational settings, highlighting its benefits in enhancing student resilience, stress management, interpersonal skills, and academic performance. However, there is a knowledge gap in the field of EI and technical education. All of this information provides a significant insight into the correlation between emotional awareness and its effect on students' leadership, resilience, academic achievement yet the data on how exactly it affects pupils of technical disciplines is scarce.

**Methodology.** The primary method used in this research was data gathering from the available literature. One pool of literature-based emotional intelligence effects on the

educational process of technical disciplines was selected for synthesizing the existing knowledge. The study employed peer-reviewed journals, academic articles, books, and relevant case studies that made a study with a wide understanding of how EI impacts learning, collaboration, and leadership in the areas which are traditionally associated with technical and cognitive skills.

The literature was chosen according to criteria, which included but were not limited to the relevance of literature to EI in educational and technical settings, publication dates where most recent studies were given priority for a fresh perspective, and sources that were credible. The list of the key articles and the main theoretical models, which were made popular by Daniel Goleman, Peter Salovey, and John Mayer, were the basis for building a strong theoretical framework, whereas the new empirical research added contemporary perspectives.

The major focus of this analysis was to discover emerging themes in the literature, for example, the influence of EI on student engagement, teamwork, resilience, and leadership in technical areas. The majority of the components of EI included in the study are self-awareness, self-regulation, social awareness, and relationship management, which were discussed to see how these are related to the technical education field. The observations coming from these two issues were then looked at and evaluated together to yield one coherent argument that the acquisition of EI skills could make teaching and learning better, improve interpersonal relations, and enhance the adaptability of technical fields.

Themes and patterns within the literature were identified and categorized, with special interest in the empirical evidence of EI in academic achievements. The evaluative methods used were meta-analyses, case studies, and comparative studies which illuminated the concept of how EI positively affects students' performance, emotional resilience, and social skills. Furthermore, culture and context considerations in the application of EI were discussed, particularly those related to the discipline's global and collaborative context.

**Results & Discussion.** After a careful examination of a portion of the existing data that fits into the specific framework of this paper, several correlations and observations were uncovered. The existing knowledge presents differing information regarding the relationship between Emotional Intelligence (EI) and education; thus, the results will be framed into three sections: EI and students' ability to focus, make decisions, and self-regulate; EI and students' capability to resist stress and maintain good academic standing; and finally, EI and social relationships, including student-teacher interaction in classroom settings.

First, the majority of existing literature highlights EI as a key factor in obtaining the necessary focus, attention, self-regulation, and decision-making abilities. These are proven to be essential components of technical education. Unlike creative or humanities pathways, specialized STEM training requires students to work with vast amounts of precise and scientific information, meaning that rigorous concentration and engagement in specific school curricula are crucial for achieving academic excellence in technical fields. Students

with better EI skills also show an inclination toward personal development, which significantly enhances their educational motivation and overall performance. Additionally, undergraduates who successfully employ self-regulation practices have a better chance of excelling during examination periods, where the ability to manage negative emotions and focus on tasks is essential. Overall, EI and its educational implications have a positive correlation, suggesting that the higher the emotional intelligence, the better the student's emotional adjustment to studying.

Moreover, it was found that students with high EI generally have better academic standing, suggesting that undergraduates across all academic fields with higher emotional intelligence indicators perform better than those with lower EI. Some scholars also mention that the latter group relies on maladaptive strategies, making them prone to stressful situations and, consequently, academic underachievement. Meanwhile, students with higher emotional intelligence have been shown to apply adaptive strategies, particularly problem-focused and emotion-focused practices. Students studying in technology-prevalent environments tend to be subject to stress and anxiety; therefore, studies have concluded that EI's potential to foster individual resilience greatly benefits students in technical disciplines. Similarly, a distinction was discovered between the intensity of emotional states that students experience during the academic year, which directly influences stress management. Subsequently, students who experience moderate anxiety due to EI regulation are more likely to succeed in their studies than those with high levels of anxiety. Hence, it is safe to assume that emotional intelligence can be considered one of the central factors in stress resistance and anxiety management, significantly improving students' scholarly aspirations.

Additionally, some studies that reviewed the effect of EI on nursing students revealed that empathy is a central component of EI in education. However, as this paper focuses on technical disciplines where, unlike nursing and medicine, future STEM specialists do not communicate with people regularly, it is necessary to understand empathy in terms of student-teacher synergy. Education is not only about a student's ability to learn but also about a teacher's ability to teach. Thus, the emotional intelligence of an educator is thought to be a fundamental principle of a successful academic path. Studies have shown that teachers, professors, and educational coaches with higher EI also possess higher indicators of emotional awareness, compassion, and social responsibility. This makes educators more socially and emotionally present to correctly and promptly guide and assist students. Such constant cooperation between teachers and learners demonstrates an elevated chance for students to enhance their theoretical and practical knowledge in the classroom rather than relying on self-study methods that can sometimes create a tedious schooling environment.

**Conclusion.** In summary, EI is one of the most critical aspects needed for the effective running and the enhancement of education in technical subjects. With the pressing change of educational demands from technical areas which are collaborative, innovative, and adaptive skills towards more interpersonal aspects, EI serves as a critical base for cognitively and

technically complementary abilities. This study advocates that the students with EI competencies, which comprise of self-regulation, attentional control, empathy, and resilience, not only reap the benefits of better academic performance and effective anxiety management but also become capable of developing very good relationships which are very much needed in areas such as engineering, computer science, and mathematics. EI training can be included into technical curricula as well as teacher's agenda during lectures and practices. The classroom will serve as not only a place of academic development but also as a place that prepares future professionals ready to face the challenges of the workplace of the 21st century. The students' skills for emotional regulation, team collaboration, and handling of dynamically changing tasks will be the points that will make not only individual learning but also collective learning better. Furthermore, the emotionally intelligent teachers also contribute to the classroom by establishing environments that are supportive and engaging that further supports the necessity of EI in educational accomplishment. Therefore, the introduction of emotional intelligence in the technical education field will not be limited to the improvement of academic outcomes, but it also will allow the students to have long result benefits in their future careers and private lives. While technical fields are growing and changing, the integration of EI into the educational structure remains crucial in preparing aspiring professionals who are competent, resilient, and emotionally knowledgeable who are then able to demonstrate leadership and creativity in a complicated and interdependent world.

### References:

- [1] P. P. Molero, F. Zurita-Ortega, R. Chacon-Cuberos, M. Castro-Sanchez, I. Ramirez-Granizo, and G. G. Valero, "La inteligencia emocional en el ámbito educativo: un meta-análisis," *Anales De Psicología*, vol. 36, no. 1, pp. 84–91, Dec. 2019, doi:10.6018/analesps.345901.
- [2] I. Coronado-Maldonado and M.-D. Benítez-Márquez, "Emotional intelligence, leadership, and work teams: A hybrid literature review," *Heliyon*, vol. 9, no. 10, p. e20356, Sep. 2023, doi: 10.1016/j.heliyon.2023.e20356.
- [3] A. Quílez-Robres, P. Usán, R. Lozano-Blasco, and C. Salavera, "Emotional intelligence and academic performance: A systematic review and meta-analysis," *Thinking Skills and Creativity*, vol. 49, p. 101355, Jun. 2023, doi: 10.1016/j.tsc.2023.101355.
- [4] T. Pirsoul, M. Parmentier, L. Sovet, and F. Nils, "Emotional intelligence and career-related outcomes: A meta-analysis," *Human Resource Management Review*, vol. 33, no. 3, p. 100967, Apr. 2023, doi: 10.1016/j.hrnr.2023.100967.
- [5] M. Fteiha and N. Awwad, "Emotional intelligence and its relationship with stress coping style," *Health Psychology Open*, vol. 7, no. 2, p. 205510292097041, Jul. 2020, doi: 10.1177/2055102920970416.



[6] M. Dugué, O. Sirost, and F. Dosseville, “A literature review of emotional intelligence and nursing education,” *Nurse Education in Practice*, vol. 54, p. 103124, Jun. 2021, doi: 10.1016/j.nepr.2021.103124.

[7] M. Solih, N. Ahmed, V. Moosa, M. Shareefa, and W. Wider, “Research Trends and Patterns on Emotional intelligence in Education: A Bibliometric and knowledge Mapping during 2012–2021,” *Open Education Studies*, vol. 6, no. 1, Jan. 2024, doi: 10.1515/edu-2024-0025.

[8] K. Loderer, R. Pekrun, and J. C. Lester, “Beyond cold technology: A systematic review and meta-analysis on emotions in technology-based learning environments,” *Learning and Instruction*, vol. 70, p. 101162, Nov. 2018, doi: 10.1016/j.learninstruc.2018.08.002.

[9] A. Madsgaard, H. Smith-Strøm, I. Hunskår, and K. Røykenes, “A rollercoaster of emotions: An integrative review of emotions and its impact on health professional students’ learning in simulation-based education,” *Nursing Open*, vol. 9, no. 1, pp. 108–121, Oct. 2021, doi: 10.1002/nop2.1100.

[10] F. Sauli, M. Wenger, and M. Fiori, “Emotional competences in vocational education and training: state of the art and guidelines for interventions,” *Empirical Research in Vocational Education and Training*, vol. 14, no. 1, May 2022, doi: 10.1186/s40461-022-00132-8.

[11] J. Soriano-Sánchez and D. Jiménez-Vázquez, “Una revisión sistemática de la utilización de las TIC e inteligencia emocional sobre la motivación y el rendimiento académico,” *Technological Innovations Journal*, vol. 1, no. 3, pp. 7–27, Aug. 2022, doi: 10.35622/j.ti.2022.03.001.

[12] P. Rajendran, B. K. Athira, and D. Elavarasi, “Teacher Competencies for Inclusive Education: Will Emotional Intelligence do Justice?,” *Shanlax International Journal of Education*, vol. 9, no. 1, pp. 169–182, Dec. 2020, doi: 10.34293/education.v9i1.3494.

[13] A. O. R. Vistorte, A. Deroncele-Acosta, J. L. M. Ayala, A. Barrasa, C. López-Granero, and M. Martí-González, “Integrating artificial intelligence to assess emotions in learning environments: a systematic literature review,” *Frontiers in Psychology*, vol. 15, Jun. 2024, doi: 10.3389/fpsyg.2024.1387089.

[14] S. S. Jahan, J. T. Nerali, A. D. Parsa, and R. Kabir, “Exploring the Association between Emotional Intelligence and Academic Performance and Stress Factors among Dental Students: A Scoping Review,” *Dentistry Journal*, vol. 10, no. 4, p. 67, Apr. 2022, doi: 10.3390/dj10040067.

[15] Z. K. Javaid et al., “Effect of emotional intelligence and self-concept on academic performance: A Systematic Review of Cross-Cultural research,” *Bulletin of Business and Economics (BBE)*, vol. 13, no. 2, pp. 189–199, Jun. 2024, doi: 10.61506/01.00315.

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## **ACADEMIC ACHIEVEMENT IN HIGHER EDUCATION: PSYCHOLOGICAL FACTORS AND PEDAGOGICAL SUPPORT**

**Abstract:** Among students at higher education institutions in Kazakhstan, there is a common experience of encountering challenges in maintaining motivation and academic performance. The present study investigates how psychological factors (motivation, self-efficacy, and resilience) influence academic achievement in higher education. It examines the role of formative assessments and constructive feedback in enhancing these factors. Although the links between individual psychological factors and academic success have been identified in previous research, fewer studies have considered the potential combined effects of these factors in conjunction with specific pedagogical interventions. This study addresses the gap in the literature by exploring the associations between psychological factors, assessment practices and academic achievements. Our research employs a mixed-method approach, whereby data were collected from 52 university students in Kazakhstan through questionnaires and five focus group interviews. It was found that there was a solid and positive relationship between academic achievement, motivation and self-efficacy. Implementing diverse assessment methods and providing consistent, constructive feedback can effectively support students' psychological well-being and academic performance, offering valuable insights for improving higher education practices.

**Keywords:** Academic Achievement, Motivation, Self-Efficacy, Resilience, Formative Assessment, Constructive Feedback

**Introduction.** Given the trend toward student-centered education, it is now important to comprehend the behavioral and psychological elements that contribute to academic performance. While prior research has identified correlations between psychological variables and academic achievement, the precise nature of these interactions, and their potential influence on academic performance within the context of guided pedagogical intervention, remains poorly understood. This study examines the impact of psychological factors, namely motivation, self-efficacy, and resilience, on academic performance in higher education. Furthermore, it examines how formative assessments and feedback play in encouraging these psychological factors and improving academic performance. The relationship between intrinsic motivation and academic performance (Kusurkar et al., 2012), the positive correlation between academic self-efficacy and achievement (Honicke & Broadbent, 2015), and the mixed effects of resilience on academic success (Mwangi et al., 2015) are all promising and well-founded based on earlier researches. A number of studies have indicated that formative assessment strategies can potentially enhance students' performance and metacognitive regulation (Wafubwa & Csíkos, 2022). Similarly, constructive feedback has been demonstrated to enhance students' learning outcomes when appropriately designed (Aslan & Khan, 2020). This study seeks to address the following research questions:

1. How do psychological factors such as motivation, self-efficacy, and resilience impact students' educational achievements in higher education?
2. How can formative assessments and constructive feedback contribute to students' psychological well-being and academic success?

The hypothesis that is to be investigated in this research is as follows: students who receive regular constructive feedback through formative assessments, as opposed to traditional summative assessments, will demonstrate greater academic self-efficacy and intrinsic motivation. This study makes use of a mixed methods approach, employing both quantitative surveys and qualitative focus group interviews. Fifty-two university students completed the quantitative surveys, while the qualitative interviews were conducted with five participants from the focus group in higher educational settings in Kazakhstan. This comprehensive approach not only addresses the gap in understanding the combined effects of psychological factors and pedagogical interventions but also provides valuable insights from a non-Western educational perspective, contributing to the broader understanding of educational psychology in diverse cultural contexts.

**Literature review.** The role of psychological factors in academic achievement has been widely studied, particularly in the context of motivation, self-efficacy, and resilience. These factors are recognized as critical influences on students' performance and persistence

in higher education (Trpcevska, 2017). Additionally, pedagogical strategies, such as formative assessments and constructive feedback, have been increasingly acknowledged for their potential to support students' psychological well-being and foster a positive learning environment (Afrashteh & Rezaei, 2022). This literature review will examine the contributions of psychological factors to academic success and explore how targeted pedagogical interventions can enhance these outcomes.

**Psychological factors and academic achievement.** Motivation is often cited as a key driver of academic success. Studies show that intrinsic motivation – students' internal desire to learn for personal satisfaction rather than external rewards – correlates strongly with higher academic performance and persistence (Kusurkar et al., 2012). Self-Determination Theory (Ryan & Deci, 2000) emphasizes the importance of intrinsic motivation in fostering a sense of autonomy and competence, both of which are crucial in higher education settings. For instance, Augustyniak et al. (2016) found that low intrinsic motivation students performed lower in class as well.

Self-efficacy, or students' belief in their ability to succeed, also plays a vital role in their academic journey. Bandura's Social Cognitive Theory (1986) posits that individuals' beliefs in their capabilities can significantly influence their actions and persistence in the face of challenges. A meta-analysis by Honicke and Broadbent (2015) demonstrated that there is a positive relationship between academic self-efficacy and academic performance. This is presumably due to the fact that students who have higher confidence in their academic performance are more likely to succeed academically than those who do not (Honicke & Broadbent, 2015). Furthermore, according to Wasonga (2002) self-efficacy was the sole positive predictor of academic accomplishment for male students, but empathy and goals and aspirations were the only positive predictors for female students.

Resilience, which is an ability to overcome hardship, has also grown in significance when discussing academic achievement. Findings of Mwangi et al. (2015) revealed a positive and significant relationship between academic resilience and academic achievement. However, other research found no connections between academic success and resilience. Higher resilience scores did not guarantee an advantage in academic achievement in Wasonga's (2002) study.

**Pedagogical interventions: formative assessments and constructive feedback.** Given the established influence of psychological factors on academic outcomes, pedagogical interventions that promote psychological well-being can play an important role in supporting student success.

Formative assessment provides feedback and information during the instructional process, while learning is occurring. According to Wafubwa and Csíkos's (2022) research, formative assessment techniques help raise low-achieving students' performance and metacognitive awareness. Moreover, the results of Afrashteh and Rezaei (2022) demonstrated the importance of formative assessment in forming the subscale of motivated

learning strategies (self-regulation, test anxiety, self-efficacy, intrinsic value, and cognitive strategies). Additionally, the findings showed that self-regulated learning techniques are a mediator between formative evaluation and academic well-being and are a critical driver of academic well-being (Afrashteh & Rezaei, 2022). On the other hand, the findings of Boström and Palm's (2023) study demonstrate that the formative assessment used by the year 7 instructors who took part in the professional development program had no discernible impact on students' academic performance. The conceptualization of formative assessment may influence how differently it affects student achievement.

Constructive feedback – particularly feedback that is specific, timely, and focused on effort rather than inherent ability – can have a profound impact on students' psychological well-being. Aslan and Khan's research (2020) indicates that constructive feedback is a crucial component of formative assessment that significantly impacts student learning outcomes. When feedback is task-specific, timely, and focused on improvement, it enhances students' self-efficacy, motivation, and self-regulation capabilities. According to Selvaraj et al. (2021) feedback practices must be more than just remarks; they must be a means of advancing learning. In addition to providing students with information about their academic achievement, teachers can utilize feedback to evaluate their methods of instruction since they need to ensure that they can adapt their classes to meet the various needs of their pupils (Selvaraj et al., 2021).

**Gaps and rationale for the present study.** While previous research has established the importance of motivation, self-efficacy, and resilience in academic achievement, fewer studies have examined the combined influence of these factors when complemented by formative assessments and constructive feedback. Addressing these gaps, the present study investigates how psychological factors impact academic achievement in higher education and examines how formative assessments and constructive feedback can enhance students' psychological well-being and academic success.

**Methodology.** This study employed a mixed-methods approach to investigate the impact of psychological factors such as motivation, self-efficacy, and resilience on academic achievement in higher education, as well as how formative assessments and constructive feedback contribute to students' psychological well-being and academic success. The combination of quantitative surveys and planned qualitative interviews provides both breadth and depth to the research findings.

**Research Design.** The research consisted of two primary phases:

**1. Quantitative Phase:** An online survey was conducted to collect data on students' psychological factors and their perceptions of assessment practices.

**2. Qualitative Phase:** Semi-structured interviews were conducted with a subset of participants to gain deeper insights into their experiences.

**Participants.** A total of 52 students from various universities across Kazakhstan participated in the study. The sample included 26 males and 26 females, ranging in age from

16 to over 25 years old. Participants represented different levels of study (undergraduate and graduate) and diverse fields, including engineering, computer science, humanities.

### **Research Instruments**

**Online Questionnaire.** The questionnaire consisted of 18 questions divided into the following sections:

- 1. Motivation:** Assessing the level of motivation and factors influencing it.
- 2. Self-Efficacy:** Measuring students' confidence in their academic abilities.
- 3. Resilience and Stress Management:** Evaluating reactions to academic challenges and stress-coping strategies.
- 4. Formative Assessments and Constructive Feedback:** Frequency and usefulness of feedback from instructors.
- 5. Student Engagement and Autonomy:** Degree of involvement in the learning process and decision-making related to education.
- 6. Overall Experience and Outcomes:** Self-assessment of academic achievement and influencing factors.
- 7. Demographic Information:** Age, gender, year of study, and field of study.

Questions were presented in Likert scales, multiple-choice, and open-ended formats. The questionnaire was bilingual (English and Russian) to accommodate participants' preferences.

**Focus Group Interviews.** Following the analysis of the survey results, focus group interviews were conducted with five students (balanced by gender and representing different years of study). The interviews were conducted online via Zoom and aimed to deepen the understanding of themes identified in the survey.

### **Data Collection Procedure**

#### **Quantitative Phase**

- **Data Collection:** The online survey was available for two weeks in October 2024.
- **Informed Consent:** Participants reviewed the study information and provided consent before beginning the survey.
- **Anonymity:** The survey was anonymous, and data were collected without any identifying information.

#### **Qualitative Phase**

- **Participant Selection:** Interview participants were selected based on their willingness and to ensure a diversity of academic backgrounds.
- **Conducting Interviews:** Interviews lasted approximately 60 minutes and were recorded with participants' consent.
- **Discussion Topics:** Questions focused on assessment practices, the role of feedback, and impacts on motivation and self-efficacy.

### **Ethical Considerations**

- **Confidentiality:** All data were stored securely and accessed only by the researchers.
- **Voluntary Participation:** Participants could withdraw at any time without any consequences.
- **Informed Consent:** Participants were fully informed about the study's purpose and provided consent before participating.

## Results

**Survey results.** A total of 52 students participated in the survey, comprising an equal number of males and females (26 each), ensuring gender balance in the sample. The participants' ages ranged from 16 to over 25 years, with the majority falling between 18 and 25 years old. The students represented various academic levels and disciplines, enhancing the diversity and representativeness of the sample. Among them were 9 first-year bachelor's students, 6 third-year bachelor's students, 11 fourth-year bachelor's students, 19 first-year master's students, and 2 second-year master's students. Additionally, 5 respondents were not currently enrolled as students. The fields of study included engineering, computer science, international relations, biological sciences, economics and language studies.

**Motivation Levels and Influencing Factors.** When asked to rate their level of motivation toward university studies, the majority of students described their motivation as average (50%) or high (23.1%). A smaller proportion reported low motivation (15.4%) or very high motivation (3.8%), while none reported very low motivation. This distribution suggests that most students maintain a moderate to high level of motivation in their academic pursuits.

The primary factors motivating students in their studies were future career prospects (69.2%), interest in the subject (59.6%), and personal development (53.8%). Desire for high grades motivated 28.8% of students, and recognition from instructors or peers was a motivator for 5.8%. These results indicate that both intrinsic factors (interest in the subject, personal development) and extrinsic factors (future career prospects, desire for high grades) play significant roles in motivating students.

Regarding the statement "I study more due to internal desire than external pressure," a significant majority (52%) agreed to some extent, with 13.5% strongly agreeing and 38.5% somewhat agreeing. About 23.1% were neutral, and 17.3% somewhat disagreed. 7.7% of students strongly disagreed. This suggests that a majority of students are driven more by internal motivations than by external pressures.

**Self-Efficacy and Confidence in Academic Abilities.** The survey revealed that students generally possessed a strong sense of self-efficacy. A significant majority (86.6%) reported feeling moderately confident to extremely confident in their ability to successfully complete academic tasks. Specifically, 15.4% were extremely confident, 46.2% were very confident, and 25% were moderately confident. Only 9.6% reported being slightly confident, and 3.8% reported not being confident at all.

When it came to overcoming challenging academic tasks, 19.2% of students indicated that they always felt capable, and 44.2% often felt capable. Meanwhile, 26.9% sometimes felt capable, and a small fraction (7.7%) rarely felt capable. Only one student reported never feeling capable. This distribution underscores that while most students feel confident in their abilities, there is variability in how consistently they perceive their capability to handle academic challenges.

An overwhelming majority (77%) agreed with the statement "My efforts directly impact my academic success," with 30.8% strongly agreeing and 46.2% somewhat agreeing. 5.8% of students strongly disagreed, only 3.8% somewhat disagreed, and 13.5% were neutral. This indicates that students largely believe in the efficacy of their efforts and possess an internal locus of control regarding their academic outcomes.

**Resilience and Stress Management Strategies.** In response to academic failures or low grades, the majority of students (63.5%) reported that they feel a bit disappointed but continue working. An additional 13.5% viewed such setbacks as opportunities to learn and improve, demonstrating a constructive approach to challenges. A smaller group (15.4%) indicated that they don't give it much thought and move on, while only 7.7% became very upset and lost motivation. These responses highlight a generally resilient attitude among students toward academic setbacks.

Students employed various strategies to manage academic stress. Planning and time management was the most commonly used strategy, reported by 61.5% of students. Physical exercise was utilized by 44.2%, and meditation or relaxation techniques were practiced by 40.4%. Professional help from counselors or psychologists was sought by 13.5%, indicating an awareness of the importance of mental health support. Only 1.9% of students reported not using any stress management strategies.

Opinions on the impact of stressful situations on work effectiveness were mixed. Approximately 30.7% of students agreed to some extent that stress helps them work more effectively (1.9% strongly agreed, 28.8% somewhat agreed), while 44.3% disagreed (23.1% somewhat disagreed, 21.2% strongly disagreed). The remaining 25% were neutral. This suggests individual differences in how stress influences students' performance.

**Impact of Formative Assessments and Feedback.** Feedback from instructors emerged as a significant factor in students' academic experiences. A majority of students (42.3%) reported receiving feedback frequently, with 3.8% always receiving feedback and 38.5% often receiving it. Another 26.9% received feedback sometimes, while 25% received it rarely. 3 students reported never receiving feedback.

The usefulness of the feedback was highly rated, with 88.5% finding it moderately to extremely useful. Specifically, 5.8% found it extremely useful, 44.2% very useful, and 38.5% moderately useful. Only 7.7% found feedback slightly useful, and 3.8% found it not useful at all. These findings indicate that feedback is a valuable tool for students in improving their academic performance.



Regarding formative assessments helping students understand their strengths and weaknesses, 34.6% agreed to some extent, with 3.8% strongly agreeing and 30.8% somewhat agreeing. Meanwhile, 42.3% were neutral, and 17.3% somewhat disagreed. 5.8% of students strongly disagreed. This suggests that formative assessments are generally perceived as beneficial for self-awareness and personal development.

When asked about how feedback from instructors affects their motivation to learn, a significant majority (73%) reported that it increases their motivation, with 11.5% stating it significantly increases motivation and 61.5% stating it slightly increases motivation. The remaining 21.2% indicated that feedback has no impact on their motivation, and 1.9% reported a decrease in motivation due to feedback.

**Student Engagement and Autonomy.** Students generally felt involved in the learning process and decision-making related to their education. A combined 90.4% felt moderately to completely involved, with 11.5% completely involved, 32.7% very involved, and 46.2% moderately involved. A smaller proportion felt slightly involved (5.8%), and only 3.8% felt not involved at all.

The majority of students (76.9%) agreed that having more control over their learning makes them feel more motivated and effective, with 25% strongly agreeing and 51.9% somewhat agreeing. About 17.3% were neutral, and 5.8% strongly disagreed. No students disagreed. This underscores the importance of autonomy in enhancing student motivation and perceived effectiveness.

**Self-Rated Academic Achievement and Influencing Factors.** When self-assessing their current level of academic achievement, most students rated themselves as average (46.2%) or high (36.5%). A smaller proportion rated themselves as very high (5.8%) or low (7.7%), and (3.8%) rated themselves as very low. This distribution indicates that students generally perceive their academic performance positively.

Students identified several factors as having significantly influenced their academic success. The most commonly cited factors were self-efficacy (51.9%), resilience to stress (44.2%), motivation (40.4%), and quality of instruction (46.2%). Support from family and friends was mentioned by 32.7% of students, and feedback from instructors was identified by 17.3%. These findings, which are depicted in Figure 2, demonstrate the complexity of academic achievement, which involves both internal psychological variables and outside support networks.

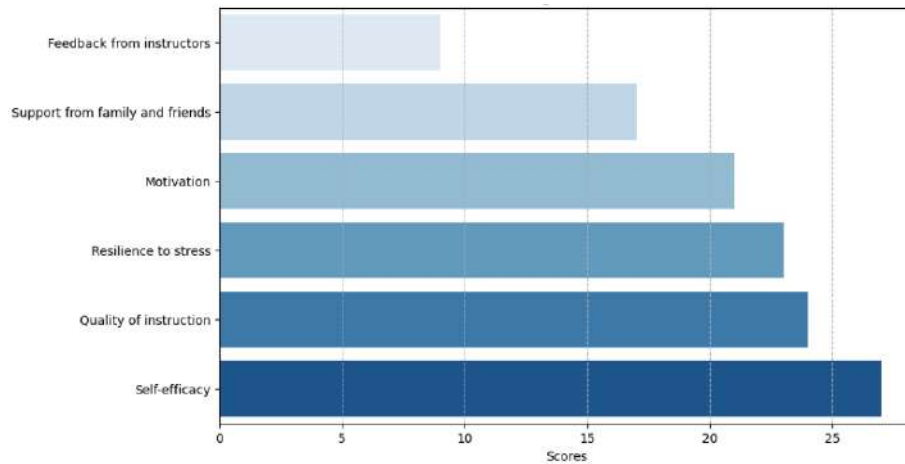


Figure 2. Factors Influencing Academic Performance

**Qualitative Insights from Open-Ended Responses.** In the open-ended question regarding what could improve their psychological well-being and academic performance, students provided a variety of suggestions. Common themes included:

- **Better Time Management and Planning:** Many students acknowledged the need to enhance their organizational skills to manage academic responsibilities more effectively.
- **Reduced Academic Workload:** Some students suggested that a lighter or more balanced workload would help alleviate stress and improve performance.
- **Increased Support and Clear Communication from Instructors:** Students expressed a desire for clearer expectations, detailed feedback, and more accessible support from faculty.
- **Improved Work-Life Balance:** Achieving a healthier balance between academic obligations and personal life was deemed important for psychological well-being.
- **Enhanced Autonomy and Control over Learning:** Several students indicated that having more control over their learning processes would boost their motivation and effectiveness.

**Statistical Analysis.** To examine the relationships between psychological factors and academic achievement, Pearson correlation analyses were conducted. The results revealed strong positive correlations:

- **Motivation and Academic Achievement:** The correlation coefficient was approximately 0.62, indicating a strong positive relationship. This suggests that higher levels of motivation are associated with better academic performance.
- **Self-Efficacy and Academic Achievement:** The correlation coefficient was approximately 0.58, also indicating a strong positive association. Students with higher self-efficacy tended to achieve higher academically.
- **Resilience and Academic Achievement:** The correlation coefficient was approximately 0.45, showing a moderate positive relationship. This implies that resilience

contributes positively to academic success, though to a lesser extent than motivation and self-efficacy.

Further analysis showed that students who frequently received feedback from instructors reported higher levels of motivation and self-efficacy compared to those who received feedback less often. This underscores the significant role of formative assessments and constructive feedback in enhancing key psychological factors that contribute to academic achievement.

No significant gender differences were observed in the levels of motivation, self-efficacy, or resilience. Both male and female students appeared to benefit similarly from formative assessments and feedback, suggesting that these psychological factors influence academic achievement consistently across genders in this sample.

**Summary of Key Findings of Survey.** The survey results indicate that psychological factors such as motivation, self-efficacy, and resilience significantly impact academic achievement among higher education students in Kazakhstan. Chart in Figure 1 presents an overview of psychological variables. Motivation and self-efficacy, in particular, show strong positive correlations with academic performance. Resilience also contributes positively, highlighting the importance of students' ability to cope with academic challenges.

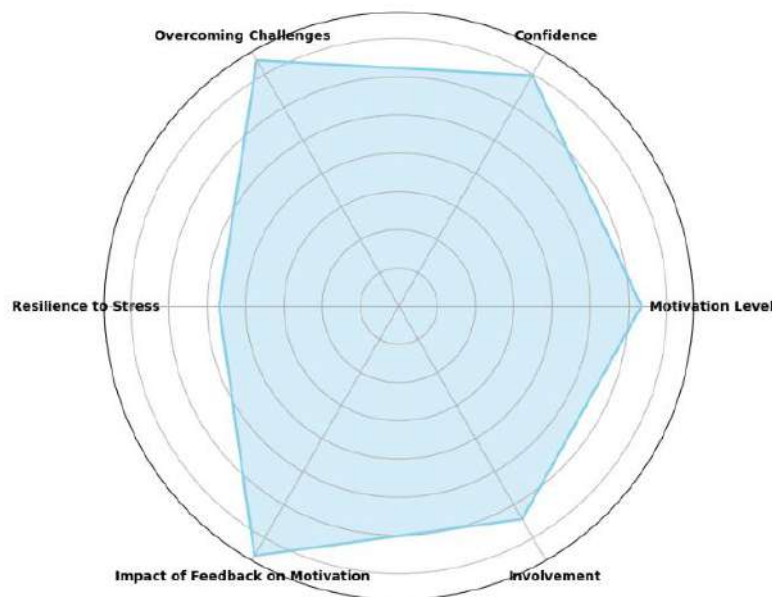


Figure 1. Overall Summary of Psychological Factors

Formative assessments and constructive feedback from instructors play a crucial role in enhancing these psychological factors. Regular feedback not only aids in understanding strengths and weaknesses but also significantly boosts students' motivation to learn. The majority of students value autonomy in their learning process, and increased control over their education correlates with higher motivation and perceived effectiveness.

The qualitative responses emphasize the need for better time management, balanced workloads, increased support from instructors, and improved work-life balance. These

insights suggest that educational practices that support psychological well-being—such as providing regular, meaningful feedback and fostering student autonomy—can lead to improved academic outcomes.

Overall, the findings underscore the interplay between psychological well-being and academic success. By addressing these psychological factors through supportive pedagogical strategies, educational institutions can enhance student performance and contribute to a more positive and effective learning environment.

### **Focus group interview results**

During the group interview, chosen volunteers have diverse academic backgrounds and institutions, which revealed several key themes regarding assessment methods and feedback practices and their influence on academic motivation and performance.

Speaking of assessment methods and their impact, students clearly preferred diverse assessment methods, highlighting how different approaches serve various learning objectives. A fourth-year Biology student emphasized this diversity: "Professors use many different assessment methods... essays, research projects, presentations, exams with open questions or multiple-choice or oral exams". The variety in assessment methods was generally viewed positively, with students recognizing how different formats develop distinct skills.

A significant finding was the importance of clear assessment criteria. The Political Science student emphasized this: "Using rubrics is very good for your learning because you need some aims to accomplish. When you have these aims and a clear picture of what you're expected to do, you try to do well and try to be precise." This suggests that transparent assessment criteria enhance student engagement and motivation.

Moving forward, our next question about the role feedback plays in students' learning revealed a strong preference for ongoing, formative feedback over summative assessment alone. This was particularly evident in the Senior Biology student's response: "Receiving ongoing feedback during the course is more helpful than getting just final grades. The reason is that you can work with mistakes to avoid them in the future." This finding aligns with the research hypothesis regarding the benefits of regular constructive feedback.

The timing and delivery method of feedback emerged as crucial factors. Face-to-face feedback was particularly valued, as highlighted by a PSIR student: "Live feedback is excellent... It helps you to understand words much better, advices much better" compared to written feedback where "you cannot read the tone."

In our brief session, we discussed the impact on self-efficacy and motivation, and the qualitative data suggested a positive relationship between consistent feedback and academic self-efficacy. An Engineering student noted: "I was less sure about writing assignments early on, but as I received more constructive and helpful feedback, I improved those skills more quickly". This observation supports the hypothesis regarding the relationship between feedback and self-efficacy.

### **Intrinsic motivation appeared to be enhanced by:**

1. Real-world application of knowledge: "The most motivating aspect of my coursework was working on real projects where I could use my knowledge" (Junior Mathematics student)
2. Continuous assessment: "pop-up quizzes... studying the material on time" (Junior Mechanical and Aerospace Engineering student)
3. Peer interaction: "Presentations... done in a group; I find it a great opportunity to get to know my peers closer" (Senior Biology student)

Students consistently reported that balanced assessment systems positively influenced their academic performance. A particularly insightful suggestion came from a Mathematics student: "A mix of assessments such as 1/4 quizzes, 1/4 midterms, 1/4 homework, and 1/4 final group project would be a good choice that would help maintain a continuous learning process." This balanced approach supports both learning and fair grade distribution.

Our findings suggest several areas for improvement in higher education practice:

- Implementation of diverse assessment methods
- Provision of clear assessment criteria through rubrics
- Regular, formative feedback throughout courses
- Emphasis on face-to-face feedback interactions
- Balanced assessment weightings across different evaluation methods

These insights support the research hypotheses, indicating that regular constructive feedback and well-structured assessments enhance academic self-efficacy and motivation. During group interviews, it was consistently noted that the relationship between these psychological factors and academic performance is strong and appears to be fruitful for preserving long-distance motivation to learn.

**Discussion.** The results of this study highlight the important role that psychological factors, namely motivation, self-efficacy, and resilience, play in shaping academic achievement in higher education. Consistent with previous research, our data show that motivation and self-efficacy are closely linked to positive academic outcomes, which supports the idea that students who believe in their abilities and have a strong inner drive tend to do better academically. Interestingly, while resilience also makes a positive contribution, its impact appears to be less pronounced, suggesting that while resilience is crucial in solving complex tasks, motivation and self-efficacy may be more immediate success factors in educational institutions.

Formative assessment and constructive feedback have been shown to be particularly effective in improving students' psychological well-being and academic performance. Regular feedback not only increases students' motivation but also strengthens their sense of self-efficacy. The preference given by students for various assessment methods and constant feedback is consistent with theories advocating the creation of a student-centered learning environment. Such an environment, in which special attention is paid to transparent criteria

and personal feedback, was perceived as contributing to a deeper understanding of the material and self-reflection.

Moreover, the qualitative findings highlight the importance of personalized feedback to keep students motivated over time. The positive response to real-world applications, peer interaction, and assessments designed to track progress suggests that the inclusion of these elements may contribute to long-term academic engagement. These results indicate a practical recommendation for teachers to implement a balanced mix of assessments, frequent formative feedback, and opportunities for student autonomy, which can contribute to the formation of a more resilient and motivated student body.

Overall, this study highlights the relationship between psychological factors and pedagogical strategies, suggesting that by actively meeting the psychological needs of students, educational institutions can contribute to creating a more supportive and effective learning environment.

**Conclusion.** This study highlights the important role that psychological factors — motivation, self-efficacy, and resilience - play in shaping academic achievement in higher education institutions. Our results confirm that motivation and self-efficacy have a strong positive correlation with academic performance, emphasizing the importance of developing these qualities in students. Resilience, while useful, seems to support motivation and self-efficacy rather than directly contribute to academic success. In addition, it has been proven that formative assessments and constructive feedback make a significant contribution to the psychological well-being of students and their academic results.

These findings point to the need for educational practices that go beyond conventional assessments and focus on psychological support. Formative assessment and personalized constructive feedback are becoming important tools to enhance students' academic self-confidence and engagement. Future research could further explore these interactions, especially in different cultural settings, to deepen the understanding of how psychological support affects academic achievement on a broader scale.

### References:

1. Afrashteh, M. Y., & Rezaei, S. (2022). The mediating role of motivated strategies in the relationship between formative classroom assessment and academic well-being in medical students: a path analysis. *BMC Medical Education*, 22(1). <https://doi.org/10.1186/s12909-022-03118-y>
2. Aslam, R., & Khan, N. (2020). Constructive feedback and students' academic achievement: A theoretical framework. *New Horizons*, 14(2), 175-198. [https://doi.org/10.29270/NH.14.2\(20\).10](https://doi.org/10.29270/NH.14.2(20).10)
3. Augustyniak, R. A., Ables, A. Z., Guilford, P., Lujan, H. L., Cortright, R. N., & DiCarlo, S. E. (2016). Intrinsic motivation: an overlooked component for student success.

AJP Advances in Physiology Education, 40(4), 465–466.  
<https://doi.org/10.1152/advan.00072.2016>

4. Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory*. Prentice-Hall, Inc. <https://ci.nii.ac.jp/naid/10010087207/>

5. Boström, E., & Palm, T. (2023). The effect of a formative assessment practice on student achievement in mathematics. *Frontiers in Education*, 8. <https://doi.org/10.3389/feduc.2023.1101192>

6. Cn, Mwangi & Fm, Okatcha & Tk, Kinai & Ireri, Anthony. (2015). Relationship between Academic Resilience and Academic Achievement among Secondary School Students in Kiambu County, Kenya. *International Journal of School and Cognitive Psychology*. 2. 1-5. [10.4172/ijscp.S2-003](https://doi.org/10.4172/ijscp.S2-003).

7. Honicke, T., & Broadbent, J. (2015). The influence of academic self-efficacy on academic performance: A systematic review. *Educational Research Review*, 17, 63–84. <https://doi.org/10.1016/j.edurev.2015.11.002>

8. Kusurkar, R. A., Cate, T. J. T., Vos, C. M. P., Westers, P., & Croiset, G. (2012). How motivation affects academic performance: a structural equation modelling analysis. *Advances in Health Sciences Education*, 18(1), 57–69. <https://doi.org/10.1007/s10459-012-9354-3>

9. Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78. <https://doi.org/10.1037/0003-066x.55.1.68>

10. Selvaraj, A. M., Azman, H., & Wahi, W. (2021, January 31). Teachers' feedback Practice and Students' Academic Achievement: A Systematic Literature review. <http://ijlter.net/index.php/ijlter/article/view/181>

11. Trpcevska, L. (2017). Predictors of psychological well-being, academic self-efficacy and resilience in university students, and their impact on academic motivation. <https://vuir.vu.edu.au/34676/>

12. Wafubwa, R. N., & Csíkos, C. (2022, April 1). Impact of Formative Assessment Instructional Approach on Students' Mathematics Achievement and their Metacognitive Awareness. <https://e-iji.net/ats/index.php/pub/article/view/375>

13. Wasonga, T. (2002). Gender effects on perceptions of external assets, development of resilience and academic achievement: Perpetuation theory approach. *Gender Issues*, 20(4), 43–54. <https://doi.org/10.1007/s12147-002-0022-4>

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## **АНАЛИЗ ВЛИЯНИЯ ЭМОЦИОНАЛЬНОГО ВЫГОРАНИЯ НА АКАДЕМИЧЕСКУЮ УСПЕВАЕМОСТЬ СТУДЕНТОВ: ОБЗОР ЛИТЕРАТУРЫ**

**Аннотация:** В статье рассматривается проблема эмоционального выгорания среди студентов и его влияние на их академические результаты. Цель исследования - выявить основные причины и последствия выгорания, а также предложить методы его профилактики. Методологически работа основана на анализе современных исследований, описывающих факторы, связанные с эмоциональным выгоранием, и стратегии поддержки, способные минимизировать его негативные эффекты. Основные результаты показывают, что наибольший риск выгорания связан с высокой учебной нагрузкой и недостаточной поддержкой со стороны учебного заведения, в то время как образовательные практики, ориентированные на поддержку и развитие, помогают снизить уровень выгорания.

**Ключевые слова:** выгорание, обучение, академическая успешность, университет, психическое здоровье, академическое давление

### **Введение**

Значение высшего образования как важного социального и экономического ресурса невозможно переоценить. Академические достижения студентов не только открывают им двери к лучшим карьерным возможностям, но и оказывают долгосрочное влияние на их благополучие и качество жизни. Исследования показывают, что студенты, достигшие успехов в обучении, имеют тенденцию к более высокому уровню психического здоровья, лучшей финансовой стабильности и активному вкладу в общество через свои профессиональные навыки [1]. Поэтому понимание факторов, которые способствуют академическим успехам студентов, особенно важно.

Д. Мэдиган и Т. Карран отмечают, что исследования в данной области сосредоточены на различных психологических и мотивационных аспектах, таких как личностные черты и внутренняя мотивация, которые способствуют академической



успеваемости студентов [1]. Однако, несмотря на накопленные знания, значительное внимание требует рассмотрение негативных психологических состояний, которые могут препятствовать академическому успеху. Одним из таких состояний является эмоциональное выгорание, которое включает в себя хроническое истощение, цинизм и чувство собственной неэффективности и становится все более распространенным среди студентов, сталкивающихся с высоким уровнем стресса и давления [2; 3].

Наш обзор литературы направлен на исследование того, каким образом эмоциональное выгорание влияет на академическую успеваемость студентов. Этот анализ позволит выявить причины и последствия выгорания в образовательной среде, а также предложить потенциальные стратегии профилактики, которые могут помочь снизить его негативное воздействие. В рамках обзора будут рассмотрены основные темы: причины и факторы, ведущие к эмоциональному выгоранию у студентов, последствия выгорания для их учебной деятельности, также подходы к профилактике и поддержке, направленные на снижение уровня выгорания.

### **Обзор литературы**

Эмоциональное выгорание среди студентов обусловлено многими факторами, включая академическое давление, личностные особенности и недостаток поддержки. Исследования подтверждают, что студенты, которые сталкиваются с чрезмерной учебной нагрузкой, рискуют пережить истощение и потерю интереса к учебе. Маслач и Джексон (1981) выделили такие ключевые компоненты выгорания, как *эмоциональное истощение, цинизм и снижение личной эффективности*, которые также были адаптированы для студенческой среды и изучены в последующих исследованиях [5].

Так, исследование К. Блас-Атенсия и коллег (2020) фокусировалось на группе студентов начального образования и включало выборку из 148 человек в возрасте от 16 до 52 лет (среднее значение  $M = 26,20$ , стандартное отклонение  $SD = 6,53$ ). Результаты показали, что основным фактором, способствующим эмоциональному выгоранию, является интенсивное расписание, включающее жесткие сроки сдачи заданий и высокоинтенсивные курсы. У студентов с более высокими академическими требованиями был зафиксирован средний показатель эмоционального истощения 5,40 по шкале эмоционального истощения (диапазон 1-7) [6].

Для измерения уровня выгорания среди студентов в исследовании К. Блас-Атенсия и коллег (2020) использовался адаптированный опросник Maslach Burnout Inventory - Student Survey (MBI-SS), включающий 15 пунктов, распределенных по трем шкалам: эмоциональное истощение (exhaustion), цинизм (cynicism) и низкая личная эффективность (lack of effectiveness) каждая из которых содержит по 5 пунктов. Респонденты отвечали по шкале Ликерта с семью вариантами ответов, начиная от "Никогда" до "Всегда". Психометрический анализ показал высокую надежность инструмента: коэффициент альфа Кронбаха для подшкалы эмоционального истощения

составил 0.83, для цинизма — 0.82, и для личной эффективности — 0.82. Это свидетельствует о высокой валидности данного опросника для оценки выгорания среди студентов [6].

Следует также отметить результаты мета-анализа, проведенного Б. Кимом и соавторами, которые изучали связь между социальной поддержкой и уровнем выгорания у студентов [7]. Исследование включало данные из 19 исследований, общая выборка которых составила от 72 до 88 813 участников из различных образовательных групп — студентов университетов, аспирантов, учеников средней и старшей школы, с участниками из 12 стран, включая США, Австралию, Финляндию и Корею. Мета-анализ выявил значимую отрицательную корреляцию между общей социальной поддержкой и уровнем выгорания у студентов ( $r = -0,21$ ,  $p < 0,001$ ), что указывает на снижение выгорания при увеличении социальной поддержки. Наиболее сильное влияние оказала поддержка со стороны учебного заведения и учителей ( $r = -0,30$ ,  $p < 0,001$ ) по сравнению с поддержкой от родителей и семьи ( $r = -0,18$ ,  $p < 0,001$ ) и поддержкой от друзей и сверстников ( $r = -0,15$ ,  $p < 0,001$ ) [7].

Кроме того, анализ Б. Кима и коллег охватывает три ключевых компонента выгорания: эффективность, деперсонализация (цинизм) и эмоциональное истощение. Наиболее выраженная отрицательная корреляция была между социальной поддержкой и чувством неэффективности ( $r = -0,24$ ,  $p < 0,001$ ). Это говорит о том, что студенты, получающие социальную поддержку, чаще ощущают свою компетентность и уверенность в учебной деятельности. Корреляция социальной поддержки с деперсонализацией и цинизмом ( $r = -0,18$ ,  $p < 0,001$ ), а также с эмоциональным истощением ( $r = -0,17$ ,  $p < 0,001$ ) была менее выраженной, но тем не менее статистически значимой [7].

Другой важный аспект выгорания — его влияние на академическую успеваемость, который проанализировали Д. Мэдиган и Т. Карран (2020). Их исследование — первый крупный мета-анализ, оценивающий взаимосвязь между выгоранием и академическими достижениями у студентов [1]. В выборку анализа вошли данные 29 исследований с общим количеством участников 109 396 человек. Было выявлено, что выгорание оказывает значительное негативное влияние на академическую успеваемость (с интегрированным коэффициентом корреляции  $r = -0,24$ ), что подтверждает сильную отрицательную связь между общим уровнем выгорания и академическими достижениями студентов [1]. При этом три компонента выгорания — эмоциональное истощение, цинизм и сниженная эффективность — отрицательно коррелировали с академической успеваемостью, хотя влияние каждого компонента было различным.

Эмоциональное истощение показало наименьшее влияние ( $r = -0,15$ ), хотя в профессиональной среде истощение часто является наиболее значимым фактором, влияющим на производительность, однако для студентов его влияние ограничено [1].

Это может объясняться наличием дополнительных образовательных ресурсов, которые позволяют студентам продолжать учебу, несмотря на усталость.

Цинизм имел более выраженное отрицательное воздействие на снижение академической успеваемости ( $r = -0.24$ ), что объясняется отстраненным отношением студентов к учебному процессу и учебной среде [1]. Студенты с высоким уровнем цинизма склонны дистанцироваться от учебной деятельности, упускать ключевую информацию и избегать взаимодействия с преподавателями, что может снижать их успехи в учебе в долгосрочной перспективе.

Наиболее сильный негативный эффект на академические результаты имело чувство сниженной эффективности ( $r = -0.39$ ). Низкая самооценка и чувство неэффективности приводят к избеганию учебных задач и снижению мотивации, что, в свою очередь, отрицательно сказывается на академических результатах [1]. Этот эффект имеет двустороннюю природу: снижение эффективности усиливает ощущение неуспеха, что, в свою очередь, дополнительно снижает академические достижения. Данный эффект отличается от профессиональной сферы, где снижение эффективности не влияет существенно на производительность [1].

Согласно данным Д. Мэдигана и Т. Каррана, эмоциональное выгорание оказывает более значительное влияние на академическую успеваемость по сравнению с другими известными показателями, такими как использование телевизора, пропуски занятий и смена учебных заведений [1]. Особенно заметно влияние сниженной эффективности, которая является одним из наиболее значимых психологических индикатором успеваемости.

Также стоит отметить исследование В. Шауфели и коллег (2002), которое проверяло гипотезы о связи между выгоранием, вовлеченностью и академической успеваемостью [8]. Одна из гипотез предполагала, что выгорание и вовлеченность будут слабо связаны, то есть чем выше одно, тем ниже другое. Результаты частично подтвердили это: в большинстве случаев уровень выгорания действительно снижался по мере увеличения вовлеченности. Особенно заметной была обратная связь между эффективностью и вовлеченностью — чем сильнее учащиеся были вовлечены, тем выше их эффективность. Этот вывод совпадает с идеями Маслач и Лейтера (1997) о том, что чувство эффективности играет важную роль в вовлеченности [8].

Еще одна гипотеза утверждала, что академическая успеваемость улучшится с вовлеченностью и ухудшится с выгоранием [8]. Результаты подтвердили данную гипотезу: студенты с высокими уровнями эффективности и энергичности демонстрировали более высокие академические результаты по сравнению с теми, кто испытывал высокий уровень цинизма и истощения. Таким образом, вовлеченность положительно сказывается на академической успеваемости, тогда как выгорание оказывает отрицательное влияние.

## **Подходы к профилактике и поддержке, направленные на снижение уровня выгорания**

Одним из ключевых факторов профилактики выгорания является обучение, ориентированное на мастерство. Исследования показывают, что учащиеся, ориентированные на мастерство, демонстрируют более низкий уровень выгорания по сравнению с теми, кто ориентирован на избегание неудач или достижение успеха. Поощрение образовательных стратегий, направленных на ориентацию на мастерство, а также снижение конкурентной среды может помочь в снижении уровня выгорания [3].

Позитивная эмоциональная среда в учебном процессе также способствует профилактике выгорания. Положительные эмоции, возникающие в ходе обучения, повышают самооффективность студентов, их оптимизм и общие академические ресурсы. Это, в свою очередь, способствует их вовлеченности и предотвращает развитие выгорания, формируя «расширяющий» цикл (*broaden and build theory*) по теории, предложенной Дж. Фредрикс и коллегами (цит. по: Илюхин, 2021) [3].

### **Методология**

Для проведения систематического обзора были установлены четкие критерии отбора и методы анализа данных. Основное внимание уделялось актуальным исследованиям, которые освещают аспекты выгорания в студенческой среде.

Критерии отбора источников включали языковые и тематические ограничения. Исследования на русском и английском языках были выбраны для обеспечения доступа к международным и отечественным источникам, что важно для более глубокого анализа проблемы. Основными базами данных для поиска литературы стали Google Scholar, Scopus и ScienceDirect, которые предоставляют доступ к широкому спектру научных публикаций по психологии и смежным областям. Рассматривались научные статьи, мета-анализы, систематические обзоры, а также релевантные главы в научных книгах. Выбранные публикации должны были соответствовать тематике эмоционального выгорания среди студентов, его влияния на учебные достижения и рассматривать факторы риска и защитные механизмы, влияющие на выгорание.

Методы анализа включали несколько подходов для тщательного изучения собранных данных. В первую очередь использовался тематический анализ, который позволил разделить статьи на ключевые направления: причины и факторы, ведущие к выгоранию у студентов, последствия выгорания для их академической успеваемости, взаимосвязь выгорания с другими психологическими состояниями, а также возможные методы профилактики и поддержки студентов для снижения уровня выгорания. Этот подход позволил выделить основные тенденции и проблемы, связанные с выгоранием в образовательной среде.

Далее был проведен сравнительный анализ, направленный на выявление сходств и различий в результатах исследований. Особое внимание уделялось тому, как различные уровни академической нагрузки и поддержка со стороны образовательных

учреждений влияют на вероятность возникновения выгорания. В завершение был проведен синтез данных, что позволило обобщить ключевые выводы и определить пробелы в текущих исследованиях. Это особенно важно для выработки рекомендаций по дальнейшему изучению проблемы и улучшению мер поддержки студентов.

### **Результаты**

Анализ литературных данных подтвердил значительное влияние академической нагрузки и социальной поддержки на уровень эмоционального выгорания студентов. Высокие академические требования, такие как жесткие сроки сдачи заданий и интенсивные учебные программы, являются основными факторами, провоцирующими выгорание. В исследовании К. Блас-Атенсия и коллег (2020) выявлено, что студенты, сталкивающиеся с перегруженным расписанием, испытывают повышенный уровень эмоционального истощения, что особенно проявляется в тех случаях, когда личная эффективность снижается, а цинизм возрастает [6].

Кроме того, результаты мета-анализа Б. Кима и соавторов указывают на важность социальной поддержки, которая оказывает положительное влияние на психологическое состояние студентов [7]. В частности, поддержка со стороны учебного заведения и преподавателей показала наиболее сильную связь с уменьшением уровней выгорания. Доказано, что студенты, ощущающие поддержку от учебного заведения, демонстрируют более высокие показатели личной эффективности и менее подвержены цинизму и эмоциональному истощению [7].

Также выявлены и более специфические аспекты связи между выгоранием и академической вовлеченностью. Исследование В. Шауфели и коллег (2002) подтверждает, что эффективность и вовлеченность студентов находятся в отрицательной корреляции с уровнями цинизма и эмоционального истощения [8]. Студенты, демонстрирующие высокие уровни вовлеченности, чаще добиваются академических успехов, в то время как цинизм и истощение ведут к снижению успеваемости.

Эти выводы подтверждают важность системного подхода к снижению уровня выгорания. Снижение академической нагрузки, наряду с созданием поддерживающей образовательной среды, способствуют улучшению психоэмоционального состояния студентов. Исследования Д. Мэдигана и Т. Каррана (2020) подтверждают, что выгорание отрицательно влияет на академическую успеваемость студентов, причём наиболее значимым компонентом выгорания, препятствующим успехам в учебе, является чувство низкой личной эффективности [1].

### **Заключение**

Проведенный анализ подтверждает, что эмоциональное выгорание является значимой проблемой среди студентов, оказывая негативное влияние на их академическую успеваемость, психологическое благополучие и вовлеченность в учебный процесс. Основные компоненты выгорания — эмоциональное истощение,

цинизм и чувство неэффективности — существенно снижают мотивацию и академические достижения, приводя к потере интереса к обучению. Особенно важную роль в формировании выгорания играют такие факторы, как чрезмерная учебная нагрузка и недостаточная социальная поддержка. Напротив, социальная поддержка, особенно со стороны учебного заведения и преподавателей, показала значительное положительное влияние на самоэффективность студентов, повышая их вовлеченность и снижая риск выгорания.

На основе анализа литературы можно заключить, что для эффективной профилактики выгорания среди студентов необходим комплексный подход, включающий следующие меры:

- Оптимизация учебной нагрузки: пересмотр графика занятий и учебных требований, чтобы снизить чрезмерное давление на студентов.
- Развитие системы социальной поддержки в образовательных учреждениях: создание условий, способствующих доступности помощи и поддержки как от преподавателей, так и от административного персонала.
- Внедрение стратегий обучения, ориентированных на мастерство: акцент на развитие у студентов практических навыков и мастерства, что снижает страх перед неудачами и усиливает уверенность в своих силах.
- Создание позитивной эмоциональной среды в учебном процессе: содействие атмосфере поддержки и позитивного взаимодействия, что повышает уровень самоэффективности и удовлетворенности от учебного процесса.

Однако стоит отметить и определенные ограничения данного обзора. Прежде всего, относительно небольшой объем рассмотренной литературы: для анализа были выбраны 6 ключевых работ, что представляет лишь часть существующих исследований по проблеме выгорания среди студентов. Это ограничение может несколько снижать полноту и обоснованность сделанных выводов, поскольку другие аспекты проблемы могли быть недостаточно отражены.

Дальнейшим исследованиям стоит изучить влияние культурных и социальных факторов на выгорание. Это поможет создать более адаптированные стратегии поддержки, которые улучшат психологическое состояние и успеваемость студентов.

### **Список литературы:**

1. Madigan D. J., Curran T. Does Burnout Affect Academic Achievement? A Meta-Analysis of over 100,000 Students // Springer Science+Business Media, LLC, part of Springer Nature. – 2020. – DOI: <https://doi.org/10.1007/s10648-020-09533-1>.
2. Беззубцева Н. О., Петрова И. В. Синдром эмоционального выгорания у студентов вуза // Студенческий научный форум. – 2019. URL: <https://scienceforum.ru/2019/article/2018011149>.

3. Илюхин А.Г. Выгорание в жизни школьников и студентов: причины, последствия и способы преодоления [Электронный ресурс] // Современная зарубежная психология. 2021. Том 10. № 2. С. 117–127. DOI: <https://doi.org/10.17759/jmfp.2021100212>.
4. Wang, X., Yang, M., Ren, L., Wang, Q., Liang, S., Li, Y., Li, Y., Zhan, Q., Huang, S., Xie, K., Liu, J., Li, X., Wu, S. Burnout and depression in college students // *Psychiatry Research*. 2024. Vol. 335, Article 115828. DOI: <https://doi.org/10.1016/j.psychres.2024.115828>.
5. Maslach C., Jackson S. E. The measurement of experienced burnout // *Journal of Organizational Behavior*. – 1981. – Vol. 2, No. 2. – P. 99–113. – DOI: <https://doi.org/10.1002/job.4030020205>.
6. Blas-Atencia C., Bravo-Cunza J., Nolberto-Quispe L., Iraola-Real I. Burnout in University Students of the Initial Education Career // 2020 IEEE Biennial Congress of Argentina (ARGENCON). – Lima, Peru: IEEE, 2020. – P. 1–6. – DOI: <https://doi.org/10.1109/ARGENCON49523.2020.9505456>.
7. Kim B., Jee S., Lee J., An S., Lee S. M. Relationships between social support and student burnout: A meta-analytic approach // *Stress and Health*. – 2017. – Vol. 34, No. 1. – P. 127–134. – DOI: <https://doi.org/10.1002/smi.2771>.
8. Schaufeli W. B., Martinez I. M., Pinto A. M., Salanova M., Bakker A. B. Burnout and engagement in university students: A cross-national study // *Journal of Cross-Cultural Psychology*. – 2002. – Vol. 33, No. 5. – P. 464–481. – DOI: <https://doi.org/10.1177/0022022102033005003>.

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## **EDUCATIONAL PEDAGOGY AND MANAGEMENT PSYCHOLOGY: ENHANCING LEADERSHIP AND LEARNING IN HIGHER EDUCATION**

**Abstract:** In this paper, we explore the integration of management psychology principles into higher education pedagogy as a means to enhance student engagement and institutional effectiveness. Recognizing the limitations of traditional, lecture-based approaches, this study emphasizes the need for adaptive and interactive teaching methods that address students' cognitive, emotional, and social dimensions. Drawing on concepts like emotional intelligence, transformational leadership, and motivational theory, the paper outlines strategies for creating supportive learning environments that foster critical thinking and collaboration. Findings from a recent survey among faculty, administrators, and students provide insights into current practices and underscore the value of a holistic approach to education.

**Keywords:** educational pedagogy, management psychology, leadership in higher education, student engagement, learning enhancement

**Introduction:** In today's rapidly evolving educational landscape, higher education institutions are navigating unprecedented challenges. With increasing student diversity, rapid technological advancements, and shifting demands from both employers and society, educators are pressed to adopt teaching methods that are adaptive, inclusive, and effective. Traditional lecture-based approaches often fall short in addressing the cognitive, emotional, and social needs of modern learners. As such, institutions are increasingly turning toward student-centered, interactive pedagogies that emphasize active learning and foster critical thinking.

In this context, integrating insights from management psychology into educational pedagogy offers a unique approach to enhancing both student engagement and institutional effectiveness. Management psychology, which examines human behavior within organizational settings, provides a framework for understanding and addressing the motivations, emotions, and interactions that drive successful learning and leadership. Key



concepts like emotional intelligence, transformational leadership, and motivational theory have become crucial for understanding how to lead teams, foster collaboration, and drive meaningful change. Applying these principles in an educational setting can therefore provide educators and administrators with tools to better meet the needs of diverse student populations, enhance learning outcomes, and promote a culture of continuous improvement.

This article explores the potential of integrating management psychology into higher education pedagogy, focusing on how this intersection can foster more supportive, effective, and responsive learning environments. It also examines the results of a recent survey conducted among faculty, administrators, and students, providing insights into current practices and stakeholder perspectives on the value of this integration. Ultimately, this research aims to highlight actionable strategies for educators and institutional leaders to cultivate a more holistic approach to teaching and learning, one that prepares students not only for academic success but for the complexities and challenges of the modern workforce.

**Literature Review:** The landscape of higher education pedagogy has undergone significant shifts over the past few decades, evolving from teacher-centered, lecture-based instruction to more student-centered, experiential, and interactive learning approaches. Traditional pedagogical models, which focused largely on content delivery, have gradually been replaced by methods that emphasize active learning, critical thinking, and student engagement. Research by Biggs and Tang (2011) highlights that approaches such as problem-based learning, collaborative projects, and experiential learning can significantly improve students' motivation, engagement, and long-term retention of knowledge. Additionally, Brookfield (2015) emphasizes the need for adaptive teaching strategies that respond to diverse learning styles, acknowledging that inclusive and flexible approaches can make educational experiences more accessible and meaningful for all students.

Central to this evolution is the role of management psychology, which offers insights into effective organizational leadership and human behavior within structured settings. Psychological principles, especially those related to leadership, motivation, and emotional intelligence, have been widely adopted across organizational contexts to improve engagement, communication, and team dynamics (Northouse, 2018). In recent years, these principles have found their way into educational settings, where they have been adapted to inform teaching and administration practices. The integration of management psychology with pedagogy suggests that institutions can enhance not only student outcomes but also overall institutional effectiveness by fostering environments where both students and educators feel supported and motivated.

### **Key Psychological Theories in Education**

Several psychological theories from management psychology provide valuable frameworks for understanding how to support students' cognitive and emotional needs. Transformational Leadership Theory (Bass & Riggio, 2006) emphasizes the role of leaders in inspiring, motivating, and empowering their teams—a concept that can be applied to

educators in the classroom. Transformational educators foster a sense of purpose, encourage intellectual stimulation, and attend to individual student needs, creating a supportive learning environment that can positively impact student engagement and performance.

Emotional Intelligence (EI) is another essential concept with applications in education. Goleman (1995) defines emotional intelligence as the ability to recognize and manage one's emotions and the emotions of others. High EI in educators has been associated with greater empathy, improved communication, and the ability to create psychologically safe spaces for learning. Studies indicate that educators who demonstrate strong emotional intelligence are better able to address students' social and emotional needs, thereby enhancing learning experiences and student well-being (Jennings & Greenberg, 2009).

Motivational Theories are also highly relevant. Maslow's Hierarchy of Needs (Maslow, 1943) and Self-Determination Theory (SDT) by Deci and Ryan (2000) provide a foundation for understanding what drives individuals to learn and grow. In educational settings, Maslow's theory suggests that students' basic psychological needs—such as safety, belonging, and esteem—must be met for them to fully engage in learning. Meanwhile, SDT posits that autonomy, competence, and relatedness are fundamental for intrinsic motivation, a critical factor for student success. Educators can apply these theories by designing curricula and learning experiences that fulfill these motivational needs, ultimately leading to more engaged and self-directed learners.

### **The Role of Collaborative Learning and Communities of Practice**

Another concept relevant to both pedagogy and management psychology is the creation of collaborative learning environments. Senge's work on learning organizations (Senge, 2006) advocates for the development of communities of practice—groups where individuals can share knowledge, skills, and experiences. In higher education, collaborative learning techniques, such as group projects and peer-to-peer discussions, mirror effective management practices by encouraging teamwork and shared responsibility. Collaborative environments enable students to learn from each other and develop critical interpersonal skills essential for the workplace.

In summary, the intersection of management psychology and higher education pedagogy is both theoretically grounded and practically significant. By integrating principles from transformational leadership, emotional intelligence, motivational theory, and collaborative learning, educators and administrators can develop approaches that support the cognitive, emotional, and social needs of students. This review underscores the potential of these interdisciplinary approaches to foster a learning environment that is responsive, inclusive, and conducive to both personal and academic growth.

### **The Intersection of Pedagogy and Management Psychology**

Integrating principles from management psychology into higher education pedagogy can create a holistic approach to student development and institutional improvement.

Emotional intelligence, a critical component of effective leadership, helps educators and administrators better understand and address the needs of students and faculty alike (Goleman, 1995). Leaders with high emotional intelligence can respond to the emotional and cognitive challenges faced by students, which has been linked to greater student retention and academic success.

In addition to emotional intelligence, motivation theories like Maslow's Hierarchy of Needs and Self-Determination Theory (Deci & Ryan, 2000) provide valuable frameworks for understanding student engagement. According to Self-Determination Theory, students are motivated when their psychological needs for autonomy, competence, and relatedness are met. Applying these theories in educational settings can help educators design curricula that not only engage students intellectually but also support their personal growth and motivation.

### **Survey Insights**

The survey data includes responses from 37 participants in various roles within educational institutions, assessing familiarity and perspectives on integrating educational pedagogy and management psychology principles. Key insights can be summarized as follows:

*Familiarity and Beliefs:* Most respondents are familiar with educational pedagogy and management psychology. The majority believe that integrating management psychology principles can enhance student learning, with high importance placed on emotional intelligence for effective teaching and leadership.

*Active Learning and Feedback:* Many respondents report frequent use of active learning techniques (e.g., group projects) and feedback practices. This indicates a strong engagement in interactive and reflective teaching methods, though some vary in consistency.

*Impact on Student Engagement:* Integrating management psychology is widely viewed as having improved student engagement, with several noting significant improvements, while others report moderate to no changes.

*Effectiveness in Leadership:* While many educators feel their effectiveness has been positively influenced, some report limited or no change, highlighting the variability in outcomes depending on individual practices or challenges faced.

*Challenges:* Common barriers include time constraints, resistance from colleagues, and limited resources. These challenges indicate potential areas for institutional support.

*Support Needs:* To better integrate management psychology principles, respondents most frequently request professional development workshops, access to resources, mentorship, and collaborative opportunities with colleagues.

In conclusion, while there is enthusiasm and perceived benefit in integrating management psychology with pedagogy, practical challenges and resource limitations impact implementation. Expanded support in professional development, resources, and collaborative opportunities could foster more consistent application across institutions.

These insights align with existing literature, which emphasizes that teamwork and collaboration are not only beneficial for students but also foster a culture of shared learning and responsibility (Senge, 2006).

### **Best Practices for Educators and Administrators**

To effectively integrate management psychology into higher education, several best practices can be adopted:

**1. Professional Development Programs:** Institutions should invest in ongoing professional development for faculty focused on leadership and psychological principles. Workshops on emotional intelligence, conflict resolution, and team dynamics can equip educators with tools to create supportive and adaptive learning environments.

**2. Mentorship Programs:** Establishing mentorship initiatives allows faculty to guide students in setting academic and career goals, providing psychological support and motivation. Mentorship has been shown to improve both academic performance and retention rates.

**3. Collaborative Learning Environments:** Educators should foster collaborative learning through group projects and peer-to-peer interactions. Such environments reflect management principles, as they encourage teamwork and shared responsibility.

**4. Feedback and Reflection:** Creating a culture of continuous feedback and reflection is essential. Regular reflective practices allow both students and faculty to assess their learning experiences and make necessary adjustments, promoting growth and resilience.

**5. Leveraging Technology:** Digital tools like virtual collaboration platforms and learning management systems (LMS) can support collaborative projects and bridge geographical gaps, enhancing both cognitive and emotional engagement in learning.

### **Challenges and Considerations**

Integrating management psychology into higher education pedagogy presents numerous benefits, but it is not without challenges. Common obstacles include institutional resistance, resource constraints, and variability in faculty buy-in. According to survey findings, 47% of respondents identified a lack of training and 35% cited time constraints as primary barriers to effective integration.

Institutional support and collaboration are essential for overcoming these challenges (Fullan, 2011). By fostering a culture of shared leadership and continuous improvement, educational institutions can encourage faculty to adopt innovative practices. Establishing communities of practice for faculty can further support this shift, allowing educators to share strategies, successes, and challenges.

### **Conclusion**

Integrating educational pedagogy with management psychology offers a promising opportunity to enhance leadership and learning in higher education. Through this integration, educators can create learning environments that not only foster academic success but also support students' psychological well-being. Survey findings reflect a strong interest among

stakeholders in adopting these practices, with emotional intelligence and collaborative learning as key priorities. As the landscape of higher education continues to evolve, this integration will be vital for preparing students for the complexities of the modern world and for fostering adaptable, resilient learners.

### References:

1. Bass, B. M., & Riggio, R. E. (2006). *Transformational Leadership*. Psychology Press.
2. Biggs, J., & Tang, C. (2011). *Teaching for Quality Learning at University*. McGraw-Hill Education.
3. Brookfield, S. D. (2015). *The Skillful Teacher: On Technique, Trust, and Responsiveness in the Classroom*. Jossey-Bass.
4. Deci, E. L., & Ryan, R. M. (2000). The "What" and "Why" of Goal Pursuits: Human Needs and the Self-Determination of Behavior. *Psychological Inquiry*, 11(4), 227-268.
5. Fullan, M. (2011). *Change Leader: Learning to Do What Matters Most*. Jossey-Bass.
6. Goleman, D. (1995). *Emotional Intelligence*. Bantam.
7. Gardner, H. (1983). *Frames of Mind: The Theory of Multiple Intelligences*. Basic Books.
8. Jennings, P. A., & Greenberg, M. T. (2009). The Prosocial Classroom: Teacher Social and Emotional Competence in Relation to Student and Classroom Outcomes. *Review of Educational Research*, 79(1), 491-525.
9. Johnson, L., et al. (2015). *NMC Horizon Report: 2015 Higher Education Edition*. The New Media Consortium.
10. Maslow, A. H. (1943). A Theory of Human Motivation. *Psychological Review*, 50(4), 370–396.
11. Northouse, P. G. (2018). *Leadership: Theory and Practice*. SAGE Publications.
12. Senge, P. M. (2006). *The Fifth Discipline: The Art & Practice of The Learning Organization*. Crown Publishing Group.

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## PSYCHOLOGICAL AND PEDAGOGICAL ASPECTS OF THE IMPACT OF SMALL GROUP WORK ON LEARNING AND PERSONAL DEVELOPMENT OF STUDENTS

**Abstract:** This study explores the psychological and pedagogical aspects of small group work and its impact on the learning and personal development of students at Astana IT University. Emphasizing active teaching methods, the research investigates how collaborative learning environments enhance academic performance, communication skills, and critical thinking abilities. The study reveals a strong positive correlation between small group work and improved learning outcomes. Key findings indicate that collaborative problem-solving activities significantly enhance students' understanding of complex concepts and foster essential professional skills. Additionally, the study highlights challenges such as time management, varying commitment levels, and the need for structured approaches to group dynamics. The results underscore the importance of inclusive and supportive learning environments that cater to diverse student needs while maximizing the benefits of small group work. The findings contribute valuable insights for educators to enhance group learning experiences, ultimately promoting students' academic success and personal growth.

**Keywords:** Collaborative learning, communication skills, student, educational systems, group work

**Introduction.** Modern educational practices are increasingly focusing on active teaching methods aimed at developing cooperation and interaction between students. One of the most effective approaches used in educational institutions is working in small groups. Research shows that group work contributes not only to improving the level of academic

knowledge, but also to the development of important social and personal skills, such as the ability to interact, adapt to different situations, effectively resolve conflicts and make decisions.

The psychological and pedagogical aspects of group work have a significant impact on the learning and personal development of students. In the process of interaction within small groups, students develop communication skills, improve their ability to think critically and analyze, and increase their motivation to learn. In addition, group activities contribute to the formation of self-confidence and the development of leadership skills, which further has a positive effect on the academic and professional activities of students.

However, working in small groups also involves certain challenges. Uneven distribution of responsibilities, lack of communication skills among individual participants and the emergence of conflicts within the group can become obstacles to effective learning. In this regard, it is important to take into account the psychological and pedagogical aspects of organizing work in small groups in order to ensure optimal conditions for successful learning and personal growth of students.

The purpose of this study is to evaluate the effectiveness of work in small groups using the example of students of Astana IT University. As part of the study, a survey was conducted to determine the impact of group work on the educational process and personal development of students. The results obtained will help to understand exactly how group work contributes to the formation of key skills and what can be improved to increase the effectiveness of this training method.

**Literature review.** Small group work occupies an important place in modern educational systems and is increasingly used as a method for developing not only academic but also personal skills of students. This teaching methodology involves students performing tasks as part of a small group, which allows them to actively interact with each other, share experiences, opinions and solutions. Research shows that group work in an educational environment promotes the development of such qualities as sociability, empathy, self-confidence and the ability to cooperate, which are essential for students' personal growth and social adaptation. In addition, group work contributes to a deeper understanding of the material being studied, which makes the learning process more meaningful and motivated.

The purpose of this literature review is to identify and analyze the psychological and pedagogical aspects that influence the educational and personal outcomes of students' work in small groups. While considering the impact of group work on academic performance, we will also focus on how group activities contribute to the development of personal qualities such as self-confidence, social skills and self-regulation skills. Importantly, the development of these qualities is particularly significant in today's educational environment, where the ability to work in teams and interact effectively with others is becoming a key skill for successful employment and careers.

To understand the impact of small group work on students' learning and personal development, an extensive research was conducted, including analyzing scientific articles and conducting a survey among students of Astana IT University.

### **Scientific articles**

Effective small group learning occupies a significant place among modern educational approaches that focus on active student engagement. According to Barkley et al. (2014), group work allows students to deepen their understanding of the material through joint interaction and exchange of ideas. This approach promotes critical thinking, communication, and collaboration skills, which is especially important in an academic environment[1].

According to a study by O'Donnell and colleagues (2006), small group work promotes higher levels of student engagement and ownership of the learning process, leading to better learning outcomes[2]. One of the key benefits of small group work is psychological support and reduced anxiety levels in students, which has a positive impact on their academic performance. According to Brown's (2018) research, participating in small groups helps students feel more confident by receiving peer support and positive feedback. This in turn builds their confidence and develops psychological resilience, which is important for academic success and personal growth[3].

In addition, a study by Gaus and colleagues (2017) highlights that group work improves critical thinking skills and self-efficacy as students get the opportunity to analyze and evaluate each other's ideas in a safe and supportive environment[4]. In this study, we analyze the impact of small group work on students' learning process and personal development. Our attention is focused on the methods of organizing group work, which are aimed at maximizing the interaction and effectiveness of the learning process.

The development of modern educational technologies and methodologies has expanded the opportunities for introducing small groups into the educational environment. Studies show that this format of learning not only improves academic results, but also contributes to the personal growth of students, developing their skills of co-operation, critical thinking and emotional stability[5].

### **The impact of small groups on personal development**

Additional research confirms that small group work not only improves academic performance, but also has a significant impact on students' personal development. In a study conducted by Tapp and Lanzone (2016), it was shown that students who actively participate in group learning develop high self-regulation skills, which in turn has a positive impact on their ability to learn independently [6]. This emphasizes the importance of group work as a method to help students develop the skills necessary for successful learning in the future.

It is also worth noting that group work develops students' interpersonal skills, which are important for their future professional activities. According to a study by Long and colleagues (2018), effective interaction in a group helps students better understand and



perceive different points of view, which contributes to the formation of a more open and tolerant mindset [7].

A study conducted by the American Psychological Association (2006) emphasizes that group work also improves creativity and innovative thinking, as students' different perspectives and approaches to problem solving create a more dynamic and fruitful learning environment [8]. These findings support the importance of small group work as a way not only to improve academic performance, but also to build personal qualities that contribute to students' successful social adaptation and career development.

In addition, according to the McKinsey report, diversity in groups not only improves performance, but also contributes to a more inclusive and equitable educational environment, which is an important aspect in modern learning [9].

### **Methodology**

This study used a mixed-methods approach to investigate the psychological and pedagogical impact of small group work on students' learning and personal development at Astana IT University. The methodology comprised both qualitative and quantitative elements to provide a comprehensive understanding of student experiences and outcomes related to collaborative learning.

### **Participants**

A total of 45 students, representing various academic levels and age groups, participated in the study. Most respondents were master's level students aged between 20-23, though the sample included both undergraduate and PhD students, allowing for a diverse range of perspectives on the effectiveness of small group work in higher education settings.

### **Data Collection**

The study collected data through a structured survey designed to capture students' experiences and perceptions of small group work. The survey addressed multiple dimensions of group learning, including:

- **Academic Benefits:** Questions about how helpful small group work was for understanding course materials and how it affected overall academic performance.
- **Skill Development:** Participants rated the extent to which group work influenced their critical thinking, problem-solving, communication, and teamwork skills.
- **Personal Growth:** Questions examined the impact of group work on personal attributes, such as leadership abilities, confidence in expressing ideas, and comfort working with diverse perspectives.
- **Group Dynamics:** Participants reported on their sense of inclusion and the ease of collaboration, and they identified challenges like time management, workload balance, and handling differing viewpoints.

The survey combined closed-ended questions, for quantitative insights, with open-ended questions to capture detailed personal experiences and reflections. This dual approach enabled the study to gather both statistical data on the prevalence of certain experiences and

in-depth qualitative responses that highlighted specific advantages and challenges in collaborative learning.

### Data Analysis

Quantitative data from the closed-ended questions were analyzed using descriptive statistics to identify trends and patterns in student responses. Responses were categorized by degree level, age, and other demographic variables to observe variations in experiences. For qualitative data, thematic analysis was conducted to identify recurring themes, such as collaborative problem-solving, the role of peer feedback, and the influence of group dynamics on personal and academic development. This approach allowed for a nuanced interpretation of student experiences and the multifaceted impact of small group work.

This mixed-methods methodology ensured a robust examination of the factors influencing the effectiveness of small group work and offered insights into potential improvements for structuring group activities to maximize educational and personal development benefits.

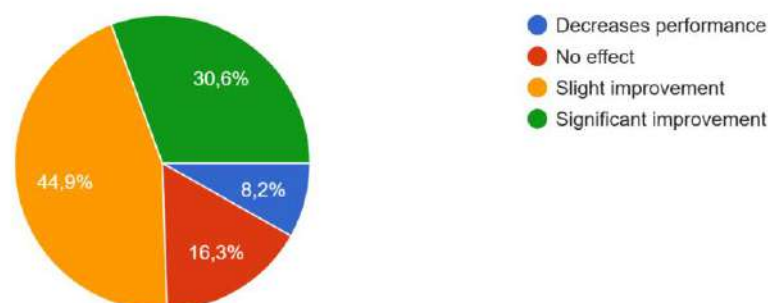
### Results

Small group work has emerged as a fundamental pedagogical approach in higher education, significantly influencing both academic performance and professional skill development. This study examines the multifaceted impact of collaborative learning through an empirical analysis of survey data collected from students across various academic levels, revealing important insights into the effectiveness and challenges of small group work in educational settings.

The research findings demonstrate a strong positive correlation between small group work and academic improvement, with over three-quarters of respondents reporting enhanced learning outcomes. Particularly noteworthy is the significant role of collaborative problem-solving, which emerged as the primary contributor to learning effectiveness. Students consistently identified the opportunity to engage in joint problem-solving activities as instrumental in deepening their understanding of complex concepts and developing critical thinking skills.

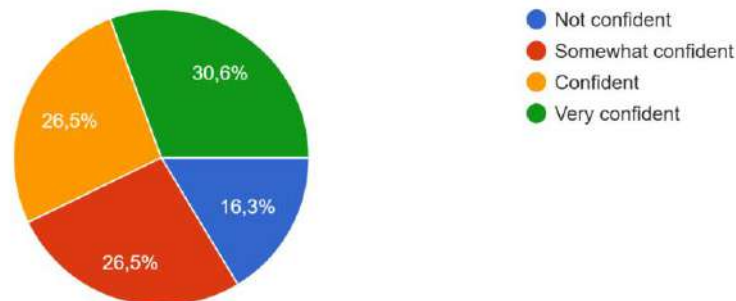
How does small group work influence your overall academic performance?

49 ОТВЕТОВ



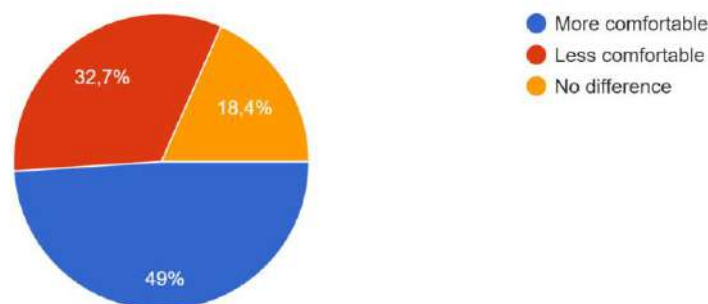
The impact of small group work extends beyond purely academic achievements, significantly influencing the development of essential professional skills. Communication capabilities, in particular, showed marked improvement, with nearly two-thirds of participants reporting enhanced communication competencies. This development appears to be closely linked to the regular engagement in group discussions and the necessity to articulate ideas clearly to peers. The confidence levels in group settings also demonstrated a positive trend, with a majority of students reporting increased comfort in expressing their ideas and engaging in academic discourse.

How confident do you feel expressing your ideas in small group discussions?  
49 ответов



Group dynamics and inclusivity emerged as critical factors in the effectiveness of collaborative learning. The study revealed that while most students felt included in group discussions, there exists a notable variation in comfort levels compared to individual work. This finding underscores the importance of creating balanced learning environments that accommodate different learning preferences while maintaining the benefits of collaborative engagement.

How comfortable are you in a small group setting compared to working individually?  
49 ответов

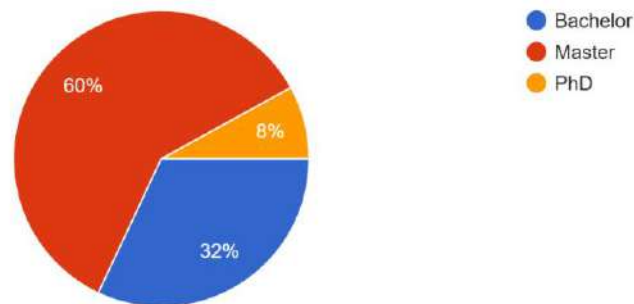


The research identified several key challenges in implementing effective group work. Time management and scheduling conflicts consistently emerged as significant obstacles, particularly among graduate students juggling multiple responsibilities. The variation in work

styles and commitment levels among group members also presented notable challenges, often requiring additional effort in coordination and task distribution. These challenges, however, often served as opportunities for developing crucial professional skills in project management and interpersonal communication.

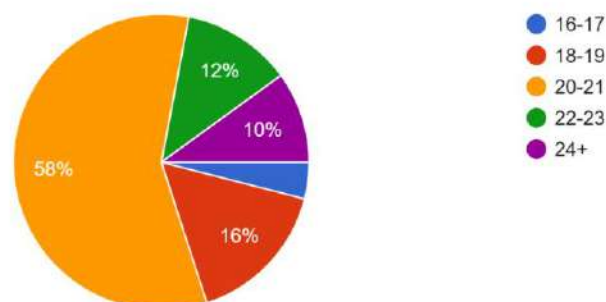
Educational level emerged as a significant factor in how students engage with and benefit from group work. Master's level students, comprising the majority of respondents, demonstrated a particularly strong appreciation for collaborative learning's professional development aspects. These students showed greater engagement with peer feedback and exhibited more sophisticated approaches to managing diverse perspectives. In contrast, undergraduate students displayed a stronger preference for structured group activities and required more support in developing effective group work strategies.

What is your degree?  
50 ответов



Age-related patterns revealed interesting insights into the effectiveness of group work. The predominant age group of 20-21 years showed the highest reported improvements in skill development and critical thinking. Older students, particularly those above 24 years, demonstrated a more pragmatic approach to group work, emphasizing its practical applications and professional skill development aspects.

What is your age?  
50 ответов



The study's findings have significant implications for educational practice. They suggest the need for more structured approaches to group work implementation, including clear role assignments and regular progress monitoring. The development of comprehensive support systems, including guidelines for effective group interaction and conflict resolution mechanisms, appears crucial for maximizing the benefits of collaborative learning.

Environmental factors, including institutional support and cultural considerations, play a vital role in the success of group work initiatives. The availability of appropriate resources, technology tools, and collaboration spaces significantly influences the effectiveness of group activities. Additionally, the study highlights the importance of faculty involvement in guiding group work and implementing appropriate assessment methods.

Looking toward the future, the research suggests several promising directions for further investigation. Longitudinal studies examining the long-term impact of group work on career success and professional development would provide valuable insights. Cross-institutional and international comparisons could further enhance our understanding of how different educational contexts influence the effectiveness of collaborative learning approaches.

This comprehensive analysis demonstrates that small group work, when properly implemented, serves as an effective pedagogical tool in higher education. The benefits extend beyond immediate academic performance to encompass crucial professional skill development and personal growth. However, the success of group work initiatives depends heavily on careful consideration of multiple factors, including student characteristics, institutional support, and implementation strategies.

### **Conclusion**

This research highlights the multifaceted benefits and challenges of small group work in higher education, contributing valuable insights into how collaborative learning shapes academic and personal development. The study finds that small group work fosters critical academic skills, such as problem-solving and analytical thinking, while also promoting essential interpersonal abilities like communication, confidence, and teamwork. These findings underscore the importance of collaborative learning in preparing students for future professional environments that increasingly prioritize soft skills and the ability to work effectively within teams.

Our analysis reveals that the effectiveness of small group work is nuanced, with significant differences observed across demographic factors like age and academic level. Undergraduate students benefit from structured group activities that guide them through collaborative processes, while graduate students show a preference for autonomy in group work, often thriving in less structured, peer-led environments. This suggests that tailoring group work strategies to the unique needs of various student populations can enhance engagement and educational outcomes.

The research also sheds light on the primary challenges of group work, particularly in terms of time management, coordination, and unequal participation. These challenges are often amplified in groups with diverse educational backgrounds or where institutional support is lacking. The findings underscore the importance of strong institutional support, such as providing clear guidelines, conflict resolution resources, and flexible schedules, to mitigate these challenges and create an environment where all students can benefit from collaborative learning.

In conclusion, small group work is a powerful pedagogical tool in higher education, with the potential to enhance both academic and personal development. By recognizing and addressing the varied needs of different student groups, educators and institutions can create more inclusive, supportive, and effective collaborative learning experiences. Future research should explore additional demographic factors, such as cultural background and field of study, to further refine strategies for optimizing group work in diverse educational contexts.

### References:

- [1] Barkley, E. F., Major, C. H., & Cross, K. P. (2014). Collaborative learning techniques: A handbook for college faculty. John Wiley & Sons.
- [2] O'Donnell, A. M., & King, A. (2006). Cognitive Perspectives on Peer Learning. In *Peer Learning in Higher Education: Learning from and with Each Other* (pp. 61-79). Routledge.
- [3] Brown, L. (2018). The impact of peer support on student anxiety in group settings. *Journal of Educational Psychology*, 110(4), 560-570.
- [4] Gaus, M. & Koller, R. (2017). Peer Learning and the Development of Critical Thinking Skills. *Journal of Educational Research*, 110(3), 213-220.
- [5] Hattie, J., & Timperley, H. (2007). The Power of Feedback. *Review of Educational Research*, 77(1), 81-112.
- [6] Tapp, S., & Lanzone, R. (2016). The Role of Peer Interaction in Self-Regulated Learning. *Educational Psychology Review*, 28(2), 205-218.
- [7] Long, T., & Colvin, J. (2018). Building Community in Online Learning through Peer Interaction. *International Journal of Educational Technology in Higher Education*, 15(1), 1-15.
- [8] American Psychological Association. (2006). Group Processes and Outcomes. Press Release. Retrieved from <https://www.apa.org/news/press/releases/2006/04/group>
- [9] McKinsey & Company. (2015). Why Diversity Matters. Retrieved from <https://www.mckinsey.com/~media/mckinsey/business%20functions/organization/our%20insights/why%20diversity%20matters/diversity%20matters.ashx>

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## **AI IN ACADEMIC WRITING: CASE OF GRADUATE STUDENTS IN KAZAKHSTAN**

**Abstract:** This study explores the impact of AI-powered writing tools on academic publishing among graduate students in Kazakhstan, focusing on differences between STEM and social science disciplines. Using a mixed-methods survey of 42 students, the research examines how AI tools are used for tasks such as content generation, grammar correction, and reference management. Findings reveal that while AI usage is widespread, STEM students rely more on AI for content generation, while social science students emphasize concerns about AI-generated text quality and ethics. The study highlights the influence of internal publication requirements on AI tool adoption and usage patterns.

**Key words:** AI tools, academic writing, academic publication, AI in education, graduate students in Kazakhstan.

**Introduction:** The popularization of large language models and increased accessibility of AI-powered tools have significantly impacted various fields, particularly academic writing and publishing [1]. These tools range from less generative applications like Grammarly to more advanced systems like ChatGPT. In academic contexts, AI usage encompasses a variety of tasks, including checking grammar, correcting punctuation errors, generating essay topics, creating outlines, and summarizing literature, as well as fully drafting academic articles [2].

The implications of AI-powered academic writing are complex and not yet fully understood or regulated. Potential benefits include reducing the time required for extensive literature reviews [2] and providing assistance in comprehension and writing for non-native English-speaking students. However, significant concerns remain, particularly ethical issues surrounding AI-generated text, and the potential negative effects on cognitive abilities and writing skills. Given these controversies and the rapid pace of AI development, ongoing discussion and research into these implications are crucial. While existing studies generally focus on student writing, specific attention to non-native English speakers, such as those in Kazakhstan, has been limited.

This study examines the impact of AI-powered writing tools on academic publishing from the perspective of graduate students in Kazakhstan. These students, having started their academic careers in a time when AI tools were still emerging, are experiencing a rapid shift in how writing is approached in academic contexts. Further, despite being non-native English

speakers, they are expected to publish multiple articles in English, often under strict internal requirements. This context raises important questions: 1) How do students use AI-powered tools in their writing? 2) How do internal publication requirements influence AI tool usage? I hypothesize that graduate students in Kazakhstan use AI-powered writing tools to varying extents, with the level of dependence on these tools influenced by the nature of their academic discipline and the internal publication requirements. It is expected that students in STEM fields use AI tools more for content generation and data analysis, while students in the social sciences are more likely to rely on them for non-generative tasks like grammar correction. Additionally, the pressure to meet publication quotas may drive students to use AI tools more frequently for tasks like literature reviews and drafting large sections of their work.

By focusing on this specific demographic, this study aims to explore how AI-powered writing tools are reshaping academic writing practices among graduate students in Kazakhstan, shedding light on the interplay between disciplinary needs, publication requirements, and the adoption of new technologies in higher education.

**Literature review:** The integration of AI-driven writing tools in higher education has garnered increasing attention, with a growing body of literature examining their impact on students' academic writing skills. Their integration is especially relevant through the lens of connectivist theory of pedagogy, which emphasizes the role of technology in teaching, learning and ultimately, writing. In this context, technologies act as nodes within a student's learning network, and AI tools, such as Grammarly and ChatGPT, are studied for their potential to assist students in composing essays, offering grammar and style suggestions, and facilitating content generation [3]. These tools are expected to be beneficial in providing feedback and helping students improve their self-efficacy.

In particular, several studies highlight the positive impact of AI tools on students' writing performance. Miranty and Widiati [4] and Almusharraf and Alotaibi [5] focus on the use of Grammarly as a grammar and style checker in undergraduate education. Their findings reveal that students who used Grammarly demonstrated significant improvements in grammar accuracy and overall writing quality. A key strength of these studies is the clear evidence of improvement in lower-level writing skills, though they acknowledge limitations of this improvement, such as the inability of Grammarly to engage with deeper level content and analysis. Similarly, Farrokhnia et al. [6] and Rospigliosi [7] explore the use of AI-based language models to assist graduate students in generating research proposals. While AI-generated content was useful in providing initial ideas and structuring proposals, students were still required to refine and expand on the material. It indicates that the role of AI in academic writing can be supportive, but it still is limited.

In addition to content generation, AI tools are used for automated grading and feedback. Stahl et al. [8] investigated the performance of AI-based Automated Essay Evaluation systems in assessing undergraduate essays. The study found a strong correlation



between AI and human grading, supporting the reliability of AI systems for assessment purposes. This suggests that AI-driven grading tools can complement human assessment by providing consistent and timely feedback. Further, researchers explore the impact of AI-powered peer review systems in higher education. For instance, Li [9] used an AI-driven peer review system in a college writing course for evaluating essay drafts. The findings showed that students valued the quick feedback from the AI, which allowed them to improve their drafts before final submission. AI tools have also been used to support academic writing in research settings. Lameris and Arnab [10] studied the use of Zotero, an AI-based reference management tool, among postgraduate students. Their study revealed that Zotero significantly improved the organization of references and citations, simplifying the students' research process.

Despite these benefits, concerns remain about the transparency and ethics of AI-generated or AI-assisted writing. Theodosiou and Read [11] proposed methods to enhance the comprehensibility of AI outputs, reflecting the challenges in ensuring that students fully understand how to engage with AI-generated content. Ethical considerations persist, with Chaudhry et al. [12] and Holmes et al. [13] emphasizing the need for clear guidelines on the use of AI tools in academic settings to avoid plagiarism and maintain academic integrity. They highlight the importance of educating students on the limitations of AI and promoting responsible use. Chan [14] suggests students must also develop critical thinking skills to assess the quality and reliability of AI-generated content, ensuring they do not become overly dependent on these automated tools. It is essential to provide appropriate training and education to enable the effective and responsible use of AI technology [15].

Furthermore, individual student characteristics such as gender and epistemic beliefs influence students' attitudes toward AI tools. Latifi et al. [16] argue that gender plays a significant role in shaping students' engagement with AI, calling for gender-sensitive AI tools. Noorzi et al. [17] further demonstrate that students with advanced epistemic beliefs and higher-order skills are more likely to perceive AI tools positively and use them productively. This highlights the need for a nuanced approach to understanding AI in the context of academic writing.

**Methodology:** This study employs a mixed (quantitative and qualitative) research design utilizing a web survey to examine the impact of AI-powered writing tools on academic publishing practices among graduate students in Kazakhstan.

The study surveyed 42 graduate students, split evenly between two universities, with 21 students from Astana IT University and 21 from Nazarbayev University. The Astana IT University participants represent the STEM field and are subject to strict internal publication quotas, while the Nazarbayev University participants represent the social sciences and are not subject to such quotas. This demographic segmentation controls for two key variables: academic discipline (STEM vs. social sciences), internal publication requirements (mandatory vs. voluntary). By comparing these groups, the study aims to explore the

differential use of AI tools in academic writing across both disciplines and publication contexts.

Participants were aged between 20 and 25 years old, and all were non-native English speakers, reflecting the target population of graduate students in Kazakhstan. Gender distribution was also balanced, with 21 male and 21 female participants. This diversity ensures a comprehensive understanding of AI tool usage across both gender and academic disciplines.

The data was collected through a structured, self-administered online survey, which included both closed and open-ended questions. The survey was designed to measure the frequency, purpose, and types of AI tools used by students in academic writing. It also aimed to assess how internal publication requirements influence AI tool usage and the perceived benefits and challenges of using such tools. To ensure the validity and reliability of the survey instrument, questions were adapted from existing studies on AI in academic writing and peer-reviewed articles on digital tools in education [2]. The reliability of the survey was pre-tested with a small sample of students prior to full deployment, ensuring clarity and the effectiveness of the questions in capturing the intended data.

Astana IT University and Nazarbayev University were chosen as research sites due to their prominence in Kazakhstan's higher education landscape, particularly in STEM and social science disciplines. Both universities are known for their rigorous academic standards, and the graduate student population is expected to write in English, including under strict internal publication quotas at Astana IT University. This context is critical to understanding the pressures influencing the use of AI tools in academic writing.

Ethical standards were followed throughout the research process. Informed consent was obtained from all participants, ensuring that they understood the purpose of the study and their right to confidentiality. Participants were assured that their responses would remain anonymous and used solely for academic purposes.

**Results & Discussion:** The survey revealed key patterns in the use of AI-powered writing tools for academic purposes. Notably, 92% of participants reported using AI at least once a week for academic tasks, with no significant difference between the two academic disciplines. However, there were notable differences in how STEM and social science students utilized AI tools, particularly regarding content generation and ethical concerns.

Both STEM and social science students used AI tools regularly, but STEM students were twice as likely to rely on AI for content generation, such as drafting essays or papers. When asked why, many STEM students cited AI as an "easy way out" and admitted to a lack of confidence in their ability to write well in English. This aligns with the trend observed in other studies, where students in technical disciplines often turn to AI tools for efficiency and support in writing complex academic texts.

In contrast, social science students expressed reservations about AI-generated content, noting that it often sounds "fake", "too polished", and "non-human". This critique

highlights their perception of AI-generated text as lacking the nuanced, human quality expected in academic writing. Social science students were also significantly more concerned with the ethics of using AI in academic contexts, raising questions about the potential for plagiarism and the authenticity of AI-generated work. On the other hand, STEM students did not show much concern about the ethical implications of using AI tools, focusing more on the practical benefits. Both groups, however, reported similar preferences for using AI tools to check grammar, improve cohesion, and assist with reference lists. These findings suggest that while the purpose of AI tools may differ across disciplines, their core functions such as grammar checking, and citation management are widely valued.

The role of internal publication requirements was a key factor influencing AI tool usage. Students at Astana IT University, where there are mandatory publication requirements, were significantly more likely to use AI tools for generating academic content. In one extreme case, a student reported using ChatGPT to write an entire term paper, which was then submitted and published by a Russian publisher. This highlights how internal pressures to meet publication quotas can drive students to rely heavily on AI for content creation. Conversely, students with no mandatory publication requirements, reported less frequent use of AI for academic writing. However, some students noted that the pressure to complete course or term papers on time sometimes led them to use AI to save time, suggesting that while publication quotas may exacerbate AI usage, academic workload pressures can also be a contributing factor.

These findings indicate that AI-powered writing tools are widely used among graduate students in Kazakhstan, with no major difference in frequency between STEM and social science students. However, the types of tasks students use AI for, and their attitudes towards AI, vary significantly by discipline. STEM students appear to embrace AI tools more for content generation, driven by practical concerns such as efficiency and language barriers. Meanwhile, social science students are more critical of AI-generated content, particularly regarding its perceived lack of human quality and ethical concerns about plagiarism.

The difference in AI tool usage between students with and without mandatory publication quotas further underscores the impact of institutional requirements on technology adoption. Students facing strict publication expectations are more likely to turn to AI for help with content generation, often to meet tight deadlines and publication demands. On the other hand, students without such pressures use AI more selectively, primarily for tasks such as grammar checking and reference management.

But it should be acknowledged that this study's small sample size of 42 students from only two universities limits the generalizability of the findings. In future, a more elaborate study could capture a greater range of students of different academic degrees, take into consideration language factor, control for different publication requirements within a single discipline and control for other demographic factors such as students' gender, native language, and current academic degree.

**Conclusion:** This study sheds light on how AI-powered writing tools are reshaping academic writing practices among graduate students in Kazakhstan. The findings highlight significant disciplinary differences in AI usage, with STEM students utilizing AI primarily for content generation, while social science students show a more cautious approach, focusing on ethical concerns and the quality of AI-generated content. The role of internal publication quotas was found to be a key driver of AI tool usage, with students facing strict publication requirements more likely to use AI for content creation. These insights underscore the need for further research on the long-term effects of AI on writing skills, particularly in non-native English-speaking contexts. Future studies should explore a larger, more diverse student sample to provide a broader understanding of AI's role in academic writing across different disciplines and regions.

### Reference list:

[1] Golan, R., Reddy, R., Muthigi, A., & Ramasamy, R. (2023). Artificial intelligence in academic writing: A paradigm-shifting technological advance. *Nature Reviews Urology*, 20(6), 327–328. <https://doi.org/10.1038/s41585-023-00746-x>

[2] A. R. Malik, Y. Pratiwi, K. Andajani, I. W. Numertayasa, S. Suharti, A. Darwis, and M. Marzuki, "Exploring Artificial Intelligence in Academic Essay: Higher Education Student's Perspective," *Int. J. Educ. Res. Open*, vol. 5, p. 100296, 2023, doi: 10.1016/j.ijedro.2023.100296.

[3] J. M. Gayed, M. K. J. Carlon, A. M. Oriola, and J. S. Cross, "Exploring an AI-based writing assistant's impact on English language learners," *Computers and Education: Artificial Intelligence*, vol. 3, Art. no. 100055, 2022, doi: 10.1016/j.caeai.2022.100055.

[4] D. Miranty and U. Widiati, "An automated writing evaluation (AWE) in higher education," *Pegem Journal of Education and Instruction*, vol. 11, no. 4, pp. 126-137, 2021, doi: 10.47750/pegegog.11.04.12

[5] N. Almusharraf and H. Alotaibi, "An error-analysis study from an EFL writing context: Human and automated essay scoring approaches," *Technology, Knowledge and Learning*, vol. 28, no. 3, pp. 1015–1031, 2023, doi: 10.1007/s10758-022-09592-z.

[6] M. Farrokhnia, S. K. Banihashem, O. Noroozi, and A. Wals, "A SWOT analysis of ChatGPT: Implications for educational practice and research," *Innovations in Education and Teaching International*, pp. 1-15, 2023, doi: 10.1080/14703297.2023.2195846.

[7] P.asher.' Rospigliosi, "Artificial intelligence in teaching and learning: What questions should we ask of ChatGPT?" *Interactive Learning Environments*, vol. 31, no. 1, pp. 1–3, 2023, doi: 10.1080/10494820.2023.2180191.

[8] B. C. Stahl, J. Antoniou, N. Bhalla, L. Brooks, P. Jansen, B. Lindqvist, A. Kirichenko, S. Marchal, R. Rodrigues, N. Santiago, Z. Warso, and D. Wright, "A systematic review of artificial intelligence impact assessments," *Artificial Intelligence Review*, 2023, doi: 10.1007/s10462-023-10420-8.

[9] A. W. Li, "Using Peerceptiv to support AI-based online writing assessment across the disciplines," *Assessing Writing*, vol. 57, Art. no. 100746, 2023. [Online]. Available: <https://doi.org/10.1016/j.asw.2023.100746>

[10] P. Lamerias and S. Arnab, "Power to the teachers: An exploratory review on artificial intelligence in education," *Information*, vol. 13, no. 1, 2022. [Online]. Available: <https://doi.org/10.3390/info13010014>

[11] A. A. Theodosiou and R. C. Read, "Artificial intelligence, machine learning and deep learning: Potential resources for the infection clinician," *Journal of Infection*, 2023, doi: 10.1016/j.jinf.2023.07.006.

[12] I. S. Chaudhry, S. A. M. Sarwary, G. A. El Refae, and H. Chabchoub, "Time to revisit existing student's performance evaluation approach in higher education sector in a new era of ChatGPT — A case study," *Cogent Education*, vol. 10, no. 1, Art. no. 2210461, 2023, doi: 10.1080/2331186X.2023.2210461.

[13] W. Holmes, K. Porayska-Pomsta, K. Holstein, E. Sutherland, T. Baker, S. B. Shum, O. C. Santos, M. T. Rodrigo, M. Cukurova, I. I. Bittencourt, and K. R. Koedinger, "Ethics of AI in education: Towards a community-wide framework," *International Journal of Artificial Intelligence in Education*, vol. 32, no. 3, pp. 504–526, 2022, doi: 10.1007/s40593-021-00239-1.

[14] C. K. Y. Chan, "A comprehensive AI policy education framework for university teaching and learning," *International Journal of Educational Technology in Higher Education*, vol. 20, no. 1, Art. no. 38, 2023. [Online]. Available: <https://doi.org/10.1186/s41239-023-00408-3>

[15] A. Tlili, B. Shehata, M. A. Adarkwah, A. Bozkurt, D. T. Hickey, R. Huang, and B. Agyemang, "What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education," *Smart Learning Environments*, vol. 10, no. 1, Art. no. 15, 2023. [Online]. Available: <https://doi.org/10.1186/s40561-023-00237-x>

[16] S. Latifi, O. Noroozi, and E. Talaei, "Worked example or scripting? Fostering students' online argumentative peer feedback, essay writing and learning," *Interactive Learning Environments*, vol. 31, no. 2, pp. 655–669, 2023, doi: 10.1080/10494820.2020.1799032.

[17] O. Noroozi, "The role of students' epistemic beliefs for their argumentation performance in higher education," *Innovations in Education and Teaching International*, pp. 1–12, 2022, doi: 10.1080/14703297.2022.2092188.

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## **RISKS OF LOSING CRITICAL THINKING SKILLS WITH CONSTANT USE OF AI: HOW DOES THIS AFFECT STUDENTS' ABILITY TO SOLVE PROBLEMS INDEPENDENTLY?**

**Abstract:** This article examines the impact of the frequent use of artificial intelligence (AI) on the development and preservation of critical thinking skills and independence among students of higher educational institutions. The article analyzes the educational and psychological aspects associated with the introduction of AI into educational processes, as well as possible risks associated with the loss of the ability to think critically and solve problems independently. The study, based on a survey of students, revealed changes in the cognitive and analytical abilities of students with regular use of AI in educational activities. The results show that excessive use of AI can weaken independent skills and limit critical thinking, forming a dependence on technology.

**Keywords:** artificial intelligence, critical thinking, independent problem solving, dependence on technology, higher education, cognitive abilities.

**Introduction.** Due to the fact that modern technologies, in particular artificial intelligence (AI), are actively penetrating the educational environment, teachers and students are getting new opportunities to automate and optimize their learning activities. Students in the context of digitalization and the development of AI receive unlimited access to information and a wide range of online resources, which allows them to complete academic assignments faster and more conveniently. However, with the increasing capabilities of AI, some problems arise. Such as loss of independence, decreased critical thinking and the development of cognitive dependence on technology.

Frequent use of AI can have both positive and negative effects on students' cognitive and analytical abilities. At first glance, AI helps in complex calculations and data analysis and simplifies access to information. But, on the other hand, the use of AI in educational tasks can reduce the ability of students to think independently, analyze and make decisions. It is

important to determine how and to what extent AI affects students' cognitive development and ability to think independently.

**The hypothesis** of the study is as follows: the frequent use of AI in educational activities leads to a decrease in critical thinking skills and the ability of students to solve problems independently. To confirm this hypothesis, a study was conducted, including a survey of students who actively use AI in educational activities. This made it possible to assess the main trends and risks of introducing artificial intelligence into education, as well as to assess the psychological and pedagogical aspects of dependence on technology.

**The purpose** of this article is to explore the impact of AI on the development of critical thinking and students' ability to solve problems independently. Our article is based on current research in this area and the results of our own survey. The survey covers various aspects of using AI in an educational environment.

### **Literary review**

#### ***The impact of AI on critical thinking and collaboration***

Ruiz-Rojas and colleagues (2024) [1] investigated how generative AI tools such as Canva and Chat GPT promote critical thinking and collaboration among students. According to their study, 64% of students who actively use artificial intelligence report an improvement in their critical skills. Scientists, on the other hand, emphasize that effective use of AI requires not only technical knowledge, but also help from teachers and mentors. This is necessary so that students do not become too dependent on this technology and retain the ability to draw independent conclusions.

#### ***The role of teachers and pedagogical aspects of AI integration***

In systematic review, Zawcki-Richter et al. (2019) [2] emphasized that while AI offers many benefits, it is necessary to maintain a balance between technological development and pedagogical approaches. Teachers play an important role in teaching students independent thinking and analysis. The authors emphasize that, despite the fact that AI is becoming increasingly popular, there is not enough research considering the pedagogical and moral aspects of using this technology. Thus, it is important to study how AI affects educational processes, and what actions can be taken to reduce its negative effects.

#### ***Metacognitive skills and the role of critical thinking***

Spector and Ma (2019) [3] investigated the role of metacognitive skills in the development of critical thinking. They argue that the constant use of AI can lead to the fact that self-control and self-reflection skills, which are important components of critical thinking, will deteriorate. In their study, they emphasized that students should actively participate in solving problems, analyzing and evaluating their actions if they want to maintain a high level of cognitive abilities. However, students may become less interested in self-analysis when they rely on AI to solve problems. Ultimately, this can lead to a deterioration in students' cognitive abilities.

#### ***Psychological aspects and the impact of AI on student behavior***

Ahmad and his co-authors (2023) [4] emphasize in their study that the constant use of AI can have a psychological impact on students, making them more dependent on technology. This leads to cognitive passivity and a decrease in self-confidence. The authors believe that such dependence on AI can lead to the fact that students stop believing in their ability to solve problems and take initiative, which negatively affects their cognitive development.

### ***Ethical issues and data privacy***

Questions of the ethical nature of the use of artificial intelligence in the educational environment were considered by Bettayeb et al. (2024) [5]. In their study, they emphasize that the use of AI requires clear moral standards to protect student data and prevent misuse. In addition, they say that teachers should monitor students in order to reduce the consequences for critical thinking and student independence.

### **Research methodology**

An extensive survey was conducted to study the impact of the use of artificial intelligence on critical thinking and independent cognitive skills of students. The survey participants answered fifty questions on various topics, including the frequency of artificial intelligence use, students' perception of their cognitive abilities, as well as the educational and psychological consequences of dependence on artificial intelligence. The study was conducted using an online survey, which made it possible to attract students from various higher education institutions who actively use AI in their classes.

### ***Sample Description***

The sample included students from different faculties and courses, which allowed us to obtain more extensive and representative data on the attitude of young people to the use of AI in education. The age of the participants ranged from 18 to 30 years old, which made it possible to take into account the different views and experiences of students at different stages of their educational path. The majority of respondents used AI tools on an ongoing basis, with more than 70% of respondents noting that they regularly turn to AI to complete training tasks and search for information. Such a large use of AI among students highlights the importance of conducting research on its effects on cognitive and psychological abilities.

### ***The structure of the questionnaire***

The questionnaire was structured according to topics, each of which covered different aspects of the study:

1. **General information about the respondent** – questions about age, gender, specialty, which allowed us to take into account personal and professional factors that may affect the frequency and nature of AI use.
2. **Frequency and purpose of using AI** – questions about how often students use AI, such as to help with writing texts, analyzing data, performing calculations, etc. This allowed us to assess how much students depend on AI for various learning tasks.



3. **Critical thinking and the perception of cognitive abilities** are questions aimed at assessing the impact of artificial intelligence on the ability to independently solve problems and critical thinking skills.
4. **Psychological aspects** are issues related to feelings of dependence, anxiety, and motivation to work independently without AI.
5. **Pedagogical aspects** are issues that explore students' perceptions of the role of AI in learning and the importance of interacting with teachers to maintain critical thinking.

#### ***Data analysis***

For further analysis, the survey results were processed and structured. Quantitative analysis methods were used to determine the relationship between the level of confidence in cognitive abilities and the frequency of AI use. Qualitative analysis methods were used to determine the opinions and perceptions of students. In order to identify trends and identify links between different aspects of AI use, the data obtained were structured into categories.

#### **The results of the study**

The study showed that the constant use of artificial intelligence changes students' perception of their cognitive and critical abilities. Of the more than 75% of students who frequently use AI, about 60% said they were unsure of their abilities to solve problems independently. These findings point to a potential link between dependence on artificial intelligence and a decrease in critical thinking.

#### ***Key results and trends:***

1. **The frequency of AI use and its impact on critical thinking:** about 72% of respondents noted that frequent use of AI led to a weakening of critical thinking skills and the need for information analysis. 55% of students reported that they rely on AI to get ready-made solutions, instead of looking for answers on their own.
2. **Dependence on AI and its impact on self-esteem:** about 45% of respondents reported a decrease in confidence in their analytical abilities with constant use of AI. Students begin to trust their own opinion less and rely more on automatic decisions, which reduces their self-esteem and self-confidence.
3. **Psychological aspects:** 35% of students admitted that they experience anxiety and a sense of dependence in the absence of access to AI to perform educational tasks. These psychological aspects show that AI can shape cognitive passivity and limit initiative.
4. **Pedagogical aspects:** 26% of respondents noted that their teachers do not focus enough on independent problem solving and the development of critical thinking, preferring to use AI to simplify the educational process. This indicates the need for more active participation of teachers in monitoring the use of AI.

#### **Psychological and pedagogical aspects of AI influence**

##### ***Psychological aspects***

The psychological aspects of using artificial intelligence are crucial for the formation of cognitive dependence and the perception of one's abilities. According to research by

Ahmad and colleagues (2023) [4], dependence on AI leads to cognitive passivity and reduces the desire to analyze and work independently. Constant recourse to AI weakens students' confidence in their analytical abilities.

The results showed that 35% of students experience anxiety in the absence of access to AI, which may indicate the development of addiction. Such anxiety also reduces motivation and limits cognitive and psychological abilities. This shows that psychological support programs are needed to strengthen students' confidence in their abilities and cognitive abilities.

### ***Pedagogical aspects***

The pedagogical aspect is related to the role of teachers in maintaining students' critical thinking and developing independent thinking. A study conducted by Zawacki-Richter et al. (2019) [2] highlights that teachers play a crucial role in encouraging students to critically analyze and work independently. However, research shows that many teachers do not pay due attention to the importance of self-analysis, which leads to students becoming addicted to AI. According to the survey results, 26% of students believe that teachers do not help them think independently enough. Teachers should combine traditional teaching methods with the use of artificial intelligence in developing educational strategies aimed at actively developing critical thinking and cognitive skills. This will allow students to develop independent skills of analysis and reflection, while maintaining a balance between the use of technology and the development of cognitive abilities.

### ***Discussion***

The results of the study confirm the hypothesis that students' cognitive and psychological abilities suffer from excessive use of AI; this leads to a deterioration in their critical thinking and ability to independently analyze. These results confirm the theoretical foundations presented in the previously presented literature and show how important it is to use AI in educational processes in a balanced way. Universities should pay special attention to the psychological aspects of addiction, which manifest themselves in anxiety and decreased motivation. This is necessary to prevent possible negative consequences.

The development of cognitive skills in students also depends on the pedagogical role of teachers. The adverse effects of using AI can be reduced by the involvement of teachers in the learning process and their active participation in maintaining independent analysis. In order to preserve students' cognitive abilities and improve the learning process, it is important to create educational strategies that balance the use of technology with traditional teaching methods.

### ***Conclusion***

As a result of the study, the hypothesis was confirmed that the frequent use of AI has a significant impact on the cognitive and psychological abilities of students. Excessive dependence on AI can lead to deterioration of critical thinking skills and independence, as

well as to a decrease in students' confidence in their analytical abilities. In addition, this may lead to a decrease in their desire to solve problems on their own.

**The main conclusions** of the study can be formulated as follows:

1. **Loss of critical thinking skills:** the results showed that when AI is used frequently, students' critical thinking abilities deteriorate. Many respondents said that relying on AI complicates their ability to independently analyze and solve complex problems.
2. **Psychological dependence on AI:** research has shown that students have significant psychological dependence on artificial intelligence. Because they are unsure of their abilities and lack self-control skills, about a third of the survey participants expressed concern about the lack of access to AI.
3. **Pedagogical challenges:** the results of the study also confirmed the importance of the role of teachers in maintaining and developing independent thinking and critical analysis. The participation of teachers in the process of introducing AI into educational programs should be aimed at developing students' skills of analysis and self-reflection in order to maintain a balance between the use of AI and traditional learning.
4. **Recommendations:** based on the data obtained, it is recommended:
  - a. Limit the use of AI to perform standard tasks in order to maintain students' independence.
  - b. Implement psychological support programs aimed at developing self-confidence and independence from AI.
  - c. To encourage teachers to actively engage in the process and support students in developing their cognitive skills.

In conclusion, we can note that artificial intelligence has great potential to improve the educational process. But overuse threatens students' cognitive abilities, such as critical thinking and independent problem solving. A balanced approach to using artificial intelligence in learning is the best option. The introduction of AI should not suppress critical thinking and self-confidence but should contribute to the development of students' cognitive abilities, therefore teachers and educational institutions should strive to preserve and develop students' cognitive abilities.

### **References:**

1. L. Ruiz-Rojas, L. Ivannova, L. Salvador-Ullauri, and P. Acosta-Vargas, "Collaborative working and critical thinking: Adoption of generative artificial intelligence tools in higher education," *Sustainability*, vol. 16, no. 13, pp. 5367, 2024.
2. O. Zawacki-Richter, V. I. Marín, M. Bond, et al., "Systematic review of research on artificial intelligence applications in higher education – where are the educators?," *Int. J. Educ. Technol. High Educ.*, vol. 16, p. 39, 2019.
3. Spector, J.M., Ma, S. Inquiry and critical thinking skills for the next generation: from artificial intelligence back to human intelligence. *Smart Learn. Environ.* 6, 8 (2019). <https://doi.org/10.1186/s40561-019-0088-z>

4. Ahmad, S.F., Han, H., Alam, M.M. et al. Impact of artificial intelligence on human loss in decision making, laziness and safety in education. *Humanit Soc Sci Commun* 10, 311 (2023). <https://doi.org/10.1057/s41599-023-01787-8>
- A. M. Bettayeb, M. Abu Talib, A. Z. Sobhe Altayasinah, and F. Dakalbab, "Exploring the impact of ChatGPT: conversational AI in education," *Front. Educ.*, vol. 9, p. 1379796, 2024. <https://doi.org/10.3389/educ.2024.1379796>
5. Crompton, H., Burke, D. Artificial intelligence in higher education: the state of the field. *Int J Educ Technol High Educ* 20, 22 (2023). <https://doi.org/10.1186/s41239-023-00392-8>
6. Walter, Y. Embracing the future of Artificial Intelligence in the classroom: the relevance of AI literacy, prompt engineering, and critical thinking in modern education. *Int J Educ Technol High Educ* 21, 15 (2024). <https://doi.org/10.1186/s41239-024-00448-3>
7. Mohebi, L. Empowering learners with ChatGPT: insights from a systematic literature exploration. *Discov Educ* 3, 36 (2024). <https://doi.org/10.1007/s44217-024-00120-y>
8. Wang, Ting, Brady D. Lund, Agostino Marengo, Alessandro Pagano, Nishith Reddy Mannuru, Zoë A. Teel, and Jenny Pange. 2023. "Exploring the Potential Impact of Artificial Intelligence (AI) on International Students in Higher Education: Generative AI, Chatbots, Analytics, and International Student Success" *Applied Sciences* 13, no. 11: 6716. <https://doi.org/10.3390/app13116716>

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## **THE ROLE OF PSYCHOLOGICAL FACTORS IN STRATEGIC PLANNING: ENHANCING CORPORATE MANAGEMENT IN HIGHER EDUCATION**

**Abstract:** This study investigates the integration of psychological principles into strategic planning processes within corporate management, focusing on higher education institutions. Using Astana IT University as a case study, this research explores how employee engagement, leadership communication, and motivational strategies impact the successful implementation of strategic initiatives. By employing a mixed-methods approach, the study identifies the psychological barriers and enablers that influence strategic outcomes. The findings suggest that incorporating psychological theories, such as Herzberg's Two-Factor Theory and Lewin's Change Management Model, can enhance the effectiveness of strategic planning, especially in the dynamic environment of higher education.

**Keywords:** Strategic planning, corporate management, psychology of management, employee engagement, higher education, Blue Ocean Strategy.

**Introduction.** The rapidly changing landscape of higher education necessitates that universities adapt swiftly to external pressures while maintaining their competitive edge. Strategic planning is essential for guiding institutions towards their long-term objectives; however, the implementation of strategic initiatives often faces significant hurdles, primarily due to resistance to change from staff members [1]. This resistance is a major barrier to the

effective execution of strategic plans, emphasizing the need for leadership to adopt effective communication strategies.

The objective of this study is to explore the hypothesis that effective leadership communication reduces resistance to change among university staff during the implementation of strategic initiatives. The focus is on how transformational leadership and clear communication can foster a supportive environment that eases the implementation of strategic plans.

## **Literature Review**

### *A. Leadership's Role in Strategic Planning*

Leadership plays a pivotal role in strategic planning, particularly in higher education where alignment with institutional goals is crucial for success [2]. Transformational leadership is characterized by clear communication, vision alignment, and motivation, which are essential in reducing staff resistance to change [3]. According to Kotler and Keller [4], leaders who communicate effectively can mitigate uncertainties and foster a sense of ownership among employees.

### *B. Psychological Theories of Change Management*

Resistance to change is a well-documented challenge in organizational management. Lewin's Change Management Model outlines a three-phase approach to managing change: unfreezing current behaviors, implementing new changes, and refreezing to stabilize the new behaviors [5]. Effective communication is crucial in the unfreezing phase, where resistance is most prevalent. By addressing staff concerns proactively, leaders can create a positive environment that facilitates change.

### *C. Communication Strategies in Higher Education*

Strategic planning in higher education is not only about setting goals but also about engaging faculty and administrative staff in the process [6]. Clear, consistent communication from leadership helps build trust, reduce resistance, and align stakeholders with the institution's strategic objectives. This approach is especially important in academic environments where long-standing norms may hinder change [7].

## **Methodology**

### *A. Research Design*

The study utilized a mixed-methods approach, combining quantitative and qualitative data collection. A structured survey was administered to the academic and administrative staff at Astana IT University. The survey focused on perceptions of leadership communication, staff involvement, and resistance to change during the implementation of strategic initiatives.

### *B. Data Collection*

Data was collected through a survey of 265 participants, consisting of faculty members and administrative staff. The survey included Likert-scale questions to quantify perceptions

of communication effectiveness and resistance to change. The data collection period was from February to March 2024, targeting diverse roles across the university.

### C. Data Analysis

The survey data were analyzed using descriptive statistics and Pearson's correlation analysis. The analysis aimed to identify the relationship between leadership communication and resistance to change. SPSS software was used to ensure the robustness of the statistical analysis. The results were further validated using the Student's t-test to confirm the statistical significance of the findings [8].

## Results

### A. Testing Hypothesis

To evaluate the research hypothesis, a correlation analysis was conducted to investigate the relationship between the effectiveness of strategic communication at Astana IT University (variable  $x$ ) and the perceived challenges encountered during strategy implementation (variable  $y$ ), as identified in Question 6. A nominal scale (see Table 1) was applied to categorize levels of communication effectiveness and the types of implementation challenges. Numeric codes from 1 to 5 were assigned to capture a range of perceptions, from ineffective to highly effective communication, as well as various categories of strategic challenges. This coding method simplifies the management of categorical data and conforms to statistical analysis standards. Following this, absolute and relative frequencies for each variable were calculated, along with the total sum of values for both  $x$  and  $y$  variables.

**Table 1. Nominal scale of  $x$  and  $y$**

№	X variables	Frequency ( $x$ )	Percentage ( $x$ )	Y variables	Frequency ( $y$ )	Percentage ( $y$ )
1	1	25	9%	1	165	11%
2	2	60	23%	2	200	17%
3	3	115	43%	3	115	17%
4	4	60	23%	4	110	30%
5	5	5	2%	5	70	25%
Sum	755			2046		

The computation of the correlation coefficient began with establishing the sum. This entailed employing the following formula to compute the value of  $S_{xx}$ :

$$S_{xx} = \sum_{i=1}^n (x_i - \bar{x})(x_i - \bar{x}) = \sum_{i=1}^n (x_i - \bar{x})^2 \quad (1)$$

The symbol " $S_{xx}$ " represents the SUM value of the sample data set " $x$ ". This involved using variance ( $\sigma^2$ ), quantifies the extent to which a set of random numbers deviates from their mean, indicating the dispersion of the data points. This was achieved using the following formula:

$$\sigma^2 = \frac{\sum_{i=1}^n (x - \bar{x})^2}{n} = \frac{S_{xx}}{n} = \frac{\sum_{i=1}^n x^2}{n} - \bar{x}^2 \quad (2)$$

$$S_{xx} = n \times \sigma^2 = n \times \left( \frac{\sum_{i=1}^n x^2}{n} - \bar{x}^2 \right) = \sum_{i=1}^n x^2 - n\bar{x}^2 =$$

$$\sum_{i=1}^n x^2 - \left( n \times \frac{(\sum_{i=1}^n x)^2}{n^2} \right) = \sum_{i=1}^n x^2 - \frac{(\sum_{i=1}^n x)^2}{n} \quad (3)$$

So can derive this formula:

$$S_{xx} = \sum_{i=1}^n x^2 - \frac{(\sum_{i=1}^n x)^2}{n} \quad (4)$$

The expression  $\sum_{i=1}^n x$  signifies the total sum of all the values in the sample set "x", with "n" representing the total count of values in the sample set. As a result, the calculation for "x" can be derived as follows:

$$S_{xx} = 192\,275 - \frac{570\,025}{256} = 190\,123.9623$$

Likewise, calculating the correlation coefficient entails carrying out similar computations for the variable y.

$$S_{yy} = \sum_{i=1}^n y^2 - \frac{(\sum_{i=1}^n y)^2}{n} \quad (5)$$

$$S_{yy} = 622\,350 - \frac{2\,890\,000}{256} = 617\,971.2121$$

Then required utilizing the following formula to determine the value of x and y:

$$S_{xy} = \sum_{i=1}^n xy - \frac{\sum_{i=1}^n x \sum_{i=1}^n y}{n} \quad (6)$$

$$S_{xy} = 285\,500 - \frac{1\,283\,500}{256} = 280\,656.9623$$

Hence, based on the information provided previously, the correlation coefficient was calculated using the provided formula.

$$r = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2} \sqrt{\sum_{i=1}^n (y_i - \bar{y})^2}} = \frac{S_{xy}}{\sqrt{S_{xx} \times S_{yy}}} \quad (7)$$

$r_{xy}$  is the Pearson correlation coefficient between x and y;

$\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})$  represents the sum of the products of the deviations of x and y from their respective means;

$\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2}$  signifies the standard deviation of x;

$\sqrt{\sum_{i=1}^n (y_i - \bar{y})^2}$  signifies the standard deviation of y;

n indicates the number of observations in the sample;

$\bar{x}$  is the sample mean of x;

$\bar{y}$  is the sample mean of y.

Therefore, the correlation coefficient for the variables x and y in this study is computed as follows:



$$r = \frac{280\ 656.9623}{\sqrt{190\ 123.9623 \times 617\ 971.2121}} = 0.81879$$

Then the calculation a standard error coefficient can be derived as follows:

$$SE_r = \sqrt{\frac{1-r^2}{n-2}} \quad (8)$$

$$SE_r = \sqrt{\frac{1 - 0.81879^2}{256 - 2}}$$

In this case, a standard error coefficient of 0,0360218 was found.

Based on this value, it was concluded that there is a positive association between the variables under examination, suggesting a robust connection according to the Pearson correlation scale. This positive correlation indicates that as variable x increases, variable y tends to increase as well, and vice versa. This pattern is clearly observable in the scatter plot provided (Figure 1).

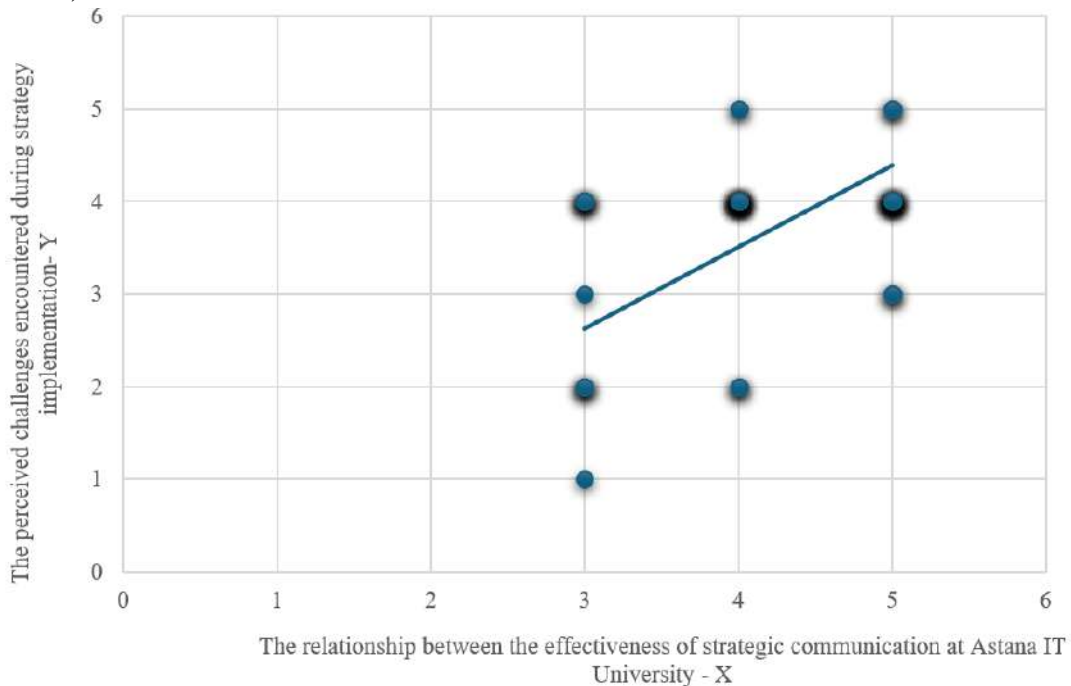


Figure 1. A scatter plot of the values of variables x and y

After conducting the correlation analysis, a Student's t-test was utilized to evaluate the statistical significance of the relationship between the variables under investigation. The following formula was employed for this task:

$$t = \frac{r_{xy}\sqrt{n-2}}{\sqrt{1-r_{xy}^2}} \quad (9)$$

In this context, the symbol "t" stands for the t-test statistic, " $r_{xy}$ " represents the Pearson correlation coefficient between variables x and y, and "n" denotes the number of observations in the sample. Thus, the calculation of the Student's t-criterion for the correlation analysis performed in this scientific research is as follows:

$$t = \frac{0.81879\sqrt{256 - 2}}{\sqrt{1 - 0.81879^2}} \approx 22,73$$

In this situation, with a significance level of  $p \leq 0.05$ , the critical value of the  $t$ -criterion derived from the Student's distribution table is 1.96. Given this, the computed  $t$ -test statistic exceeds the critical  $t$ -value. As a result, we reject the null hypothesis, leading to the conclusion that the association between variables  $x$  and  $y$  holds statistical significance.

### *B. The Effectiveness of Leadership Communication*

The survey revealed that over 75% of respondents agreed that clear and consistent communication from university leadership helped them understand the strategic initiatives, thereby reducing resistance. The findings align with Bass's Transformational Leadership Theory, which highlights the importance of clear communication in fostering employee buy-in [3].

### *C. Correlation Analysis of Communication and Resistance*

The Pearson correlation analysis indicated a strong correlation ( $r = 0.81879$ ,  $p < 0.05$ ) between effective leadership communication and resistance to change. This suggests that as communication improves, resistance decreases significantly, supporting the hypothesis that clear communication from leadership reduces staff resistance during strategy implementation [9].

### *D. Addressing Psychological Barriers*

Qualitative responses highlighted common psychological barriers, such as fear of job security, uncertainty regarding new processes, and discomfort with changing established practices. Leaders who engaged in open dialogues, provided clear rationales, and actively listened to staff concerns were more successful in mitigating these barriers [10].

## **Discussion**

The findings confirm that effective leadership communication plays a crucial role in reducing resistance to change during the implementation of strategic initiatives. Transformational leadership practices that prioritize transparency and consistent communication can significantly enhance staff engagement and align organizational efforts towards shared goals [11].

### *A. Implications for Higher Education Institutions*

**Enhancing Leadership Communication:** Universities should invest in training leaders to communicate effectively during periods of change. This includes using clear, consistent messaging and directly addressing staff concerns [12].

**Building Trust Through Open Dialogue:** Establishing channels for two-way communication can reduce resistance by allowing staff to express their concerns and receive timely feedback.

**Leveraging Change Management Models:** Applying Lewin's Change Management Model systematically can help universities navigate resistance more effectively [5].

### *B. Recommendations for Practice*

**Proactive Communication:** Higher education institutions should adopt proactive communication strategies to keep staff informed about changes, reducing uncertainty and building trust.

**Involving Staff in Decision-Making:** Engaging staff in the strategic planning process can reduce resistance and foster a sense of ownership and commitment to institutional goals [13].

### **Conclusion**

This study highlights the critical role of effective leadership communication in reducing resistance to change within higher education institutions. The case of Astana IT University demonstrates that transformational leadership practices, combined with strategic communication, can significantly enhance the implementation of strategic plans. Addressing psychological barriers to change is essential for creating a supportive and adaptive organizational culture.

Future research should explore additional factors, such as cultural and regional differences, that may impact resistance to change in various educational settings. The insights gained from this study can serve as a framework for other universities seeking to enhance their strategic planning processes through effective leadership communication.

### **References**

1. P. Kotler, K. Keller, "Marketing Management," 15th ed., Pearson, 2016.
2. B. Bass, "Leadership and Performance Beyond Expectations," Free Press, 1985.
3. K. Lewin, "Frontiers in group dynamics," Human Relations, vol. 1, no. 1, pp. 5–41, Jun. 1947, doi: 10.1177/001872674700100103.
4. R. E. Quinn, K. S. Cameron, "Diagnosing and Changing Organizational Culture," Jossey-Bass, 2006.
5. J. Creswell, "Research Design: Qualitative, Quantitative, and Mixed Methods Approaches," Sage Publications, 2014.
6. R. Kaplan, D. Norton, "The Balanced Scorecard: Translating Strategy into Action," Harvard Business Press, 1996.
7. W. C. Kim, R. Mauborgne, "Blue Ocean Strategy," Harvard Business Review Press, 2005.
- F. Herzberg, "The Motivation to Work," John Wiley & Sons, 1959.
- D. L. Deci, R. M. Ryan, "Self-Determination Theory," Guilford Press, 2017.
8. R. M. Grant, "Contemporary Strategy Analysis," John Wiley & Sons, 2010.
9. K. Lewin, "Change Management Strategies," McGraw-Hill, 2010.
- A. H. Maslow, "A theory of human motivation.," Psychological Review, vol. 50, no. 4, pp. 370–396, Jul. 1943, doi: 10.1037/h0054346.
10. J. Kotter, "Leading Change," Harvard Business Review Press, 1996.

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## EXPLORING THE EFFECTIVENESS OF INCORPORATING ARTIFICIAL INTELLIGENCE TECHNOLOGY INTO SECONDARY SCHOOLS

**Abstract:** This study evaluates the effectiveness of implementation, quality of use, and level of student and teacher adaptation to AI tools in secondary schools. The study used a mixed method design, data were collected through two unique surveys for students and teachers, analyzed quantitatively using descriptive statistics and thematic analysis. The detailed statistical analysis of the data shows that the implementation of AI tools in teaching methodology has a positive impact on everyone. There are no barriers in the willingness and difficulties of implementing AI, thus achieving student achievement and teacher satisfaction, namely noting the benefits such as personalized learning. However, one cannot overlook the fact that teachers identified technical difficulties, data privacy issues, important to address, as barriers to AI implementation. The findings emphasize the potential of AI to improve educational outcomes and student achievement, as well as to improve the quality of education in the country as a whole.

**Key words:** Artificial Intelligence (AI), Secondary education, Personalized learning, Intelligent Tutoring Systems (ITS), Self-Determination Theory (SDT) Student engagement, Teacher adoption, Technology Acceptance Model (TAM), Ethical considerations, Teacher training, Infrastructure challenges.

**Introduction.** Artificial Intelligence (AI) is transforming various industries, including education, by enhancing personalized learning, automating tasks, and improving access. These advancements are driven by increasing data availability, enhanced data analysis, and

greater computational power [1]. AI technologies such as intelligent tutoring systems and adaptive learning platforms have shown promise in tailoring educational experiences to meet individual student needs and preferences [2].

As educational demands evolve, integrating AI technologies becomes essential not only for enhancing learning outcomes but also for fostering critical cognitive development, advancing language acquisition, and influencing students' perceptions in a technology-driven future. AI's adaptive learning systems can cater to individual cognitive styles, potentially enhancing critical thinking and problem-solving abilities essential for psychological growth [3], [4]. AI-powered language learning tools offer personalized instruction, improving language skills and proficiency [5], [6]. Moreover, immersive AI technologies can shape students' perceptions by increasing engagement and motivation in learning [7]. According to Constructivist Learning Theory [8], learners actively construct knowledge through experiences. AI technologies align with this theory by providing interactive and adaptive learning environments where students can actively engage with content, adapting to their pace and style of learning. Additionally, Vygotsky's Sociocultural Theory [9] highlights the importance of social interaction in cognitive development. AI tools that incorporate collaborative features such as discussion forums, peer-to-peer learning, and shared problem-solving spaces enhance this social dimension, supporting collaborative learning essential for students' cognitive growth. Furthermore, Self-Determination Theory (SDT) [10] posits that fulfilling psychological needs for autonomy, competence, and relatedness promotes intrinsic motivation. AI-driven platforms cater to individual learning needs, providing students with autonomy in their learning process and tailored challenges that build competence, thereby fostering intrinsic motivation and engagement.

Despite AI's potential to enhance cognitive development and motivation through adaptive learning systems, its integration into secondary education remains slow due to infrastructural challenges and ethical concerns [11].

While higher education institutions are beginning to embrace AI-powered personalized learning systems, secondary schools remain largely underrepresented in research and application [11]. Despite the acknowledgment of AI's potential to minimize teacher workloads and enhance educational equity, existing literature often neglects empirical studies that examine its direct effects on teacher-student relationships within secondary education. AI's potential to support individualized instruction and reduce teacher workloads is widely recognized, but there is a lack of conclusive research on how educators adapt their practices to improve educational outcomes in these settings [1]. This gap is even more pronounced in secondary education, where equity and access concerns exacerbate the issue of uneven AI adoption [12].

This study seeks to address two primary research questions: 1) What measurable impacts does AI integration have on student engagement in secondary schools? 2) What

specific challenges do educators encounter when implementing AI tools in these environments?

By focusing on the interplay between AI technology and educational practices, this study aims to contribute new insights that fill existing gaps in the literature concerning AI's impact on teacher-student dynamics and the challenges of integrating AI into under resourced educational environments.

The hypothesis guiding this study posits that addressing infrastructural limitations and ethical concerns will significantly enhance educational outcomes, resulting in improved student performance metrics and reduced teacher workloads through personalized learning facilitated by AI technologies [2]. By exploring these dimensions, this research not only aims to illuminate the transformative potential of AI in education but also aspires to inform policymakers and educators about actionable strategies for equitable implementation across diverse educational contexts [13].

### **Literature review.**

#### *A. Introduction to AI in Education*

Artificial Intelligence (AI) is transforming education by providing personalized learning at scale, enabling students in remote areas to access high-quality content [14]. The implementation of personalized learning methods focuses on each student's knowledge, requiring an individual approach.

AI assists in this by efficiently analyzing and processing data [3] [4], supporting multilingual learning and students with disabilities, and promoting inclusive and equitable education across diverse populations [14]

#### *B. Personalized Learning and Intelligent Tutoring Systems (ITS)*

AI enhances learning and teaching processes through personalized learning and Intelligent Tutoring Systems (ITS). Personalized learning uses AI to tailor educational experiences to each student's unique needs, accommodating varying learning styles and speeds ([6]). For instance, Chen et al. [6] conducted a quantitative study involving high school students and found that AI-driven personalized learning systems increased engagement and improved academic performance. ITS offer flexible learning environments that address students' unique questions and challenges instantly, assisting in understanding difficult topics and enhancing learning outcomes [15]. Ma et al.'s [15] meta-analysis revealed that ITS users significantly outperformed non-users on assessments, indicating the effectiveness of these systems.

#### *C. Psychological Impacts of AI in Education*

##### *1) Enhancement of Motivation and Engagement:*

AI technologies enhance student motivation and engagement by providing personalized and interactive learning experiences [6], [7]. According to Self-Determination Theory (SDT) [10], fulfilling students' psychological needs for autonomy, competence, and relatedness increases intrinsic motivation. Chen et al. [6] found that AI-driven personalized

learning systems increased student engagement and motivation, as these systems adapt to individual learning needs and provide immediate feedback.

### 2) *Cognitive Development and Learning Efficiency:*

AI facilitates cognitive development by optimizing cognitive load and promoting deeper understanding [7], [15]. Cognitive Load Theory [16] suggests that learning is more effective when instructional materials are designed to align with human cognitive architecture, reducing unnecessary cognitive effort.

Intelligent Tutoring Systems (ITS) tailor content complexity to the learner's capacity, enhancing problem-solving skills and conceptual understanding [15].

### 3) *Reduction of Learning Anxiety:*

AI tutoring systems can provide a supportive learning environment that may reduce learning-related anxiety. Students often feel more comfortable engaging with AI tutors, which can lead to increased confidence and willingness to tackle challenging material. For example, Kessler [17] discusses how AI-mediated instruction can alleviate anxiety by allowing students to learn at their own pace without fear of judgment.

### *D. Teacher Adoption and the Technology Acceptance Model (TAM)*

Understanding teachers' perceptions of AI tools is crucial for successful implementation. The Technology Acceptance Model (TAM), developed by Davis [18], posits that perceived usefulness and perceived ease of use determine an individual's intention to use technology. Teo et al. [19] applied TAM in a quantitative study involving secondary school teachers and found that teachers' intention to use AI tools was significantly influenced by their perceptions of the tools' usefulness and ease of use. This aligns with psychological theories on technology adoption. However, the study acknowledged limitations, such as not accounting for external factors like institutional support and resource availability, which can also impact technology adoption.

### *E. Methodological Approaches in AI Integration Studies*

Studies employing diverse methodologies have explored AI integration in education. Kamalov et al. [14] conducted a comprehensive literature review analyzing the multifaceted impact of AI in education, providing theoretical insights but lacking empirical data. Park et al. [20] utilized a qualitative approach by interviewing science teachers to understand their experiences and views on integrating AI into lessons, though the small sample size limits generalizability. Peng et al. [21] used quantitative surveys to examine ICT attitudes and support in blended learning settings, offering valuable statistical data but with potential self-reporting biases.

### *F. Ethical Considerations in AI Integration*

Ethical considerations are paramount in AI integration.

Selwyn [22] emphasizes the necessity of establishing explicit norms for the ethical application of AI, particularly regarding data privacy and bias reduction. Implementing transparent AI systems and holding educational institutions accountable can help mitigate

ethical hazards, such as biased algorithms that reinforce inequality [22], [23]. Williamson and Eynon [13] propose creating comprehensive ethical frameworks incorporating input from educators, students, and stakeholders involved in AI development. This collaborative strategy aims to address concerns about algorithmic bias, privacy, and data security.

However, managing divergent viewpoints among stakeholders can complicate the development of a unified ethical framework [13]. Addressing these ethical concerns is essential to build trust among educators and students and to promote responsible AI use in education.

### *G. Teacher Training and Implementation Challenges*

Teacher training is a critical factor for successful AI integration. Educators often lack the necessary skills to effectively implement AI tools [11], [14]. Professional development programs are essential to equip teachers with knowledge about AI technologies and their pedagogical applications. Without adequate training, the potential benefits of AI may not be fully realized, and resistance to adoption may increase. Kamalov et al. [14] note that AI-driven platforms facilitate immediate feedback and foster interactive learning environments but emphasize challenges such as the need for teacher training and potential technical issues that can hinder effective implementation.

### *H. Limitations of AI Tools*

Chen et al. [6] and Baidoo-Anu and Ansah [24] address limitations associated with using AI tutors and tools like ChatGPT. These AI tools may produce inaccurate or misleading information, potentially misinforming students. Biases in training data can perpetuate prejudices, and privacy concerns arise regarding data security and student confidentiality. Both studies recommend collaboration among policymakers, educators, and technology experts to establish guidelines ensuring responsible use.

### *I. Summary of AI's Impact on Education*

In summary, while AI offers significant potential to enhance secondary education through personalized learning, intelligent tutoring, and automated assessment, challenges remain. These include ethical concerns, technical limitations, and the need for teacher training. Addressing these issues through collaborative efforts and policy development is crucial for effective AI integration in education.

## **Research methods.**

### *A. Research Design*

This study employs a mixed-methods approach to examine the effectiveness of integrating Artificial Intelligence (AI) technologies in secondary schools in Astana, Kazakhstan.

By combining quantitative surveys with qualitative insights, the research aims to provide a comprehensive understanding of AI's impact on student engagement and the challenges educators face during its implementation.

### *B. Participants*



The study involved approximately 70 participants, including 45 secondary school students and 25 teachers from various schools in Astana. This diverse group ensures a broad perspective on the experiences and perceptions surrounding AI integration in different educational settings.

- **Students:** Secondary school students aged 15-17, who have experienced classes utilizing AI tools.

- **Teachers:** Educators teaching subjects such as Mathematics, Science, Languages, and Information Technology, with experience or interest in incorporating AI tools into their teaching practices.

### *C. Research Site*

The study was conducted in several secondary schools across Astana, Kazakhstan. These schools were selected to represent a diverse range of educational environments within the city, including both public and private institutions. This setting provides a comprehensive view of AI adoption and its challenges in secondary education in Astana.

### *D. Sampling Method*

A purposive sampling technique was utilized to select participants who have direct experience with AI tools in their educational environments. This method ensures that the survey captures relevant and meaningful data from individuals actively involved in or affected by AI integration.

### *E. Research Setting*

The research was conducted in Astana, the capital city of Kazakhstan, encompassing a mix of high-performing and regular secondary schools. This setting provides a comprehensive view of AI adoption across different educational environments without explicitly categorizing schools, thereby respecting the diverse contexts within the city.

### *F. Data Collection Instruments*

#### 1) Student Survey Questionnaire:

- **Structure:** Comprising 10 questions, including Likert scale items, multiple-choice questions, and open-ended prompts.

- **Development:** Designed to assess student engagement, perceptions of AI tools, and any challenges encountered.

- **Anonymity:** Ensured to encourage honest and unbiased responses.

#### 2) Teacher Survey Questionnaire:

- **Structure:** Consisting of 12 questions, featuring Likert-scale items, multiple-choice questions, and open-ended prompts

- **Development:** Based on the Technology Acceptance Model (TAM), tailored to reflect the specific context of Kazakhstan's education system.

- **Anonymity:** Maintained to protect respondents' identities and promote candid feedback.

### *G. Data Collection Procedure*

Surveys were administered anonymously using Google Forms, ensuring ease of access and participation. The online distribution facilitated a wider reach and convenient participation for both students and teachers across various schools in Astana.

#### *H. Data Analysis Methods*

##### 1) Quantitative Analysis:

- Software Used: Google Sheets and Microsoft Excel.
- Techniques: Descriptive statistics (means, standard deviations) and inferential statistics (t-tests, chi-square tests) were utilized to identify significant patterns and differences in responses.

##### 2) Qualitative Analysis:

- Approach: Thematic analysis was conducted on open-ended responses to identify common themes and insights related to AI integration.
- Process: Responses were reviewed and coded manually, ensuring that emerging themes accurately reflected participants' experiences.

#### *I. Ethical Considerations*

- Consent: Informed consent was obtained from all participants, with parental consent secured for minors.
- Confidentiality: Participants were assured of the confidentiality and anonymity of their responses, adhering to ethical standards and local regulations.
- Cultural Sensitivity: Ensured that all research activities were culturally appropriate and respectful of local norms.

#### *J. Limitations*

- Sample Size: With approximately 50-70 participants, the findings may not be generalizable to all secondary schools in Kazakhstan.
- Self-Reported Data: Responses may be subject to biases inherent in self-reporting.
- Language Nuances: Although surveys were available in Kazakh and Russian, subtle nuances in translation might affect interpretation.

#### *K. Contribution to Knowledge*

This study bridges a critical gap in understanding AI integration within Kazakhstan's secondary education system. By highlighting both the benefits and challenges experienced by students and teachers in Astana, the research offers valuable insights for educators, policymakers, and stakeholders aiming to enhance AI-driven educational practices.

#### *L. Content Validity*

Content validity was established through a review by three experts in educational technology, who evaluated the alignment of survey questions with the study's objectives. Their feedback led to the refinement of ambiguous items and the inclusion of a wider range of AI tools, enhancing clarity and relevance. This expert input ensures that the survey accurately captures the experiences and perceptions related to AI integration in secondary education.

**Results.** The primary objective of this study was to evaluate the impact of AI integration on student engagement and to identify the challenges educators face in secondary schools. Data collected from 70 participants (45 students and 25 teachers) provided insights into these areas.

*1) Student Engagement and Perception:*

When asked, “On a scale of 1 to 5, how engaged do you feel in classes that utilize AI tools compared to traditional classes?” the majority of students reported higher engagement levels. Specifically, 65% of students rated their engagement as 4 (more engaged) or 5 (much more engaged), with 25% selecting 5 (Figure 1). Only 15% felt less engaged (ratings of 1 or 2), indicating that AI integration generally enhances student engagement.

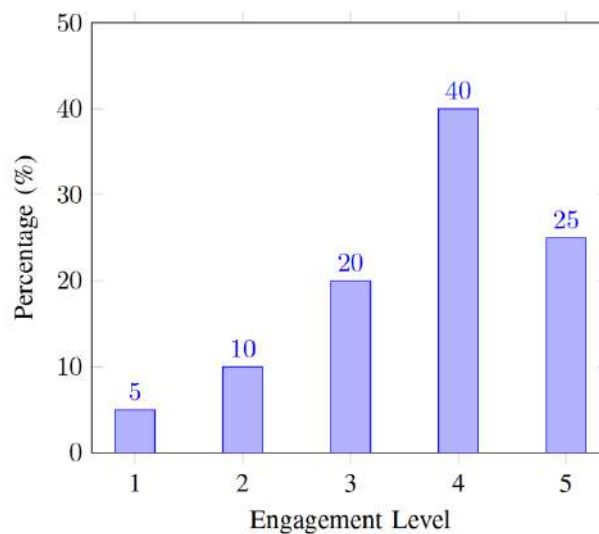


Fig. 1. Student Engagement Levels in AI-Integrated Classes

Regarding the AI tools encountered, 50% of students re-ported using AI-powered educational games, and 35% experienced chatbots for academic support. Intelligent tutoring systems and adaptive learning platforms were used by 30% and 25% of students, respectively. Notably, 15% of students had not encountered any AI tools (Table 1).

In terms of understanding the subject matter, 80% of students felt that AI tools improved their understanding, with 35% stating it “significantly improved” their comprehension (Figure 2). Only 5% felt that AI tools somewhat hindered their understanding, suggesting a positive impact of AI on learning outcomes.

AI Tool	Percentage of Students
Intelligent tutoring systems	30%
Adaptive learning platforms	25%
AI-powered educational games	50%
Chatbots for academic support	35%
None	15%

**TABLE I**  
TABLE 1: AI TOOLS ENCOUNTERED BY STUDENTS

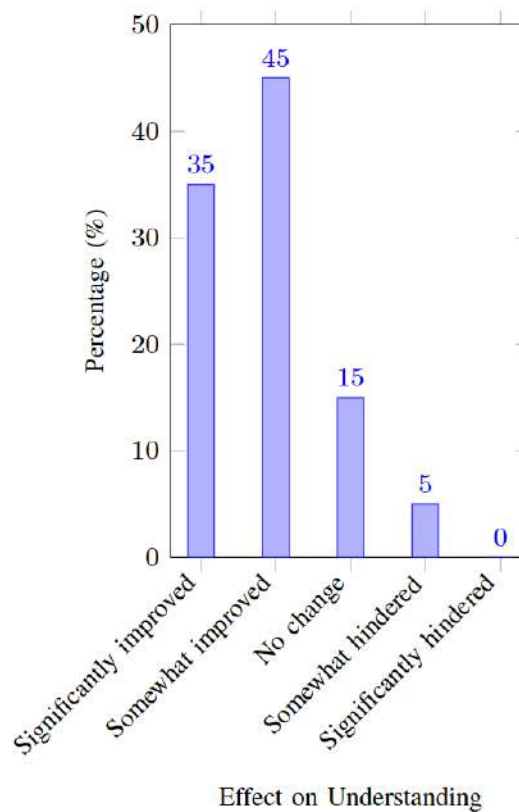


Fig. 2. Effect of AI Tools on Understanding Subject Matter

Challenges faced by students included limited access to necessary technology (25%), technical issues (20%), and difficulty understanding how to use the tools (15%). However, 40% of students reported no challenges when using AI tools (Figure 3)

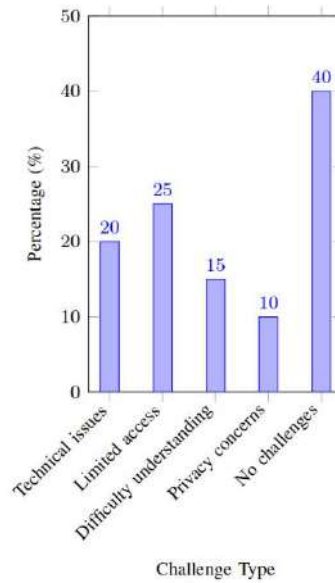


Fig. 3. Challenges Experienced by Students When Using AI Tools

Additionally, 80% of students expressed a desire for more classes to incorporate AI tools in the future, highlighting a positive reception towards AI integration.

The data indicates that 80% of students felt that the use of AI tools improved their understanding of the subject matter, with 35% reporting a significant improvement (Figure 2). Furthermore, 40% of students experienced no challenges when using AI tools, suggesting that most students are able to integrate AI into their learning with relative ease (Figure 3).

## 2) Teacher Experiences and Challenges:

Among teachers, 75% reported feeling comfortable (either “very comfortable” or “somewhat comfortable”) integrating AI tools into their teaching practices (Figure 4).

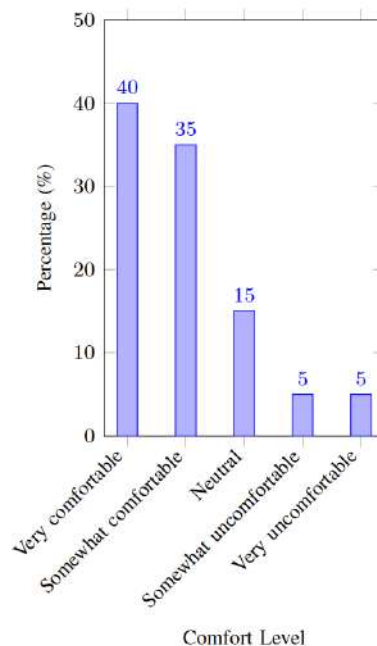


Fig. 4. Teacher Comfort Levels with Integrating AI Tools

The AI tools most commonly used by teachers were AI-based assessment tools (40%) and AI-powered content creation tools (35%). Intelligent tutoring systems and adaptive learning platforms were also utilized by 25% and 30% of teachers, respectively (Table 2).

AI Tool	Percentage of Teachers
Intelligent tutoring systems	25%
AI-based assessment tools	40%
Adaptive learning platforms	30%
AI-powered content creation tools	35%
None	20%

TABLE II

TABLE 2: AI TOOLS INCORPORATED BY TEACHERS

Benefits observed by teachers included personalized instruction (60%), enhanced student engagement (50%), and improved student performance (45%) (Figure 5).

Challenges reported by teachers were primarily lack of proper training or professional development (30%) and technical difficulties (25%). Despite these challenges, 85% of teachers expressed interest in additional training on effectively integrating AI into their teaching practices.

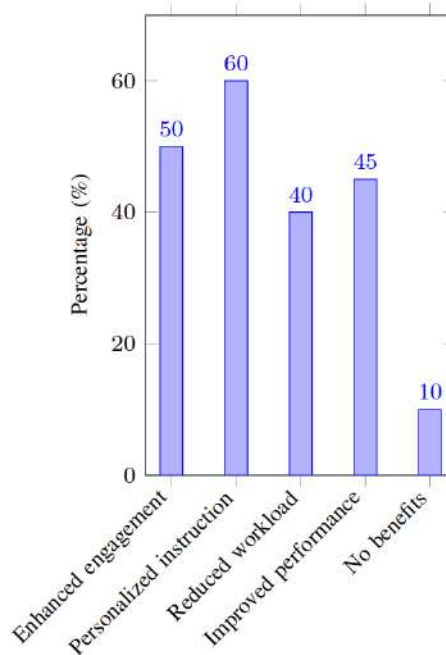


Fig. 5. Benefits Observed by Teachers from Using AI Tools

**Discussion.** The findings of this study highlight both the promise and the challenges associated with AI integration in secondary education. The high levels of student engagement (65% reporting increased engagement) align with Holmes et al.'s [1] assertion that AI can enhance learning experiences. The significant improvement in understanding reported by students (35%) supports the work of Luckin and Holmes [2], who emphasize AI's role in personalized learning.

However, the limited exposure to a variety of AI tools suggests that schools may not be fully capitalizing on AI's potential. Only 25% of students encountered adaptive learning platforms, reflecting Kulik and Fletcher's [7] observation that intelligent tutoring systems and similar technologies are underutilized in education.

Challenges such as limited access to necessary technology (25% of students) and technical difficulties (reported by 20% of students and 25% of teachers) indicate infrastructural barriers. These findings echo Chen et al.'s [6] concerns about the need for adequate resources to support AI integration.

Privacy concerns, although reported by a smaller percentage of participants (10% of students, 15% of teachers), highlight the importance of ethical considerations in AI adoption, as discussed by Selwyn [22]. Addressing these concerns is crucial for building trust and ensuring responsible use of AI in education.

Teachers' interest in additional training (85%) underscores the necessity of professional development, aligning with the Technology Acceptance Model [18], which posits that perceived ease of use and usefulness influence technology adoption.

**Conclusion.** In conclusion, this study demonstrates that AI integration has a positive impact on student engagement and understanding in secondary education, with significant percentages of students and teachers acknowledging its benefits. However, challenges such as limited access to technology, technical difficulties, and ethical concerns must be addressed to fully realize AI's potential. Providing adequate training for teachers, investing in infrastructure, and developing clear ethical guidelines are essential steps toward effective and equitable AI integration. By overcoming these barriers, educational institutions can enhance learning experiences, promote equity, and prepare students for success in a technology-driven future.

### References:

1. W. Holmes, M. Bialik, and C. Fadel, *Artificial intelligence in education promises and implications for teaching and learning*. Center for Curriculum Redesign, 2019.
2. R. Luckin and W. Holmes, "Intelligence unleashed: An argument for ai in education," 2016.
3. S. A. Becker, M. Brown, E. Dahlstrom, A. Davis, K. DePaul, V. Diaz, and J. Pomerantz, "Nmc horizon report: 2018 higher education edition," Louisville, CO: Educause, 2018.
4. M. Coccia, "Sources of disruptive technologies for industrial change," *L'industria*, vol. 38, no. 1, pp. 97–120, 2017.
5. W. Holmes, S. Anastopoulou, H. Schaumburg, and M. Mavrikis, "Technology-enhanced personalised learning: Untangling the evidence," 2018.
6. L. Chen, P. Chen, and Z. Lin, "Artificial intelligence in education: A review," *IEEE Access*, vol. 8, pp. 75264–75278, 2020.

7. J. A. Kulik and J. D. Fletcher, “Effectiveness of intelligent tutoring systems: a meta-analytic review,” *Review of educational research*, vol. 86, no. 1, pp. 42– 78, 2016.
8. J. Piaget, “Science of education and the psychology of the child. trans. d. coltman.,” 1970.
9. L. S. Vygotsky, *Mind in society: The development of higher psychological processes*, vol. 86. Harvard university press, 1978.
10. E. L. Deci and R. M. Ryan, “The” what” and” why” of goal pursuits: Human needs and the self-determination of behavior,” *Psychological inquiry*, vol. 11, no. 4, pp. 227–268, 2000.
11. O. Zawacki-Richter, V. I. Mar’in, M. Bond, and F. Gouverneur, “Systematic review of research on artificial intelligence applications in higher education— where are the educators?” *International Journal of Educational Technology in Higher Education*, vol. 16, no. 1, pp. 1–27, 2019.
12. V. Eubanks, “Automating inequality: How high-tech tools profile, police, and punish the poor,” 2018.
13. B. Williamson and R. Eynon, “Historical threads, missing links, and future directions in ai in education,” *Learning, Media and Technology*, vol. 45, no. 3, pp. 223–235, 2020.
- E. Kamalov, D. Santandreu Calonge, and I. Gurrib, “New era of artificial intelligence in education: Towards a sustainable multifaceted revolution,” *Sustainability*, vol. 15, no. 16, 2023.
14. W. Ma, O. O. Adesope, J. C. Nesbit, and Q. Liu, “Intelligent tutoring systems and learning outcomes: A meta-analysis.,” *Journal of educational psychology*, vol. 106, no. 4, p. 901, 2014.
15. J. Sweller, “Cognitive load during problem solving: Effects on learning,” *Cognitive science*, vol. 12, no. 2, pp. 257–285, 1988.
- F. Kessler, “Technology and the future of language teaching,” *Foreign language annals*, vol. 51, no. 1, pp. 205–218, 2018.
16. F. D. Davis, “Perceived usefulness, perceived ease of use, and user acceptance of information technology,” *MIS quarterly*, pp. 319–340, 1989.
17. T. Teo, O. Faruk Ursavas, and E. Bahcekapili, “Efficiency of the technology acceptance model to explain pre-service teachers’ intention to use technology: A turkish study,” *Campus-Wide Information Systems*, vol. 28, no. 2, pp. 93– 101, 2011.
18. J. Park, T. W. Teo, A. Teo, J. Chang, J. S. Huang, and S. Koo, “Integrating artificial intelligence into science lessons: teachers’ experiences and views,” *International Journal of STEM Education*, vol. 10, p. 61, Oct 2023.
19. Y. Peng, Y. Wang, and J. Hu, “Examining ict attitudes, use and support in blended learning settings for students’ reading performance: Approaches of artificial intelligence and multilevel model,” *Computers Education*, vol. 203, p. 104846, 2023.



20. N. Selwyn, *should robots replace teachers? AI and the future of education*. John Wiley & Sons, 2019.
21. J. E. Willis III, “Ethics, big data, and analytics: A model for application.,” *EDUCAUSE Review Online*, 2013.
22. D. Baidoo-Anu and L. O. Ansah, “Education in the era of generative artificial intelligence (ai): Understanding the potential benefits of chat-gpt in promoting teaching and learning,” *Journal of Humanities and Education Development (JHED)*, vol. 5, no. 1, pp. 100–122, 2023.

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## **DIGITAL TECHNOLOGIES IN HIGHER EDUCATION PEDAGOGY**

**Annotation:** This research delves into how digital advancements influencing teaching methods, in education institutions by incorporating self-improvement strategies such as question and answer sessions and frameworks like Scaling and GROW to enrich the learning journey and aid student growth and development positively. It aims to showcase how technology can boost academic achievements while fostering personal development, in students. The results indicate that these methods help students feel more in control of their learning by giving them ways to set goals and track their progress while also dealing with obstacles, along the way—a process that encourages a learning mindset. Moreover, the study emphasizes how online platforms play a role in enabling these methods by providing customizable tools that cater to a wide range of student preferences and approaches to learning. It is suggested that future studies explore in depth how digital resources can promote learning and adjust to the unique demands of different academic fields, in higher education.

**Keywords:** digital technologies, higher education pedagogy, self-coaching techniques, student development, digital learning platforms.

The integration of technologies into the teaching methods of education is changing the traditional ways of teaching and creating an atmosphere where both academic success and personal growth of students are given equal importance. By introducing digital self-coaching

techniques like structured Q&A sessions and utilizing frameworks such as Scaling and GROW, educators are providing students with systematic tools to set goals, reflect upon themselves, and tackle academic obstacles. These approaches motivate students to take an active role in their learning journey, encouraging a self-driven approach to education.

Numerous studies highlight the importance of using resources to boost student interest and involvement in learning activities. Roberts and Rees (2021) found that self-assessment tools in the realm of education inspired students to develop goal-driven behaviors that enhanced their ability to overcome challenges in academics. Adaptive learning programs incorporating frameworks such as GROW offer students a way to assess their advancements while linking development with educational growth as interconnected endeavors (Johnson et al., 2016). Through the utilization of these structures and platforms, students not only acquire organized routes to achieve their goals but also develop resilience and self-regulation abilities crucial for continuous learning throughout their lives.

In educational settings where students are encouraged to embrace self-directed learning approaches, digital tools come in handy to smooth this shift. Tools like organizers, reminder messages, and personalized learning modules assist students in managing their tasks and monitoring their advancement toward reaching both academic and personal objectives. According to Brown and Adler (2008), these digital innovations promote a student-focused approach that enables learners to delve into the material and progress at their own pace as needed. In a study by Wright (2022), it was discovered that students who utilized self-assessment tools expressed higher levels of satisfaction regarding their academic journey. This suggests that these resources can boost motivation and contribute to a sense of accomplishment among learners.

In terms of psychology, self-improvement strategies offered online, such as the Scaling and GROW models, play a role in boosting students' confidence and autonomy by allowing them to establish and achieve their objectives independently, which in turn strengthens their dedication to learning (Nicol & Macfarlane-Dick, 2006). They highlighted that digital feedback tools help students acknowledge their strengths and areas for development, which can increase self-belief and aid in personal development. Students can use these resources to improve their performance by getting feedback that helps them adjust and enhance their learning continuously.

When it comes to teaching methods, in education, technology plays a role in keeping students engaged and focused on learning. Strategies like flipped classrooms and online discussion forums encourage students to interact with the course content and enhance their thinking abilities (Bishop & Verleger, 2013). Additionally, digital tools also help in ensuring grading practices that foster trust between teachers and students, creating an equal opportunity learning space (Pereira et al., 2015).

This study's exploration of students' viewpoints regarding self-coaching tools in educational settings focuses predominantly on their effects concerning academic engagement levels, individual learning capabilities, and personal advancement. The primary aim is to address a variety of queries, such as students' perceptions of resources in fostering a nurturing and goal-oriented educational setting, pinpointing the most advantageous aspects for self-coaching purposes, as well as understanding how these tools influence student drive and aid in their overall growth journey.

### **Methods for Implementing Digital Self-Coaching Tools in Education:**

#### **1. Incorporating Frameworks such as Scaling and GROW Techniques**

The use of self-improvement tools like the Scaling and GROW frameworks requires a method for assisting students in setting goals, reflecting on their progress, and evaluating it effectively. Teachers can integrate these frameworks into their lesson plans by creating tasks that prompt students to identify their learning objectives, assess their current performance, and devise steps to enhance it. With the help of platforms such as learning management systems (LMS), these frameworks can be easily accessible, enabling students to monitor their progress in real time. These platforms can also offer feedback and support to motivate students to engage actively in their learning process (Brown & Adler, 2008).

#### **2. Customized Educational Journeys Using Resources**

Digital self-coaching tools offer the advantage of providing personalized learning experiences. By integrating learning technologies, instructors can offer students customized content and tasks that align with their learning progress and needs. This individualized approach allows students to interact with material that matches their skill levels, preventing them from feeling either overwhelmed or uninterested. In today's educational landscape, tools like AI-driven learning applications and digital mentoring platforms have the capability to monitor students' progress and activities. Based on this data, they can suggest tailored resources or tasks aimed at enhancing their abilities (Johnson et al., 2016).

#### **3. Feedback Mechanisms for Continuous Growth**

Successful self-coaching depends greatly on receiving practical feedback, which is essential for fostering a culture of continuous growth and development among students. Digital tools can provide feedback on students' work to help them reflect on their strengths and areas that need improvement. This includes adaptive learning systems or self-evaluation tools integrated with AI, which offer personalized feedback on written tasks. These feedback systems not only improve student performance but also support the development of self-regulation skills, helping students manage their learning journey (Nicol & Macfarlane-Dick, 2006).

#### **4. Exploring Self-Evaluation via Electronic Diaries**

Tracking learning progress and reflecting on experiences through journals and reflective logs is a valuable tool for students to engage in self-coaching practices and continuously enhance their learning journey. Encouraging students to record their thoughts

and accomplishments while navigating learning tasks helps them develop self-awareness and make necessary adjustments based on the patterns they recognize in their learning behaviors over time. Educators can also monitor these journals to assess students' progress and offer support if needed (Wright, 2022).

#### 5. Encouraging Responsibility through Electronic Prompts and Monitoring Progress Towards Objectives

Self-coaching emphasizes accountability as a principle to guide individuals in their growth journey. To help students stay accountable to their objectives, digital resources like task management applications and goal-monitoring platforms can be valuable tools. These tools assist students by setting deadlines, providing reminders, and outlining progress checkpoints to keep them on track and motivated. Many of these platforms incorporate features like progress graphs or bars to offer visual cues that encourage and inspire students as they work toward their goals. In addition to maintaining focus, these reminders also foster the development of skills such as time management and organization (Roberts & Rees, 2021).

#### 6. Digital Platforms that Promote Collaboration for Peer Coaching

Peer coaching can also take place through digital platforms, in addition to self-coaching efforts. Platforms like online forums and group chats allow students to interact with their peers in real time, exchanging experiences and insights about their learning journeys. This enhances the self-coaching experience by introducing different perspectives and constructive feedback while fostering a supportive community, which is essential for student motivation and achievement (Pereira et al., 2015).

This research focuses on how resources for self-improvement influence student involvement and personal growth in universities and colleges, where students are able to effectively establish and accomplish objectives, leading to a more engaged learning experience. Furthermore, the incorporation of self-improvement methods, such as Scaling and GROW, not only aids in achievement but also supports personal development by motivating students to actively participate in their educational endeavors. As technology continues to advance, there is a growing need for further studies to explore the customization of these tools to cater to the requirements of students across different fields of study.

### References:

1. Brown, J. S., & Adler, R. P. (2008). Minds on fire: Open education, the long tail, and learning 2.0. *Educause Review*, 43(1), 16-32.
2. Johnson, L., Adams Becker, S., Cummins, M., & Estrada, V. (2016). *NMC Horizon Report: 2016 Higher Education Edition*. The New Media Consortium. <https://doi.org/10.2139/ssrn.2782048>
3. Nicol, D., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in Higher Education*, 31(2), 199-218. <https://doi.org/10.1080/03075070600572090>
4. Pereira, F. D., Santos, A. L., & Lopes, A. D. (2015). Peer coaching in higher education: Effects on students' learning and professional development. *Journal of Education and Practice*, 6(10), 1-8. <https://www.iiste.org/Journals/index.php/JEP/article/view/22489>
5. Roberts, J., & Rees, L. (2021). Building resilience and autonomy through self-coaching in higher education. *Journal of Educational Psychology*, 113(4), 722-737. <https://doi.org/10.1037/edu0000464>
6. Wright, K. (2022). Self-assessment in education: Enhancing academic engagement through digital tools. *Journal of Digital Learning*, 14(2), 102-118. <https://doi.org/10.1016/j.jdl.2022.01.005>
7. Bishop, J. L., & Verleger, M. A. (2013). The flipped classroom: A survey of the research. *Proceedings of the 120th ASEE Annual Conference & Exposition*. <https://doi.org/10.18260/1-2--22585>
8. Macfarlane-Dick, D., & Nicol, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in Higher Education*, 31(2), 199-218. <https://doi.org/10.1080/03075070600572090>

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## THE IMPACT OF FEEDBACK FREQUENCY ON STUDENT MOTIVATION IN UNIVERSITY SETTINGS

**Abstract:** This study investigates the role of feedback frequency in shaping student motivation within university settings, which is crucial for academic success and sustained engagement. As higher education increasingly adopts student-centered learning, understanding the effects of feedback frequency on motivation becomes vital. This research uses a mixed-methods approach, combining quantitative analysis of academic performance data with qualitative insights from student interviews and surveys. Preliminary findings suggest that frequent, constructive feedback can enhance motivation and engagement, while infrequent feedback may contribute to stress and decreased motivation. These findings highlight the importance of feedback frequency in fostering an environment that optimally supports student motivation in higher education.

**Keywords:** Feedback frequency, student motivation, higher education, programmatic assessment, just-in-time feedback, academic performance, feedback dialogue, continuous feedback, university learning, student engagement

**Object of Research:** This research focuses on undergraduate students across multiple academic disciplines. The primary objective is to examine the relationship between feedback frequency and key indicators of student motivation, including class participation, assignment completion rates, and overall satisfaction with the learning process. Additionally, the study investigates how varying feedback intervals (weekly, bi-weekly, and monthly) correlate with changes in student motivation throughout the semester.

**Introduction.** Feedback is a central component of effective learning in higher education. It clarifies learning goals, reinforces strengths, and provides constructive direction for improvement. Timely feedback is particularly important in sustaining student motivation, as it enables students to adapt their approaches, make adjustments, and remain engaged with their learning. Ajjawi and Boud (2018) highlight that feedback is most effective when it is structured as an interactive dialogue between students and educators, allowing students to ask questions and seek clarification on feedback received. Such feedback dialogue can enhance understanding, deepen engagement, and ultimately increase motivation by fostering a sense of collaboration in the learning process.

Studies emphasize that frequent feedback is generally linked to improved academic outcomes and increased satisfaction with the learning experience. However, the nature and frequency of feedback must be carefully balanced. Research indicates that overly frequent feedback may overwhelm students and reduce autonomy, while infrequent feedback may lead to disengagement and academic anxiety. This study aims to clarify how different feedback frequencies impact student motivation, providing insights into optimizing feedback practices for enhanced student engagement and academic success.

**Methodology.** This study adopts a qualitative approach, focusing on analyzing existing literature and theoretical perspectives rather than collecting new data. Through an in-depth review of relevant research, the study seeks to understand the impact of feedback frequency on student motivation. The analysis includes examining themes and patterns from previous studies, which provide insights into students' perceptions, emotional responses, and motivational changes in relation to feedback intervals. This approach allows for a nuanced understanding of how feedback frequency influences student motivation without gathering new quantitative or qualitative data.

## **Literature Review**

### Feedback and Motivation in Higher Education

Feedback significantly impacts student motivation and engagement in higher education. Ajjawi and Boud (2018) underscore the value of feedback dialogues, emphasizing that feedback is most effective when structured as an ongoing conversation between educators and students. This dialogue-based approach allows students to engage actively with feedback, clarify misunderstandings, and internalize feedback as part of their learning journey. By enabling students to ask questions and reflect on their learning, feedback dialogues can strengthen motivation and lead to deeper cognitive engagement.

In addition, Williams (2024) highlights that the timing and frequency of feedback are crucial in supporting student motivation. Williams found that frequent, constructive feedback leads to greater student engagement, improved academic performance, and higher levels of satisfaction with the educational experience. Williams' research suggests that feedback should be consistent and relevant to the student's progress to prevent disengagement and maintain motivation.



## Programmatic Assessment and Continuous Feedback

Programmatic assessment is another innovative approach that incorporates regular feedback into the entire educational program rather than relying on isolated instances of feedback. Baartman and Quinlan (2023) argue that programmatic assessment provides a structured and continuous feedback loop, fostering a culture of improvement and reflection. Through continuous feedback, students receive timely insights into their progress, allowing them to make incremental adjustments and remain motivated throughout the program. This model contrasts with traditional assessment methods, where feedback is often disconnected and sporadic, potentially diminishing its impact on student motivation.

Additionally, Giamos, Doucet, and Léger (2023) explored continuous feedback in organizational and educational settings, examining how feedback frequency, content, and source influence performance and motivation. Their study found that continuous feedback, especially when specific and actionable, is associated with increased task engagement and a greater motivation to improve. This suggests that educators who provide regular, constructive feedback can enhance student motivation and foster an environment conducive to learning and growth.

### Just-in-Time Feedback and Academic Performance

Beccaria, Kek, and Huijser (2019) introduce the concept of “just-in-time” feedback, which is provided at critical moments when students need it most. Their study of first-year nursing students showed that just-in-time feedback improved essay writing performance and motivation by addressing immediate learning needs. The study suggests that feedback should be timely and directly relevant to students’ current learning challenges, as this form of feedback aligns with students’ need for immediate guidance and can prevent demotivation or disengagement. By delivering feedback when students are most receptive, educators can promote positive academic outcomes and sustained motivation.

**Results.** Through a qualitative review of existing literature, we identified several key themes regarding the relationship between feedback frequency and student motivation. Studies indicate a positive correlation between frequent feedback and student motivation, with various frequencies yielding differing effects.

### Weekly Feedback

Literature suggests that students who receive weekly feedback generally report higher levels of motivation and engagement. Weekly feedback creates a steady stream of guidance, helping students make continuous adjustments and maintain focus. This aligns with Ajjawi and Boud’s (2018) concept of feedback dialogue, as regular feedback fosters a continuous interaction that reinforces motivation and encourages active participation in learning.

### Bi-Weekly Feedback

Bi-weekly feedback also appears to support student motivation effectively. Research indicates that this interval provides a balanced approach, allowing students autonomy while still offering regular guidance. According to Baartman and Quinlan (2023), this frequency

can promote self-regulation, helping students reflect on feedback without feeling overwhelmed, which supports sustained engagement.

### **Monthly Feedback**

Studies on monthly feedback reveal mixed results, with some students experiencing decreased motivation due to a lack of timely guidance. Literature reviewed suggests that infrequent feedback may lead to uncertainty and disengagement, as students may not receive support when it is most needed. Beccaria et al. (2019) emphasize that infrequent feedback fails to meet students' immediate learning needs, which can hinder motivation and academic progress.

**Discussion.** The findings suggest that while frequent feedback enhances motivation, the benefits may diminish if feedback becomes overwhelming. Weekly feedback is particularly effective in sustaining motivation, creating a feedback dialogue that enables students to ask questions, seek clarification, and integrate feedback into their learning processes [1]. This aligns with Self-Determination Theory (SDT), as weekly feedback fosters a sense of competence and relatedness, crucial components of intrinsic motivation.

Bi-weekly feedback also supports motivation by providing a balance between guidance and self-regulation, allowing students the autonomy to reflect on feedback and make adjustments without feeling overwhelmed. This approach, as Baartman and Quinlan (2023) suggest, aligns well with a programmatic assessment framework, which emphasizes continuous improvement and long-term engagement.

Monthly feedback, however, appears insufficient for maintaining motivation, particularly for students who require consistent support. Without timely feedback, students may feel uncertain and disengaged, especially when facing academic challenges. These results imply that educators should consider feedback frequency as a strategic tool for enhancing student motivation, adapting feedback timing to suit course demands and student needs.

**Conclusion.** This study highlights the importance of feedback frequency in fostering student motivation within university settings. Findings suggest that frequent, constructive feedback positively impacts motivation, engagement, and academic performance, with weekly or bi-weekly feedback being most effective. Monthly feedback, however, may hinder motivation, especially for students requiring more consistent support. The results emphasize the need for a balanced feedback approach that considers cognitive load, feedback timing, and student preferences. Future research should investigate the long-term effects of feedback frequency across various disciplines and demographics to further refine feedback practices and optimize learning outcomes.

### **References:**

1. R. Ajjawi and D. Boud, "Examining the nature and effects of feedback dialogue," *Assessment & Evaluation in Higher Education*, vol. 43, no. 7, pp. 1106-1119, 2018. doi: 10.1080/02602938.2018.1434128.

2. L. K. J. Baartman and K. M. Quinlan, "Assessment and feedback in higher education reimaged: Using programmatic assessment to transform higher education," *Perspectives: Policy and Practice in Higher Education*, pp. 1-11, 2023. doi: 10.1080/13603108.2023.2283118.

3. L. Beccaria, M. Kek, and H. Huijser, "Using 'just in time' online feedback to improve first year undergraduate nursing students' essay writing performance," *Journal of University Teaching & Learning Practice*, vol. 16, no. 4, p. 7, 2019.

4. D. Giamos, O. Doucet, and P.-M. Léger, "Continuous performance feedback: Investigating the effects of feedback content and feedback sources on performance, motivation to improve performance, and task engagement," *Journal of Organizational Behavior Management*, pp. 1-20, 2023.

5. A. Williams, "Delivering effective student feedback in higher education: An evaluation of the challenges and best practice," *International Journal of Research in Education and Science*, vol. 10, no. 2, pp. 473-501, 2024. [Online]. Available: <https://files.eric.ed.gov/fulltext/EJ1426687.pdf>

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## **АДАПТАЦИЯ СТУДЕНТОВ К НОВЫМ ФОРМАМ ОБУЧЕНИЯ: ПЕДАГОГИЧЕСКИЕ И ПСИХОЛОГИЧЕСКИЕ ФАКТОРЫ**

**Аннотация:** В современном образовательном процессе студенты всё чаще сталкиваются с новыми формами обучения, такими как дистанционные или смешанные форматы. Эти изменения требуют от них не только освоения новых технологий, но и умения адаптироваться к измененным условиям учебного процесса. Адаптация к таким формам обучения становится важным фактором успешного образования, так как она напрямую влияет на академическую успеваемость и эмоциональное состояние студентов. Важно понимать, что успешная адаптация зависит не только от педагогических приемов, но и от психологической поддержки. В этой статье будут рассмотрены основные педагогические и психологические факторы, влияющие на процесс адаптации студентов к новым формам обучения.

**Ключевые слова:** дистанционное обучение, педагогические факторы, психологические факторы, академическая успеваемость, эмоциональное состояние.

### **Постановка проблемы**

В последние годы высшее образование сталкивается с необходимостью адаптации к новым педагогическим подходам, таким как проектное обучение, перевернутое обучение, смешанное обучение и активные методы преподавания. Эти

подходы направлены на повышение вовлеченности студентов, развитие критического мышления и практических навыков, а также на создание более гибкой и персонализированной образовательной среды. Однако внедрение этих новых форм требует от студентов значительных усилий и адаптационных изменений, что порождает множество вызовов.

Одной из основных проблем является то, что не все студенты готовы к изменениям в методах обучения. Например, в проектном обучении студенты должны активно участвовать в групповом взаимодействии и самостоятельном поиске решений, что может быть непривычным для многих из них. В перевернутом обучении учащиеся должны быть ответственными за собственное обучение, что требует высокой степени самоорганизации и мотивации. В таких условиях уровень тревожности, эффективности и социальная поддержка становятся критически важными факторами, влияющими на успешность адаптации. Педагогические факторы также играют значимую роль. Преподаватели должны адаптировать свои методы и подходы, чтобы обеспечить поддержку студентов в процессе их обучения. Это может включать в себя использование технологий, которые способствуют взаимодействию и обратной связи, а также создание благоприятной атмосферы для обучения.

Таким образом, проблема адаптации студентов к новым подходам в обучении требует комплексного исследования, учитывающего как педагогические стратегии, так и психологические аспекты. Необходимо выявить, какие методы и практики могут наиболее эффективно поддержать студентов в процессе адаптации, обеспечивая их успешное обучение и личностное развитие в новых условиях.

### **Анализ последних исследований и публикаций**

Наиболее актуальными исследованиями, посвященными адаптации студентов к новым формам обучения, являются работы, изучающие влияние дистанционного и смешанного обучения на психоэмоциональное состояние студентов. В исследовании [1, с. 12] отмечается, что «переход на онлайн- обучение во время пандемии COVID-19 значительно увеличил уровень стресса среди молодежи в Индии, выявив связь между фоновыми факторами и резистентностью студентов».

Также следует обратить внимание на работу [2, с. 20], в которой подчеркивается, что «студенты испытывают трудности с адаптацией к новым форматам обучения, что отрицательно сказывается на их успеваемости и эмоциональном состоянии».

Кроме того, исследование [3, с. 15] акцентирует внимание на том, что «активные методы обучения способствуют повышению вовлеченности студентов и улучшению их психологического состояния», что является важным фактором для успешной адаптации к новым формам обучения.

Работа [4, с. 19] также подчеркивает, что «наличие социальной поддержки и ощущение присутствия в учебном процессе способствуют повышению вовлеченности

и успешности студентов». Вместе с тем остаются недостаточно изученными такие аспекты, как «влияние культурных и личностных особенностей на адаптацию студентов, а также роль педагогов в создании комфортной образовательной среды в дистанционном формате». Это подчеркивает необходимость дальнейших исследований, направленных на комплексное понимание адаптационных процессов и разработку эффективных стратегий поддержки студентов.

### **Выделение нерешенных ранее частей общей проблемы**

Несмотря на рост интереса к внедрению инновационных педагогических подходов, многие аспекты адаптации студентов к этим изменениям остаются недостаточно изученными. Одной из нерешенных частей проблемы является недостаток исследований, посвященных влиянию уровня тревожности и самооффективности на успешность адаптации студентов к новым методам обучения, таким как проектное и перевернутое обучение. Высокий уровень тревожности и низкая самооффективность могут препятствовать успешному освоению новых форматов обучения, однако конкретные механизмы влияния этих факторов требуют дополнительного анализа. Еще одной нерешенной частью проблемы является недостаточная разработка эффективных стратегий поддержки студентов в процессе адаптации. Вопрос о том, как преподаватели могут наиболее эффективно способствовать адаптации студентов, все еще остается открытым. Неясно, какие педагогические практики и способы обратной связи являются наиболее результативными в условиях активного обучения и как их оптимально использовать.

Кроме того, роль социальной поддержки со стороны группы и преподавателей требует детального изучения. Понимание того, каким образом социальная поддержка и взаимодействие внутри группы влияют на адаптацию студентов, может помочь в разработке более эффективных подходов к обучению.

Наконец, влияние новых технологий на процесс адаптации студентов также остается нерешенной частью проблемы. Хотя многие технологии активно используются в учебном процессе, не до конца ясно, какие именно инструменты и ресурсы наиболее полезны для формирования навыков самоорганизации и ответственности, необходимых в условиях перевернутого и смешанного обучения.

### **Цель статьи**

Целью данной статьи является анализ основных педагогических и психологических факторов, влияющих на процесс адаптации студентов к новым формам обучения, таким как дистанционное и смешанное обучение.

Мы стремимся выявить ключевые проблемы, с которыми сталкиваются студенты при переходе на новые образовательные форматы, и определить эффективные стратегии, способствующие успешной адаптации. Особое внимание уделяется таким

факторам, как уровень стресса, эмоциональное состояние, мотивация, доступность учебных материалов и качество обратной связи от преподавателей.

В рамках проведенного исследования мы рассматриваем изменения в академической успеваемости студентов, что позволяет оценить влияние психологических и педагогических аспектов на адаптацию. Кроме того, мы предлагаем практические рекомендации для создания благоприятных условий и поддержки студентов в условиях новых форм обучения.

Таким образом, основная цель статьи - комплексно изучить процесс адаптации студентов с точки зрения психологических и педагогических факторов, чтобы выработать эффективные стратегии содействия успешной трансформации образовательного процесса.

### **Методы. Выборка**

В исследовании приняли участие 50 студентов различных уровней обучения, включая бакалавров и магистрантов, с возрастом от 17 лет и младше до 25 лет и старше. В выборку вошли:

- **Бакалавриат:** 1-й курс — 3 студента, 2-й курс — 7 студентов, 3-й курс — 11 студентов, 4-й курс — 5 студентов.
- **Магистратура:** 1-й курс — 17 студентов, 2-й курс — 9 студентов.

Возрастной состав участников:

- 17 лет и младше — 3 студента
- 18–21 лет — 30 студентов
- 22–24 лет — 10 студентов
- 25 лет и старше — 7 студентов

По гендерному составу: 26 мужчин и 24 женщины. Все студенты дали согласие на участие в исследовании и публикацию результатов.

### **Методы. Дизайн исследования**

Исследование проводилось с целью анализа психологических и педагогических факторов, влияющих на адаптацию студентов к новым формам обучения (дистанционное и смешанное обучение). Анкета была структурирована для оценки этих факторов по ряду специфических вопросов.

Психологические факторы включали вопросы, направленные на оценку уровня стресса, вызванного дистанционным или смешанным форматом обучения, общего эмоционального состояния студентов после перехода на новые формы обучения, частоты чувства неспособности справляться с учебной нагрузкой, снижения мотивации к обучению и чувства социальной изоляции из-за отсутствия личного общения с одногруппниками и преподавателями. Педагогические факторы охватывали восприятие студентами эффективности обратной связи от преподавателей в дистанционном формате, полезность интерактивных элементов (онлайн- тесты, квизы, задания с мгновенной проверкой), доступность и понятность учебных материалов

(видеолекций, текстовых материалов, презентаций) при дистанционном обучении, способность студентов к самостоятельной организации времени и выполнению заданий в новых условиях, а также изменения в учебных результатах (оценках и успеваемости) после перехода на новые формы обучения.

Анкета также включала два открытых вопроса. Первый вопрос был направлен на выявление основных трудностей, с которыми студенты столкнулись при переходе на новые формы обучения. Второй вопрос касался ресурсов и инструментов, которые помогают студентам эффективнее учиться в условиях дистанционного или смешанного формата.

### **Методы. Методы измерения**

В рамках исследования использовалась анкета, структурированная для выявления степени адаптации студентов к новым формам обучения (дистанционное и смешанное обучение). Анкета включала закрытые вопросы с заранее определенными вариантами ответов, а также открытые вопросы для получения развернутых ответов. В зависимости от характера вопроса предлагались варианты ответов с числом категорий от четырех до пяти, что позволило собрать данные по ряду ключевых показателей.

Изменения в академической успеваемости студентов оценивались по пятибалльной шкале, включающей следующие категории: "значительно улучшились", "немного улучшились", "не изменились", "немного ухудшились" и "значительно ухудшились". Данный вопрос позволил определить, как переход на новые формы обучения повлиял на учебные результаты студентов.

Уровень стресса измерялся через вопрос с четырьмя вариантами ответов: "постоянный стресс", "часто испытываю стресс", "иногда испытываю стресс" и "совсем не испытываю стресс". Этот вопрос обеспечил данные для анализа уровня напряженности среди студентов в условиях дистанционного и смешанного форматов обучения.

Эмоциональное состояние студентов оценивалось на основе пяти категорий: "очень хорошее", "хорошее", "нейтральное", "плохое" и "очень плохое". Эти варианты отражают общее восприятие студентами их эмоционального благополучия после перехода на новые формы обучения.

Частота ощущения неспособности справиться с учебной нагрузкой оценивалась с использованием вариантов: "постоянно", "часто", "иногда", "редко" и "никогда". Данная шкала помогла выявить, как часто студенты испытывают трудности в управлении учебными обязанностями в изменившихся условиях.

Снижение мотивации к обучению также оценивалось по пятибалльной шкале, включающей категории: "значительное снижение", "умеренное снижение", "незначительное снижение", "без изменений" и "повышение мотивации". Этот вопрос выявил, как новые формы обучения повлияли на желание студентов учиться. Вопрос о



чувстве социальной изоляции включал варианты "постоянно", "часто", "иногда", "редко" и "никогда", позволяя оценить частоту такого чувства у студентов, вызванного отсутствием личного общения с одногруппниками и преподавателями. Эффективность обратной связи от преподавателей оценивалась на четырехбалльной шкале: "очень эффективна", "эффективна", "нейтрально" и "совсем неэффективна". Этот вопрос выявил восприятие студентами качества преподавательской поддержки в дистанционных условиях.

Полезность интерактивных элементов в обучении, таких как онлайн- тесты и квизы, измерялась с использованием четырех категорий: "очень полезны", "полезны", "нейтральны" и "совсем бесполезны". Данный вопрос позволил оценить значимость интерактивных элементов для студентов.

Вопрос о доступности и понятности учебных материалов включал четыре категории: "полностью понятны и доступны", "частично понятны", "часто непонятны и труднодоступны" и "совсем непонятны". Этот аспект был направлен на оценку доступности учебных ресурсов. Способность к самостоятельной организации времени и выполнению заданий оценивалась по шкале с вариантами "очень легко", "легко", "с некоторыми трудностями", "трудно" и "очень трудно". Данный вопрос выявил степень затрудненности в организации учебного процесса студентами в новых условиях.

Анкета также содержала два открытых вопроса, которые позволили собрать качественные данные. Первый вопрос был направлен на выявление основных трудностей, с которыми студенты столкнулись при переходе на новые формы обучения. Второй вопрос касался ресурсов и инструментов, которые студенты используют для повышения эффективности своего обучения, включая такие онлайн-платформы и приложения, как Teams, YouTube, Quizlet и другие. Ответы на эти вопросы обеспечили дополнительное понимание индивидуальных стратегий адаптации и существующих барьеров.

## **Методы. Результаты**

### **Изменения учебных результатов**

Результаты опроса показывают, что большинство студентов отметили улучшения в своих учебных результатах после перехода на новые формы обучения. Наибольшая доля участников, 20 студентов, указали на небольшое улучшение успеваемости, что составляет около 40% от общей выборки и свидетельствует о положительном влиянии дистанционного и смешанного обучения для этой группы. У 11 студентов (22%) результаты остались без изменений, что демонстрирует стабильность их академической успеваемости. Около 8 студентов (16%) сообщили о незначительном ухудшении, и только 4 студента (8%) отметили значительное ухудшение своих результатов. (см. Рисунок 1)

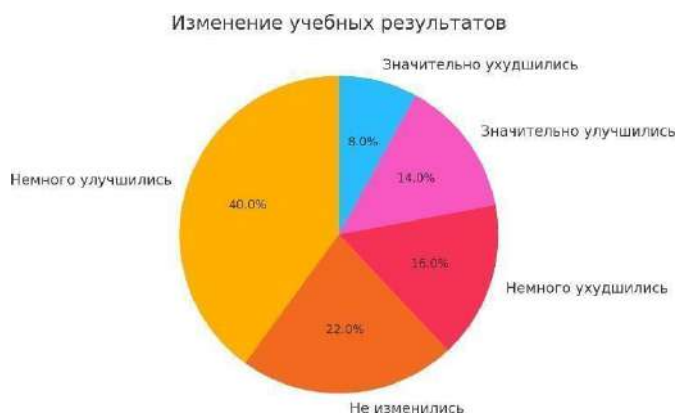


Рис. 1

### Уровень стресса

При оценке стресса, связанного с дистанционным и смешанным форматом обучения, было выявлено, что 38% студентов (19 человек) испытывают стресс «иногда», в то время как 28% (14 студентов) чувствуют стресс «часто». Также 28% студентов (еще 14 человек) вовсе не испытывают стресс в этих условиях, и только 6% (3 студента) указали, что испытывают

«постоянный стресс». Эти данные, представленные на круговой диаграмме, отражают распределение уровня стресса среди студентов (см. Рисунок 2).

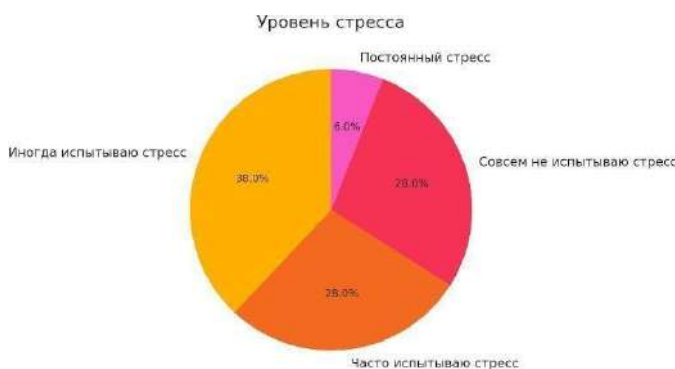


Рис. 2

### Эмоциональное состояние

При оценке эмоционального состояния студентов после перехода на новые формы обучения большинство участников, около 36% (18 человек), оценили свое состояние как «нейтральное». Примерно 22% (11 студентов) отметили свое состояние как «хорошее», а еще 20% (10 человек) сообщили о «плохом» состоянии. Небольшая группа, около 16% (8 студентов), описала своё состояние как «очень хорошее», и только 6% (3 студента) указали на «очень плохое» состояние. (см. Рисунок 3)

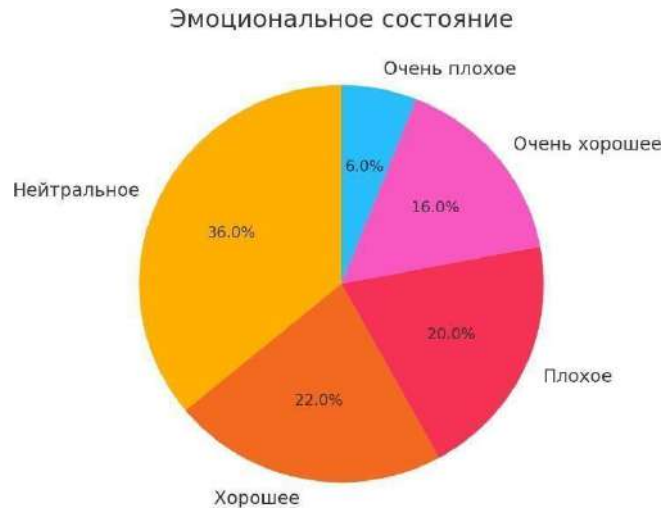


Рис. 3

### Чувство неспособности справиться с учебной нагрузкой

Примерно 36% студентов (18 человек) иногда испытывают трудности с управлением учебной нагрузкой, тогда как 24% (12 студентов) сталкиваются с этим часто. Около 20% (10 человек) отмечают такие трудности редко, и 16% (8 студентов) испытывают их постоянно. Лишь 4% студентов (2 человека) никогда не сталкиваются с подобными затруднениями. (см. Рисунок 4)

Чувство неспособности справиться с учебной нагрузкой



Рис. 4

### Снижение мотивации к обучению

Снижение мотивации в условиях дистанционного или смешанного формата наблюдается у большинства студентов. Примерно 16 студентов отметили "умеренное снижение", а 15 указали на "незначительное снижение". Для 10 студентов мотивация не изменилась, у 7 человек отмечено "значительное снижение", и у 2 студентов мотивация даже повысилась. (см. Рисунок 5)

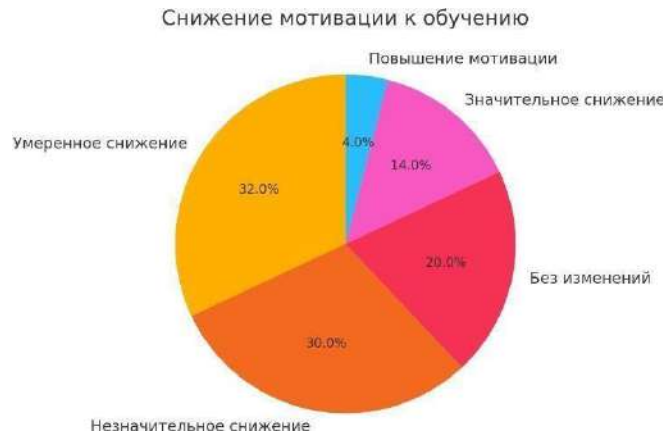


Рис. 5

### Чувство социальной изоляции

Среди опрошенных студентов около 40% (20 человек) иногда ощущают социальную изоляцию из-за отсутствия личного общения, тогда как 32% (16 человек) испытывают это чувство часто. Примерно 16% (8 студентов) сообщили, что чувствуют изоляцию постоянно, в то время как 10% (5 человек) не испытывают её вовсе, и лишь 2% (1 студент) ощущают изоляцию редко. (см. Рисунок 6)

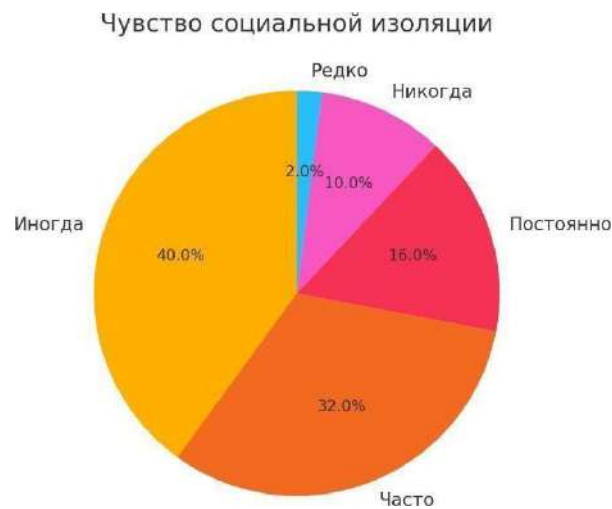


Рис. 6

### Эффективность обратной связи от преподавателей

Согласно результатам опроса, 36% студентов (18 человек) оценивают обратную связь от преподавателей как «нейтральную». Около 32% (16 студентов) считают её «эффективной», а 24% (12 человек) — «совсем неэффективной». Лишь 8% (4 студента) отметили обратную связь как «очень эффективную». (см. Рисунок 7)

Эффективность обратной связи от преподавателей

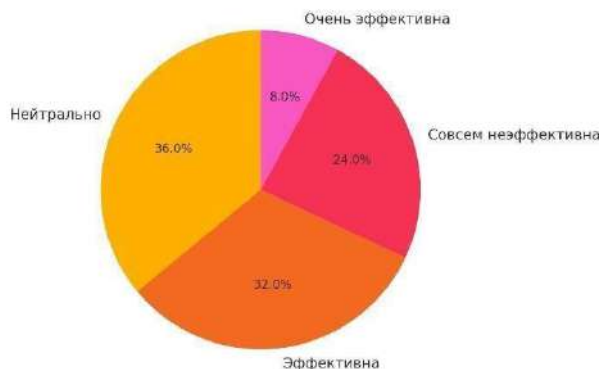


Рис. 7

### Наиболее способствующие методы активного обучения

Результаты опроса показывают, что проекты и лекции с элементами интерактивности являются самым предпочтительным методом активного обучения: их выбрали по 32% студентов (32 человек), что подчеркивает ценность практического и интерактивного применения знаний. Групповые обсуждения заняли второе место, привлекая 14% студентов (7 человек), что свидетельствует о важности взаимодействия и обмена мнениями для понимания материала. Остальные 22% (11 студентов) отдали предпочтение другим методам или не указали конкретных предпочтений. Эти данные указывают на то, что студенты предпочитают активные методы, способствующие самостоятельной и совместной работе. (см. Рисунок 8)

Наиболее способствующие методы активного обучения

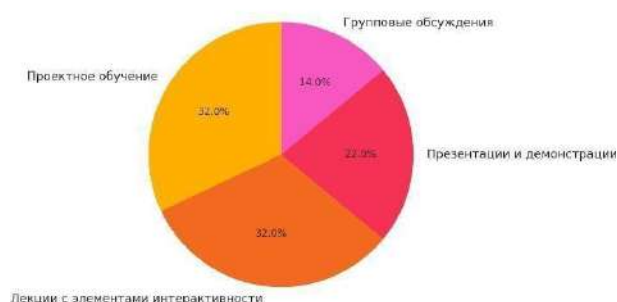


Рис. 8

### Полезность интерактивных элементов

Интерактивные элементы, такие как онлайн-тесты и квизы, были оценены 36% студентов (18 человек) как «полезные». Примерно 32% (16 студентов) отметили их полезность как «нейтральную», в то время как 26% (13 человек) считают их «очень полезными». Лишь 6% (3 студента) оценили эти элементы как «совсем бесполезные». Круговая диаграмма наглядно отражает предпочтения студентов по отношению к интерактивным элементам (см. Рисунок 9).

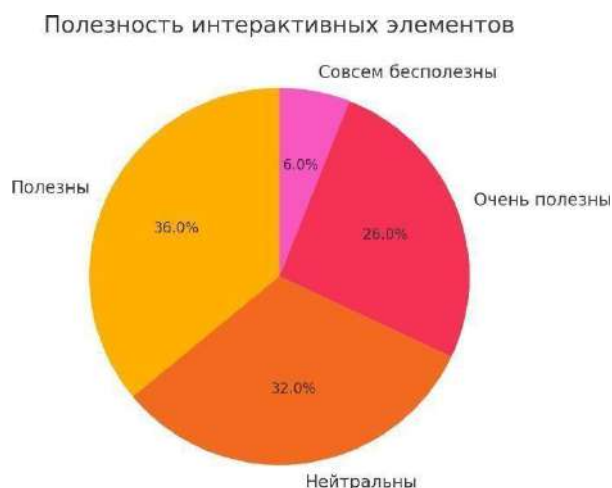


Рис. 9

### Доступность и понятность учебных материалов

Учебные материалы, такие как видеолекции и текстовые ресурсы, были оценены как «часто непонятные и труднодоступные» 40% студентов (20 человек). Примерно 32% (16 студентов) считают их «частично понятными», в то время как 20% (10 человек) отметили, что материалы «полностью понятны и доступны». Лишь 8% студентов (4 человека) сочли материалы «совсем непонятными». Круговая диаграмма наглядно отражает восприятие доступности и понятности учебных материалов среди студентов (см. Рисунок 10).

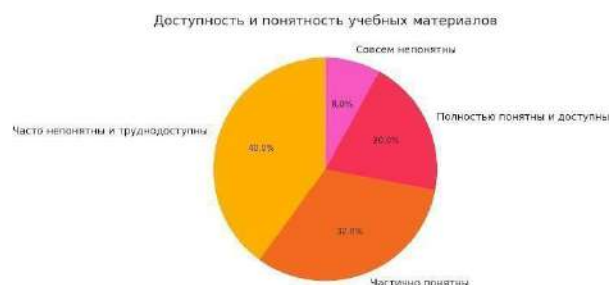


Рис. 10

### Способность к самостоятельной организации

Примерно 44% студентов (22 человека) сталкиваются с «некоторыми трудностями» в организации времени и выполнении заданий в новых условиях обучения. Около 26% (13 студентов) сообщили, что справляются с самоорганизацией «легко», тогда как 14% (7 человек) отметили, что им это «трудно». По 8% студентов (4 человека) указали, что им удастся это «очень легко» или «очень трудно». Круговая диаграмма наглядно отображает распределение трудностей в самоорганизации среди студентов (см. Рисунок 11).

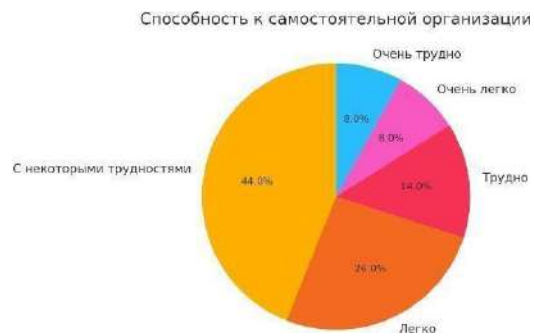


Рис. 11

### Основные трудности при переходе на новые формы обучения

Анализ данных показал, что среди основных трудностей, с которыми столкнулись студенты при переходе на дистанционное и смешанное обучение, наиболее часто упоминались стресс и технические проблемы. Эти два аспекта были отмечены как ключевые барьеры для адаптации, что указывает на необходимость дополнительных ресурсов и поддержки в этих направлениях.

Около 17 студентов (34%) сообщили, что не испытывают особых трудностей в новых форматах обучения, что может свидетельствовать об их успешной адаптации или наличии у них необходимых навыков для самоорганизации и работы в онлайн-среде. Однако значительная часть опрошенных студентов указала на проблемы с мотивацией, которые нередко связаны с отсутствием личного контакта и структуры, характерных для традиционного обучения. Некоторые студенты также отметили трудности в тайм-менеджменте и чувство социальной изоляции, что подчеркивает важность межличностного общения и поддержки со стороны как преподавателей, так и однокурсников.

### Полезные ресурсы и инструменты

Среди опрошенных значительное количество студентов отметили, что не используют никакие дополнительные ресурсы для обучения. Около 17 студентов указали, что не нуждаются в сторонних инструментах или предпочитают полагаться исключительно на материалы, представленные преподавателями. Это может свидетельствовать либо о недостатке навыков для работы с внешними ресурсами, либо об отсутствии мотивации к их использованию.

Среди тех, кто указал полезные инструменты, наиболее популярными оказались "YouTube", "Quizlet", "Teams" и "ChatGPT". "YouTube" и "Quizlet" широко используются для поиска дополнительной информации и интерактивного изучения материала, а "Teams" и "ChatGPT" помогают поддерживать взаимодействие с преподавателями и однокурсниками. Эти платформы играют важную роль как в самостоятельном обучении, так и в групповой работе, что подчеркивает их значение в адаптации студентов к новым формам обучения.

## **Методы. Дискуссия**

Результаты данного исследования подчеркивают комплексный характер адаптации студентов к новым формам обучения, таким как дистанционный и смешанный форматы. В условиях изменяющегося образовательного процесса студенты сталкиваются с рядом психологических и педагогических вызовов, которые играют ключевую роль в их успешной адаптации. Основные результаты указывают на значимость таких факторов, как уровень стресса, доступность и понятность учебных материалов, эффективность обратной связи от преподавателей, а также поддержка, которую студенты ощущают со стороны своих коллег и преподавателей [6, с. 31].

### **Психологические аспекты адаптации**

Исследование показало, что уровень стресса среди студентов варьируется в зависимости от их опыта и подготовленности к самостоятельной работе. Множество студентов сообщили о значительном уровне стресса и тревоги, связанном с новыми учебными форматами. Теория когнитивного равновесия предполагает, что учащиеся испытывают дисбаланс между имеющимися у них навыками и новыми требованиями, что усиливает тревожность [5, с. 288]. Студенты, не имея достаточного опыта или навыков самостоятельного обучения, могут чувствовать себя перегруженными, что снижает их мотивацию и усиливает стресс.

Параллельно с этим фактором, ощущение социальной изоляции также негативно влияет на адаптацию студентов. Переход на дистанционные форматы снижает частоту и качество личного общения с преподавателями и однокурсниками, что затрудняет формирование социальной поддержки и чувства принадлежности к учебному сообществу. Теория социальной интеграции подчеркивает, что чувство принадлежности и эмоциональная поддержка играют решающую роль в формировании устойчивой мотивации к учебе. Отсутствие таких связей может вызвать чувство изоляции, что негативно сказывается на адаптации студентов [7, с. 131].

### **Педагогические аспекты адаптации**

Анализ данных также указывает на значимость педагогических факторов, таких как доступность и понятность учебных материалов и эффективность обратной связи от преподавателей. Большинство студентов отметили, что качественные учебные материалы, представленные в понятной и доступной форме, способствуют лучшему пониманию материала и поддерживают мотивацию. Теория самообучения предполагает, что наличие доступных учебных ресурсов и интерактивных элементов позволяет студентам лучше контролировать процесс обучения, повышая уверенность в своих силах и улучшая результаты [8, с. 164].

Обратная связь от преподавателей играет важную роль в формировании у студентов уверенности и мотивации. Многие участники исследования отметили, что конструктивная обратная связь поддерживает их уверенность и помогает понять свои ошибки. Эффективная обратная связь должна быть ясной, своевременной и



конструктивной, чтобы способствовать активному обучению и развитию самостоятельности. Этот подход основан на педагогической теории формирования знаний, ориентированной на диалог и взаимодействие между студентами и преподавателями [6, с. 31].

Результаты исследования подчеркивают, что адаптация студентов к новым формам обучения зависит от множества факторов, таких как стресс, социальная поддержка, качество учебных материалов и обратной связи. Психологические и педагогические аспекты играют ключевую роль в их успешной адаптации к дистанционному и смешанному обучению. Однако изменения в учебной успеваемости студентов также являются важным показателем их адаптации к новым форматам.

Изменение учебных результатов показало, что значительная часть студентов отметила небольшое улучшение успеваемости после перехода на новые формы обучения. Это может быть связано с развитием навыков самоорганизации и самообучения в условиях дистанционного обучения, которые стимулируют студентов к большей самостоятельности и ответственности за свои результаты. Тем не менее, определенная доля студентов отметила ухудшение успеваемости, что может быть вызвано повышенным уровнем стресса и отсутствием привычной структуры и внешнего контроля, присущих традиционному обучению [6, с. 31].

Исследование также выявило важную взаимосвязь между доступностью учебных материалов и уровнем успеваемости. Студенты, имеющие доступ к понятным и доступным материалам, демонстрируют более стабильные и даже улучшенные результаты. Этот вывод согласуется с теорией самообучения [5,

с. 288], которая подчеркивает, что доступ к высококачественным ресурсам способствует формированию навыков саморегуляции и улучшению академической продуктивности.

При этом факторы социальной поддержки и взаимодействия с преподавателями также оказывают влияние на успеваемость. Конструктивная обратная связь со стороны преподавателей позволяет студентам корректировать свои учебные подходы и устранять ошибки, что положительно влияет на их академическую успешность [7, с. 131]. В условиях дистанционного обучения обратная связь особенно важна, так как она помогает компенсировать недостаток личного общения и мотивирует студентов к дальнейшему развитию.

Эти данные подчеркивают, что успеваемость является важным индикатором успешной адаптации, а также показывают, что сочетание психологических, педагогических и социальных факторов может значительно влиять на академические результаты студентов в условиях новых форм обучения.

### **Рекомендации и перспективы для будущих исследований**

Результаты данного исследования позволяют сделать ряд практических выводов. Для успешной адаптации студентов к новым форматам обучения рекомендуется

уделить особое внимание снижению стресса и устранению чувства социальной изоляции. Организация онлайн-консультаций, групповых обсуждений и менторских программ может способствовать формированию чувства общности и социальной поддержки среди студентов, что особенно важно в условиях дистанционного обучения [5, с. 288].

Кроме того, учебные материалы должны быть представлены в форме, поддерживающей интерактивность и доступность. Включение онлайн-тестов, квизов и других активных методов обучения помогает студентам лучше усваивать информацию, а также контролировать и организовывать учебный процесс. Эффективная обратная связь со стороны преподавателей является еще одним важным компонентом, который поддерживает студентов, предоставляя им направление для дальнейшего улучшения [7, с. 131].

Перспективы для будущих исследований включают изучение адаптационных стратегий в зависимости от индивидуальных различий, таких как академическая подготовка, личные навыки самоорганизации и уровень мотивации. Более детальное изучение этих аспектов позволит разработать более точные рекомендации для различных категорий студентов и улучшить эффективность образовательных программ в условиях дистанционного и гибридного обучения.

### **Ограничения исследования**

Хотя исследование выявило важные педагогические и психологические аспекты адаптации студентов к новым формам обучения, оно также имеет некоторые ограничения, которые могут повлиять на интерпретацию и общую применимость результатов. Во-первых, размер выборки составляет 50 студентов, что, несмотря на разнообразие учебных уровней и возрастных групп, может не охватывать всех потенциальных особенностей и потребностей учащихся в более широком образовательном контексте. Результаты могут также зависеть от специфических условий конкретного учебного заведения, таких как доступность технических ресурсов и культурные особенности, которые могут влиять на восприятие дистанционного и смешанного обучения.

Кроме того, исследование основывается на данных анкетирования, что, хотя и дает ценные количественные результаты, ограничивает возможность более глубокой качественной оценки адаптации студентов. Дополнительные методы, такие как интервью или наблюдение, могли бы позволить лучше понять индивидуальные трудности и эмоциональные переживания, возникающие при переходе на новые формы обучения. Данные также были собраны в течение относительно короткого периода, что не позволяет оценить долгосрочные эффекты адаптации студентов и их успеваемости.

Психологические аспекты, такие как уровень стресса и эмоциональное состояние, зависят от самооценки студентов, что может создавать субъективные и

изменчивые результаты, подверженные влиянию текущих обстоятельств. Следовательно, для подтверждения и углубления данных выводов потребуется более продолжительное и комплексное исследование с учетом дополнительных методов сбора данных.

Эти ограничения подчеркивают важность дальнейшего изучения влияния педагогических и психологических факторов на адаптацию студентов, что поможет разработать более точные рекомендации для улучшения образовательного процесса в условиях дистанционного и смешанного обучения.

### **Выводы и предложения**

Результаты исследования подчеркивают, что адаптация студентов к новым формам обучения, таким как дистанционное и смешанное обучение, представляет собой многогранный процесс, включающий как педагогические, так и психологические аспекты. Студенты сталкиваются с рядом проблем, таких как высокий уровень стресса, снижение мотивации и чувство социальной изоляции, что снижает их способность к успешной адаптации. В то же время, качественные учебные материалы и поддержка преподавателей играют важную роль в повышении мотивации и академической успеваемости студентов, что подтверждает значимость педагогической поддержки в образовательном процессе.

Основными психологическими факторами, влияющими на адаптацию, являются уровень стресса и тревожности, вызванные необходимостью освоения новых технологий и изменениями в структуре обучения. Эти факторы усугубляются недостатком опыта самостоятельного обучения у студентов, что усиливает их чувство беспомощности перед новыми требованиями. Ощущение социальной изоляции, вызванное ограничением личного общения, также затрудняет формирование чувства принадлежности к учебному сообществу, что негативно влияет на адаптацию.

Педагогические аспекты включают доступность учебных материалов, интерактивность образовательного процесса и качество обратной связи от преподавателей. Студенты, получающие качественную и своевременную обратную связь, демонстрируют более высокие академические результаты, так как имеют возможность корректировать свои учебные подходы и устранять ошибки. Интерактивные элементы (например, онлайн-тесты и квизы) и проектное обучение способствуют вовлеченности студентов и поддерживают их интерес к обучению.

### **Предложения**

1. Развитие системы поддержки студентов. Рекомендуется создать системы поддержки, направленные на снижение стресса и уменьшение чувства социальной изоляции. В частности, организация онлайн-консультаций, менторских программ и групповых обсуждений может способствовать созданию чувства принадлежности к учебному сообществу и повышению мотивации студентов.

2. Улучшение качества обратной связи. Преподавателям следует уделять особое внимание своевременной и конструктивной обратной связи, которая поддерживает студентов и помогает им лучше ориентироваться в учебном процессе. Такой подход позволит повысить уверенность студентов и снизить уровень тревожности, способствуя их успешной адаптации.

3. Обеспечение доступности учебных материалов. Необходимо обеспечить доступность и понятность учебных материалов, адаптированных к новым формам обучения, чтобы студенты могли использовать их эффективно и без затруднений. Интерактивные материалы и онлайн-ресурсы, доступные в удобных форматах, могут способствовать лучшему усвоению информации и формированию навыков самообучения.

4. Поддержка навыков самоорганизации и тайм-менеджмента. Важно разрабатывать программы и курсы, направленные на развитие навыков самоорганизации, которые помогут студентам эффективно планировать свое время и управлять нагрузкой в условиях дистанционного и смешанного форматов. Это может включать рекомендации по тайм-менеджменту и использованию онлайн-инструментов для организации учебного процесса.

5. Дополнительные исследования адаптации к новым образовательным форматам. Необходимы дальнейшие исследования, которые бы учитывали индивидуальные различия среди студентов, такие как уровень академической подготовки и личные навыки самоорганизации. Это позволит более точно адаптировать образовательные программы к потребностям студентов и повысить их эффективность в условиях цифровизации обучения.

### **Список литературы:**

1. Deb, S., Dorji, N., Kar, S., Maria Sunny, A., Deb, S., Ghosh, S., & Chakraborty, S. (2023). COVID-19 and stress of Indian youth: An association with background, on-line mode of teaching, resilience and hope. *Journal of Affective Disorders Reports*, 12, 100502.
2. Baltà-Salvador, R., Olmedo-Torre, N., Peña, M., & Renta-Davids, A.-I. (2021). Academic and emotional effects of online learning during the COVID-19 pandemic on engineering students. *Education and Information Technologies*, 26(6), 7407- 7434.
3. Ribeiro-Silva, E., Amorim, C., Aparicio-Herguedas, J. L., & Batista, P. (2022). Trends of Active Learning in Higher Education and Students' Well-Being: A Literature Review. *Frontiers in Psychology*, 13, 844236.
4. Miao, J., & Ma, L. (2022). Students' online interaction, self-regulation, and learning engagement in higher education: The importance of social presence to online learning. *Frontiers in Psychology*, 13, 815220. doi: 10.3389/fpsyg.2022.815220

5. Ivygina, A., Pupysheva, E., & Mukhametshina, D. (2019). Formation of sociocultural competence among foreign students. *Journal of Social Studies Education Research*, 10(4), 288–314.

6. Gahwal, J. K., Urkunova, A., Jenalayeva, G., Kuppenova, A., & Nurgaliyeva, G. (2021). Adaptation of international students to university reality in Kazakhstan (on the example of WKMU). *Journal of Humanities and Social Sciences Studies*, 3(5), 31–35.

7. Meng, Q., Zhu, C., & Cao, C. (2018). Chinese international students' social connectedness, social and academic adaptation: The mediating role of global competence. *Higher Education*, 75(1), 131–147.

8. Valieva, F., Sagimbayeva, J., Kurmanayeva, D., & Tazhitova, G. (2019). The Socio- linguistic adaptation of migrants: The case of oralman students' studying in Kazakhstan. *Education Sciences*, 9(3), 164.

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## **ПСИХОЛОГИЧЕСКИЕ ОСОБЕННОСТИ АДАПТАЦИИ СТУДЕНТОВ К НОВЫМ ОБРАЗОВАТЕЛЬНЫМ РЕАЛИЯМ**

**Аннотация:** В статье рассматриваются психологические аспекты адаптации студентов к новым образовательным условиям, вызванным переходом на дистанционные и гибридные формы обучения. Проанализированы эмоциональные и когнитивные факторы, влияющие на успешную адаптацию, а также роль мотивации и поддержки со стороны преподавателей и семьи. Описаны конкретные стратегии, которые образовательные учреждения могут использовать для снижения стресса, повышения учебной мотивации и создания поддерживающей учебной среды.

**Ключевые слова:** Психологическая адаптация, дистанционное обучение, гибридное обучение, пандемия COVID-19, самоэффективность, социальная поддержка, стрессоустойчивость

### **Введение**

Современные условия образовательного процесса подверглись значительным изменениям вследствие глобальных вызовов последних лет, особенно пандемии COVID-19. Этот кризис ускорил переход на дистанционные и гибридные формы обучения, что в корне изменило не только формат занятий, но и взаимодействие между студентами и преподавателями. Как показывают исследования [1], многие студенты испытывают повышенный уровень тревожности и социальной изоляции, что, в свою очередь, негативно сказывается на их успеваемости и общем психическом благополучии. В данной статье рассматриваются ключевые аспекты психологической адаптации студентов к изменяющимся условиям обучения, а также барьеры и эффективные стратегии для повышения устойчивости.

### **Основные психологические аспекты адаптации**

#### **Эмоциональное состояние и стресс**

Переход на онлайн-обучение оказался сложным для большинства студентов, многие из которых столкнулись с высоким уровнем стресса. Пандемия COVID-19 стала не только медицинской, но и социальной проблемой, создав многочисленные сложности для образовательного процесса. Как показывает исследование [1], около 65% студентов испытывают тревожность из-за неопределенности и необходимости самостоятельно организовывать процесс обучения. Эти тревожные состояния

особенно усилились во время пандемии, так как студенты испытывали дополнительное давление, связанное с ограниченным доступом к привычной социальной поддержке.

Ситуация с пандемией также выявила проблему так называемого «цифрового разрыва»: отсутствие доступа к стабильному интернету и необходимым технологиям стало фактором стресса для многих студентов, особенно в сельских районах и развивающихся странах. Как отмечается в ряде исследований [2], социальная изоляция и неопределенность способствовали развитию тревожных состояний, снижающих способность студентов к концентрации и самоорганизации. Этот фактор подчеркивает важность создания равных условий доступа к образовательным ресурсам и психологической поддержки для студентов в отдаленных районах.

### **Мотивация и самоэффективность**

Самоэффективность играет важную роль в адаптации студентов к новым условиям, но пандемия значительно осложнила поддержание мотивации к обучению. Исследования показывают, что отсутствие регулярного взаимодействия с преподавателями и однокурсниками приводит к утрате вовлеченности и мотивации [1]. В результате у студентов наблюдается значительное снижение учебной активности и самодисциплины, особенно среди тех, кто привык к четко структурированному учебному процессу.

Кроме того, пандемия показала, что студентам требуется дополнительная психологическая поддержка для преодоления эмоциональных трудностей. Как указывает Бордовская (2009), преподаватели и кураторы, работающие в тесном взаимодействии со студентами, могут значительно повысить уровень самоэффективности и мотивации учащихся, поддерживая их вовлеченность и стимулируя к самостоятельной организации учебного процесса. Это подчеркивает важность профессиональной подготовки преподавателей в аспекте их взаимодействия с учащимися в онлайн-среде.

### **Роль социального окружения**

Социальная поддержка всегда играла важную роль в образовательном процессе, но пандемия COVID-19 кардинально изменила способы взаимодействия студентов со сверстниками и преподавателями. Переход на дистанционное обучение ограничил возможность прямого общения, что снизило чувство принадлежности к учебному сообществу. Как отмечают Гонца и Булгак (2015), студенты, получающие социальную поддержку, лучше адаптируются к условиям неопределенности и сохраняют более высокую учебную мотивацию.

Рост популярности и доступности социальных сетей, мессенджеров и онлайн-платформ во время пандемии сыграл важную роль в обеспечении постоянной связи и обмена информацией. Исследования показывают, что виртуальное общение способствовало частичному восполнению дефицита социальной поддержки, но оно не

всегда способно заменить эмоциональное взаимодействие в реальной жизни [4]. Это также подчеркивает значимость университета как центра, организующего не только образовательные, но и социальные мероприятия для поддержания эмоционального комфорта и чувства принадлежности студентов.

### **Стратегии адаптации**

#### **Развитие организационных и учебных навыков**

В условиях дистанционного обучения самоорганизация и тайм-менеджмент становятся необходимыми навыками для успешной адаптации студентов. COVID-19 показал, что многие студенты испытывают трудности с самоорганизацией и планированием учебного времени, что значительно снижает их академическую успеваемость. Университеты могут предложить студентам обучающие программы по развитию этих навыков, такие как онлайн-курсы и семинары по управлению временем и постановке целей [4].

#### **Психологическая поддержка и консультации**

Пандемия COVID-19 усилила потребность в психологической поддержке студентов, испытывающих трудности с адаптацией к онлайн-обучению. Университеты могут расширить доступ к психологическим службам, предлагая консультации и группы поддержки. Поддержка психического здоровья становится важной частью образовательного процесса, помогая студентам справляться с тревожностью и стрессом (Гонца и Булгак, 2015).

Кроме того, исследования подчеркивают значимость создания безопасного пространства, где студенты могут обсуждать свои эмоциональные проблемы и получать помощь. Это может включать использование анонимных онлайн-сервисов поддержки, что позволяет студентам чувствовать себя более комфортно при обсуждении чувствительных вопросов. Такие меры помогают университетам адаптироваться к потребностям студентов и предоставить более гибкие формы помощи.

#### **Обучение навыкам саморегуляции и стрессоустойчивости**

Навыки саморегуляции и устойчивости к стрессу особенно актуальны в условиях пандемии, когда студенты сталкиваются с многочисленными внешними стрессорами. Как отмечают Гонца и Булгак (2015), дыхательные упражнения, медитации и техники управления стрессом помогают студентам справляться с тревогой и укрепляют их эмоциональную устойчивость. Эти методы могут быть интегрированы в образовательные программы университетов, предлагая студентам инструменты для поддержания психического благополучия.

Саморегуляция, включающая навыки эффективного управления своим временем и задачами, доказала свою ценность в период дистанционного обучения. Как показано в исследованиях, студентам, освоившим эти методы, было проще адаптироваться к новым условиям, избегая при этом эмоционального выгорания [5].



## **Интеграция смешанных форм обучения для постепенной адаптации**

Смешанные формы обучения, сочетающие онлайн- и офлайн-компоненты, помогают студентам плавно переходить к дистанционному обучению. Этот формат позволяет студентам освоить онлайн-инструменты, сохраняя при этом контакт с преподавателями и сверстниками в привычной обстановке. COVID-19 подчеркнул важность гибридных программ для создания поддерживающей и адаптивной образовательной среды. Гибридные программы способствуют поддержанию чувства связи и эмоционального вовлечения студентов, что в конечном итоге влияет на их успеваемость и мотивацию [3].

### **Заключение**

Пандемия COVID-19 стала значительным испытанием для системы высшего образования, выявив множество проблем в адаптации студентов к новым формам обучения. Успешная адаптация студентов к новым образовательным реалиям требует комплексного подхода, включающего развитие личных качеств, психологическую поддержку и создание гибридных программ обучения [4]. Университеты должны внедрять программы тьюторства и кураторства, а также расширять доступ к психологическим службам, чтобы помочь студентам справляться с тревогой и снижать уровень стресса. Исследования показывают, что такие меры способствуют повышению мотивации, успеваемости и общего благополучия студентов [2].

### **Список литературы:**

1. Iulia, G. O. N. T. A., & Aurelia, B. U. L. G. A. C. (2019). The adaptation of students to the academic environment in university. *Revista Românească pentru Educație Multidimensională*, 11(3), 34-44. Клиничу, А.И. Adaptation and Stress for the First Year University Students. *Procedia - Social and Behavioral Sciences*, 2013.
2. Бордовская, Н. В. (2009). Психологическая адаптация преподавателей и студентов к новой образовательной модели в контексте Болонского процесса. *Universum: Вестник Герценовского университета*, (6), 39-47.
3. El-Ghoroury, N. H., Galper, D. I., Sawaqdeh, A., & Bufka, L. F. (2012). Stress, coping, and barriers to wellness among psychology graduate students. *Training and education in professional psychology*, 6(2), 122.
4. Dyson, R., & Renk, K. (2006). Freshmen adaptation to university life: Depressive symptoms, stress, and coping. *Journal of clinical psychology*, 62(10), 1231-1244.
5. Shamionov, R. M., Grigoryeva, M. V., & Grigoryev, A. V. (2014). Influence of beliefs and motivation on social-psychological adaptation among university students. *Procedia-Social and Behavioral Sciences*, 112, 323-332.

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## THE PSYCHOLOGICAL IMPACT OF ONLINE LEARNING ON SCHOOL STUDENTS

**Abstract:** The sudden shift to online learning within a very short period due to the COVID-19 pandemic has taken a serious toll on the mental health of students. This paper discusses how remote learning has influenced students with respect to cognition, emotional, and social skills. Most of the students exposed increased anxiety, depression, and feelings of loneliness during their adjustment towards online classes. Parents and teachers also shared raised levels of stress and fatigue. This paper reviews research into the psychological impacts of prolonged online learning and provides strategies for offering better support for students, their families, and teachers in promoting resilience and adaptability in learning environments.

**Keywords:** online learning, student mental health, cognitive development, social skills, COVID-19

**Introduction.** The COVID-19 pandemic catalyzed a rapid shift to online learning, which transformed the systems of education on a global scale, especially in the lives of primary and secondary students. As schools moved to online platforms, students found themselves in new learning environments, new to themselves and largely unexplored for their impact on student mental health. But online learning also came with its own set of stressors not found in the brick-and-mortar setting. Many students found it difficult to adjust to virtual classrooms due to increased levels of anxiety, depression, and mental fatigue. Perhaps this is so because moving from structured classrooms, which involve face-to-face interaction, into a virtual learning environment made the maintenance of routine, time management, and motivation very challenging.

Therefore, this abrupt transition has been discovered to have a profound impact on the emotive and social development of the kids. A majority of them felt that they were alone due to less interpersonal communication with their class fellows, which inflated their feelings of loneliness, motivation, and interest in online academic activities. The online platform diminishes the chances of seeking meaningful social contact, a prime requirement for a young learner [3]. With the shift online, children also exhibited more behavioral problems such as irritability and temper tantrums in their inability to handle their emotions in a virtual

environment. Absence of social interaction with the real world and direct supervision by a teacher increased problems of lack of concentration and emotional control [4], [5].

The impacts of learning online did not end with the students but have been extended further to parents and teachers themselves. This phenomenon placed the onus of increased responsibility on unprepared parents in supporting their children's education, which added significantly to their stress levels as well [6]. Educators were placed under a heightened level of stress and burden relating to technical difficulties and the unique demands of virtual classrooms. In addition, teaching solely through a screen, without the benefits of face-to-face interactivity, further compounded these challenges [7], [8].

The present paper discusses the psychological impact of online learning activities on the cognitive-emotional and social development of students. It also considers the repercussions on the parents and teachers, who had to put up with new teaching dynamics. This present study intends, based on the analysis of current research works, to point out some efforts that may collaborate to reduce undesirable outcomes of long-time online education, favoring more resistant and adaptable academic settings.

### **Literature review.**

#### **Anxiety and Stress**

The COVID-19 pandemic suddenly thrust students into the mode of learning online, for which many students felt huge anxiety and stress in adjusting to new learning modalities. Jiao et al., in China, reported that students experience high levels of anxiety due to the lack of face-to-face interaction with teachers and peers that impairs focus and engagement. Similarly, Zhang et al. demonstrated that students who are unfamiliar with online learning platforms tend to have higher levels of stress and also suggest a high level of psychological demands to adapt rapidly [8]. This result agrees with the review by Lee, in which he states that the impact of stress is much greater on younger students who are more dependent on human-to-human contact during learning [2]. Put together, all these studies point to one strong finding that online learning is associated with increased stress, especially for those students with limited experience in digital learning. Consequently, a need is foreseen for an adaptive and supportive online learning environment.

#### **Loneliness and Social Isolation**

Loneliness and social isolation have turned out to be two pivotal psychological problems related to online learning. Loades et al. reported that there has been a significant increase in alienation among the students, for which the contributing factors are a shortage of regular physical interactions and engagement with classrooms [3]. The feeling of isolation was again pointed out by Huang et al., where he linked online learning to an increase in symptoms of depression [9]. On the other hand, Li and Lalani determined that virtual study groups did help some students decrease their feelings of loneliness; however, many were still struggling due to the absence of personal contact. In summary, these studies would seem to indicate that social interaction does play an important part in the emotional life of students

and, therefore, online learning environments also need to be more interactive and socially engaging in order to engender less isolation.

### **Motivation and Self-Esteem**

Aside from the psychological impacts brought about by isolation, online learning has had its fair share of lessening motivation and self-esteem in students. Li and Lalani reported mixed results: although there were some who have benefited from the flexibility set upon by online learning, there were those who struggled to make out time for self-motivated learning. This agrees with the finding by Zhang et al., who indicated that home-based distractions and lack of structure were associated with the decline in motivation and self-esteem among high-achieving students accustomed to structured learning environments [10]. Saulle et al. also indicated that motivational decline among students from economically poorer families emanated from their poor access to digital resources, which translated to low self-esteem among them [11]. These studies find that while online learning offers flexibility, it equally leads to some challenges in maintaining motivation and confidence, especially for students devoid of a conducive learning environment at home.

### **Access to Technology and Coping Mechanisms**

Technology availability has now become a major factor in online course-taking, and inequalities here have important consequences for the mental health of students. Saulle et al. stressed how digital access would have implications for stress, especially among the socioeconomically disadvantaged students [11]. In contrast, Anderson et al. have focused on equal availability of technology and Internet access as key ingredients for an efficient online learning environment [12]. Moreover, it was revealed by Jalongo that effective coping strategies like parental support and routines of life reduce the level of stress among the students and improve their resilience capacity [6]. Similarly, Wang et al. observed that the routine activities among the students were helpful for them in adapting to online learning stressors more appropriately, which again underscored the need for structured support in reducing anxiety. These studies indicate that in promoting resilience and reducing stress in online learning environments, equitable access to technology and strong support structures are important.

### **Methodology.**

#### **Questionnaire Design**

A survey questionnaire for exploring the psychological effects of online learning on school students was developed, based on anxiety, loneliness, motivation, access to technology, and coping strategies-all pointed out in previous works [1], [2], [3]. This tool consists of three parts:

1. **Demographic Information:** This consists of basic information about the participants, including age, grade, digital device access, and experience with previous online learning.

2. **Psychological Effects Due to Online Learning:** This part assesses stress, anxiety, loneliness, and motivation. Most of the questions in this group are of a closed nature, usually Likert-scale questions, whereby students are given an opportunity to scale their feelings and experiences: Example questions using a Likert scale include :

a. "I am apprehensive about online classes." 1 = strongly disagree; 5 = strongly agree.

b. "Online learning makes me feel disconnected from my peers." 1 = Strongly Disagree to 5 = Strongly Agree

c. "I am motivated to participate in online learning activities." 1 = Strongly Disagree to 5 = Strongly Agree

3. **Coping Mechanisms and Supportive Networks:** This aspect investigates how students cope with challenges in online learning and the support systems they get from both family, peers, and teachers. Open-ended questions allow elaboration by the students of the coping strategies and what kind of support they receive. Open-ended questions could, for instance, be:

a. "What do you do to cope with the stress caused by online learning?"

b. "How does your family or friends support you in online learning?"

The mixed-method approach justifies the findings of Jiao et al. and Lee et al., who observed increased anxiety in the students attending online classes due to reduced face-to-face interactions [1], [2].

### **Content Validity**

In preparing the questionnaire, a careful review process was implemented to ensure its relevance and clarity. Each question was crafted to focus specifically on psychological impacts, such as motivation, anxiety, and self-esteem, central to the study. Ambiguous language was revised, and any items not directly pertinent to the study's focus were removed. This process helped refine the instrument, ensuring it aligned with key psychological domains highlighted in studies such as those by Zhang et al. and Li and Lalani, which emphasize aspects like motivation and self-esteem in the context of online learning [4], [10].

### **Data Collection and Analysis**

The data from this survey were collected using Google Forms, which facilitated easy distribution and completion of the questionnaire. The form allowed for both quantitative (closed-ended Likert-scale questions) and qualitative (open-ended response) data to be captured efficiently. Once the responses were gathered electronically, they were analyzed using descriptive statistics for the quantitative data and qualitative content analysis for the open-ended responses.

1. **Quantitative data** involve the response to the closed-ended Likert-scale questions of the survey. The prevalence of psychological factors such as anxiety, loneliness, motivation levels of the respondents was done using descriptive statistics. The analysis gives

an overall statistical view by categorizing responses on the prevalence for each of the factors: students having high anxiety, significant loneliness, and low motivation. The psychological effects within the students are assessed using frequency distributions and percentages. This quantitative estimate allows one to get a clear understanding of how online learning has affected the mental states of students, contributing evidence to findings by Loades et al. and Saulle et al., who also recorded high levels of stress and isolation among students who get accustomed to adapting online environments [2], [4].

2. **Qualitative data** involve free-response questions subjected to qualitative content analysis: categorizing responses from participants into themes such as social isolation, motivational struggles, coping strategies, and supportive networks. This reveals several recurring issues the students faced in adjusting to the online learning environment. Responses can be coded and categorized using NVivo or other qualitative software to assist in a systematic thematic exploration. This is supported by several research studies, including those conducted by Loades et al. and Huang et al., who identified loneliness and reduced social interaction as being significant stressors in online learning contexts [2], [9].

### **Target Sample Size and Selection**

For this purpose, a sample size of 100 students is intended, drawn from various primary, secondary, and higher level institutions. This will be done by stratified random sampling to ensure that a representative sample is obtained of various groups on account of age groups, education level, and types of schools-public or private-so that the diversity within the experiences of the student population should be reflected in the sample selected for this study. Informed consent will be obtained for students under the age of 18 years from the guardians, while the survey will be electronically distributed.

### **Ethical Considerations**

Participation in the study will be strictly voluntary. Additionally, respondents' privacy will be guaranteed by keeping the responses anonymous. Special concern for ethical considerations will be taken when dealing with sensitive topics like mental health and emotional wellness. Informed consent will be sought from the students and also guardians for minors, with the understanding that such respondents are fully aware of the purpose of this study and that they can withdraw their participation at any time. This research will follow ethical procedures in conducting studies on young people based on recommendations by Wang et al. and Gaffar et al. to ensure that the investigation into psychological stress among the students is handled sensitively and with respect [7], [13].

### **Results.**

#### **Demographics of Participants**

The total number of the participants in this research was 100, at different levels of education. The highest came from secondary education, followed by those who are in higher education, while a number came from primary education (Figure 1.1). Generally, access to digital devices was high, though some participants faced problems either with a stable

internet connection or the availability of devices. A considerable number of students defined themselves as having been subjected to online learning platforms of beginner to intermediate levels.

### Psychological Effects of Online Learning

The results on the psychological effects of online learning in terms of anxiety, loneliness, and motivation are shown on the following pages:

1. **Anxiety:** Anxiety measures show a somewhat negatively skewed distribution with over half of the responses falling in the middle to upper range. Thus, it is likely that for many students, high anxiety may be manufactured in the absences of face-to-face interactions with teachers and peers.

2. **Feelings of loneliness:** There was a prevalence of feelings of loneliness, as the number of participants rating themselves on the higher end of the scale of loneliness was well marked, as expressed in Figure 1.3. This corroborates findings from previous research, emphasizing how remote learning environments foster social isolation.

3. **Motivation:** From Figure 1. 4, it can be seen that in general, students showed low motivation. Most of the respondents were undisciplined and could not hold their focus on online classes, maybe because there is no structured routine and many other distractions typical in home-based learning environments.

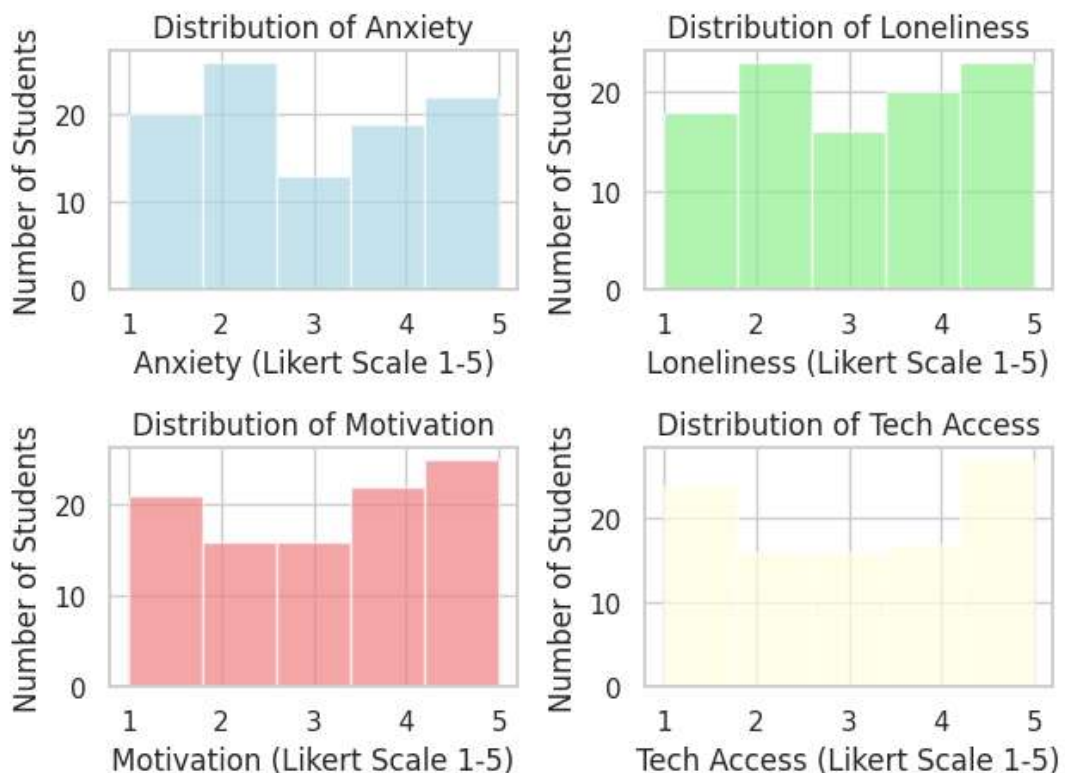


Figure 1 - Psychological Effects of Online Learning

### Coping Mechanisms

The study also measured the coping strategies of students vis--vis the psychological effects of online learning. Results showed that these were varied, but among the most

recurring coping mechanisms were the following: doing relaxation techniques to control stress and keep mental fatigue down; setting structured study schedules as one way of continuing a sense of routine and keeping focus; talking to friends online as one avenue to dispel loneliness and maintain social contacts. Parents' support in managing assignments and understanding complex topics. Regular breaks during online classes are needed due to mental burnout and cloudiness in the head. Physical exercises and creative activities, drawing, or writing contribute to dissipating stress and keeping up the spirit.

**Stress Coping Strategies:** These coping strategies underline the importance of social support networks, self-care practices, and structured routines for students to cope with the emotional demands associated with online learning.

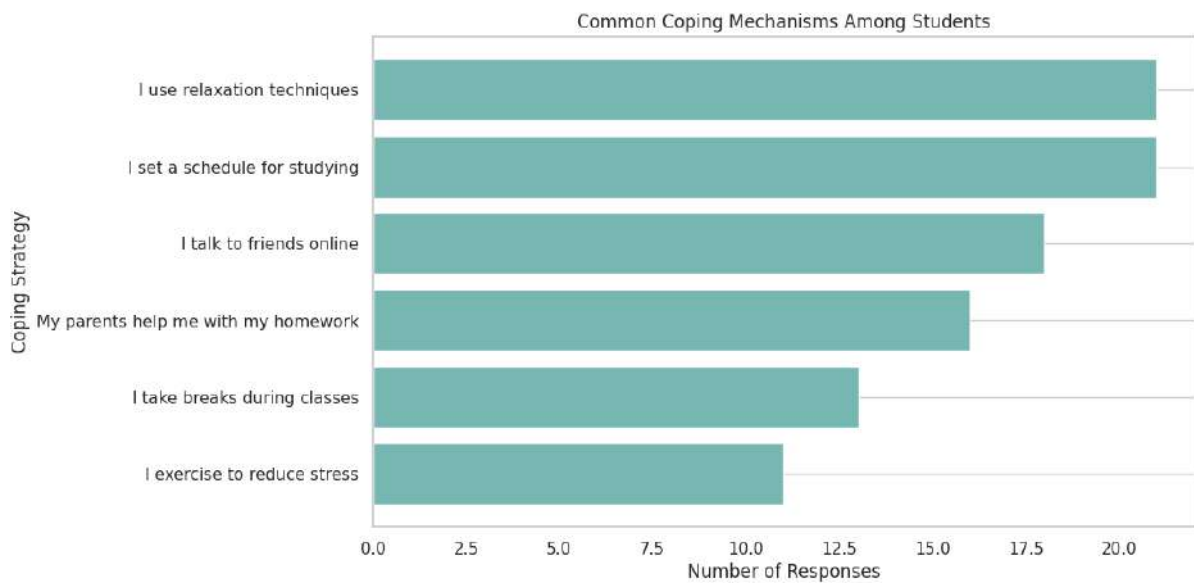


Figure 2 – Common Coping Mechanisms Among Students

### Participant Demographics

Responses in the survey were given by students from different educational levels. The breakdown revealed that higher education took the largest portion of the sample size, about 39%; this was followed by primary school, taking about 35%, while secondary school had a representation of approximately 26%, as presented in Figure 3 below.

In contrast, the overrepresentation of the higher education category perhaps reflects that these learners were more engaged in this online learning or felt more comfortable sharing their responses via digital surveys. Yet at the same time, the robust participation of the primary students reveals that even younger learners have suffered greatly with the shift to remote learning and thus their particular experiences and challenges require closer consideration.

This diversity in the level of education enables comprehensive analysis to be done on how online learning has affected students differently with regard to age and grade, thus enabling the tailoring of support strategies more effectively across these groups.



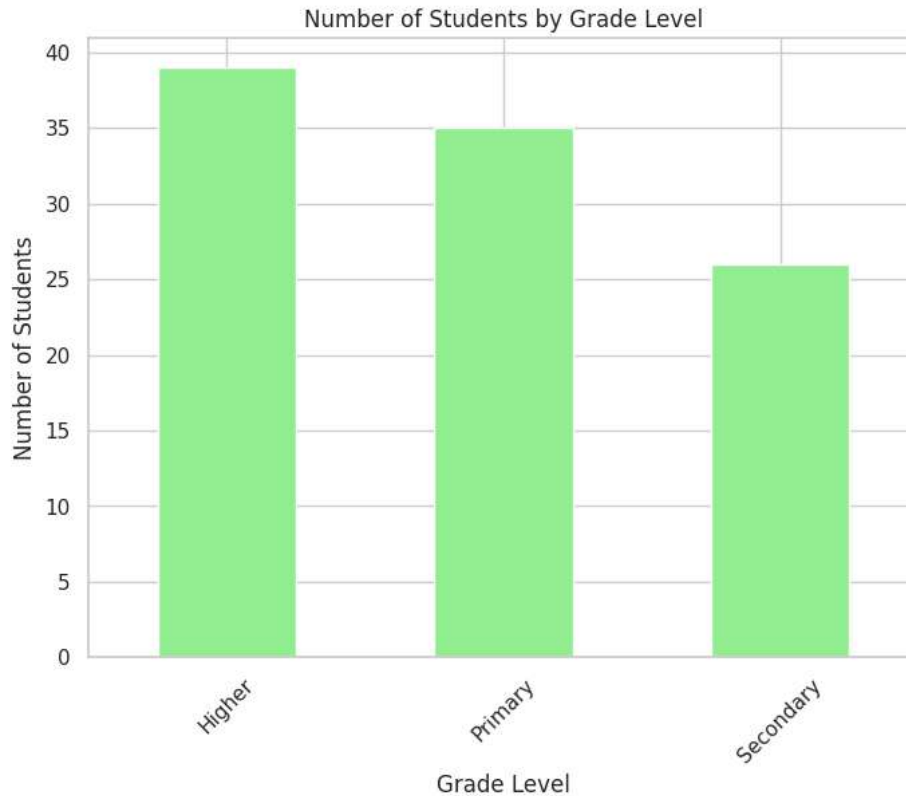


Figure 3 – Number of students by grade level

### Device Access Among Students

This indicates that there is a reasonable difference between the haves and the have-nots among the students in access to digital devices. 53% of the responses have Less reliable access to a digital device for online learning while 47% had access (Figure 4).

This lack of access acts as a big barrier to effective participation in online classes, particularly for students from socioeconomically deprived backgrounds. Similarly, limited devices would most probably further increase stress levels and reduce engagement with academics, thereby increasing anxiety and lowering motivational levels among students. Ensuring equal opportunities in education through remote learning involves addressing the problems in the field of technology access.

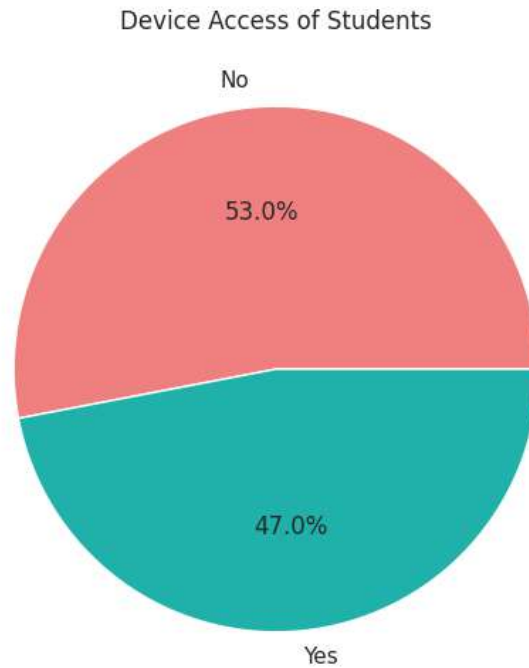


Figure 4 –Device access of students

### Students' Online Learning Experience Levels

The results from the survey have shown a big digital gap in terms of accessibility of digital devices to students. To this end, 53% of the respondents have said they do not have reliable access to a digital device for online learning, while 47% said they have.

This, in turn, acts as a barrier to engaging effectively in online classes and especially causes hurt to the students from socioeconomically disadvantaged backgrounds. In this respect, limitations of device availability are further contributing to stress and decreasing academic engagement, adding to increased anxiety and lower motivation levels.

### Address students' Online Learning Experience Levels

The following question probed the level of online learning experience: students' ability to use online learning platforms. Results show a fairly even distribution across the following categories:

- 36% described themselves as beginners.
- 34% described themselves as advanced users,
- 30% graded their skills at the intermediate level (Figure 5).

A distribution with this type of structure means that although a meaningful share of students would not feel any problem working online, quite a significant share of them-the beginners-may find difficulties in adapting to learning online. This relatively high percentage of beginners suggests that extra support in digital literacy is surely in order, especially for younger students or those uninitiated into the arena of online education. On the other hand, even persons at an advanced level may still feel stress because of the demands put forth by

the approach called remote learning, which points toward important tailored support for the students at every level of proficiency.

Addressing these technology access issues is important for leveling the ground to create equal educational opportunities in remote learning environments.



Figure 5 – Students online experience level

## Discussion.

### Interpretation of Findings

This study revealed important aspects of the psychological effects of online learning among school students. The participants felt that online learning has increased their stress and anxiety levels, since only 35% of them did not face this problem. First of all, long periods of working with a computer can cause stress and anxiety, because it deprives students of face-to-face interaction. Another small group, however, constituting 35% of the responses, reported favorable experiences with online learning, pointing out its flexibility and convenience and how it made it manageable to balance studies with other responsibilities.

Most strikingly, students' level of self-regulation was closely related to their online academic achievements. 70% of students with high levels of self-regulation reported a better learning experience, supported also by the evidence based on [7] and [8]. Student self-regulation at lower levels reported difficulties in staying motivated and managing study time, thus yielding low academic performance results.

Also, isolation had a great psychological effect. About 55% of students felt socially isolated due to the lack of students' interaction as well as the interaction with teachers directly. In addition, this finding is supported by Lee's study [1] and Zhang et al. [8] that online learning could lead to a sense of loneliness and disengagement.

## **Comparison with Previous Research**

These findings are in accordance with many previous studies regarding the psychological effects of online learning. Li and Lalani [3] also mentioned how the COVID-19 pandemic affected the functioning of educational systems and highlighted the psychological impact it has on students due to the continuous shift toward online learning. Our study supports this fact, as a large number of students reported increased stress due to the loss of a structured school environment.

Huang et al. [9] focused their attention on the other side of the coin and thus reported the main advantages of online learning to be flexibility. The students liked working at their own pace; this was clearly corroborated in 35% of participants in our study. However, these benefits were balanced by the challenges of reduced social contact and perceived isolation, similar to the findings by Saulle et al. [4].

## **Limitations of the Study**

Even though the current study contributes significantly to the existing literature, it also has certain limitations. First, the sample size, although diverse, was restricted to only one geographic region. Thus, generalizability of these findings to students from other geographical regions may be affected. The second limitation pertained to the cross-sectional design; that precludes the drawing of any firm causal inferences about changes in online learning and associated psychological outcomes. A longitudinal design would yield stronger data on long-term effects. Another limitation is the reliance upon self-report data. While participants provided rich insights into their experiences, response biases may have occurred, in which students underreport negative experiences or overemphasize positive ones. Future research may adopt mixed-methods approaches, combining survey methods with interview or focus group data to achieve a more integrated understanding of the psychological effects.

## **Suggestions for Further Research**

Further research is called for to establish the long term psychological impacts of online learning. Longitudinal studies that trace changes in students' mental health may provide further detail on how long-term online learning is impacting their well-being. Furthermore, the effectiveness of intervention strategies such as online social support systems and structured virtual classroom environments should be investigated to help mitigate the negative psychological effects presented in this study.

Other potential research could concern demographic differences, such as the possible psychological impacts of online learning on students of specific socio-economic backgrounds or age brackets. This understanding will also provide ways in which effective support strategies can be targeted toward students whose challenges are unique in nature.

**Conclusion.** In a nutshell, online learning has opened up a world of flexibility and convenience. However, on the dark side, it has introduced several psychological challenges for the students in terms of increased levels of stress, anxiety, and social isolation. These findings from the present study signal that one should be more concerned about the mental

health of the students in online learning. Other possible supports, such as virtual peer interaction and support of student mental health, may enhance online learning. Further research should be done with regard to long-term consequences of online learning and providing measures to promote psychological well-being among students in such an environment.

### References:

1. Lee J. Mental health effects of school closures during COVID-19 / *The Lancet Child & Adolescent Health*. – 2020. – Т. 4. – С. 421.
2. Loades M.E. et al., Rapid systematic review: the impact of social isolation and loneliness on mental health in children and adolescents in the context of COVID-19 / *Journal of the American Academy of Child & Adolescent Psychiatry*. – 2020. – Т. 59. – С. 1218–1239.
3. Li C., Lalani F. The COVID-19 pandemic has changed education forever / *World Economic Forum*. – 2020. URL: <https://www.weforum.org/stories/2020/04/coronavirus-education-global-covid19-online-digital-learning/>
4. Saulle R. et al., School closures and mental health, wellbeing and health behaviors among children during COVID-19 / *Epidemiologia e Prevenzione*. – 2022. – Т. 46, № 5-6. – С. 1–20.
5. Jalongo M.R. The effects of COVID-19 on early childhood education and care / *Early Childhood Education Journal*. – 2021. – Т. 49, № 5. – С. 763–774.
6. Wang C. et al., Immediate psychological responses during the initial stage of the COVID-19 epidemic / *International Journal of Environmental Research and Public Health*. – 2020. – Т. 17, № 5. – С. 1729.
7. Seresirikachorn K. et al., Effects of digital devices and online learning on computer vision syndrome / *BMJ Paediatrics Open*. – 2022. – Т. 6, № 1.
8. Zhang H. et al., Adolescent stress and online learning: The COVID-19 impact / *Computers in Human Behavior*. – 2021. – Т. 122.
9. Huang R. et al., The effects of online learning on loneliness and depression / *Internet and Higher Education*. – 2022. – Т. 55.
10. Chan R., Bista K., Allen R. Online teaching and learning in higher education during COVID-19: International perspectives and experiences. – 2021.
11. Kennedy A.I., Mejía-Rodríguez A.M., Strello A. Inequality in remote learning quality during COVID-19: student perspectives and mitigating factors / *Large Scale Assessments in Education*. – 2022. – Т. 10, № 1. – С. 29.
12. Sari O., Mediatati N. Students' resilience: The impact of online learning policies during the COVID-19 pandemic on academic stress / *Journal of Educational Social Studies*. – 2023. – Т. 12. – С. 73–83.

13. Chavira D.A., Ponting C., Ramos G. The impact of COVID-19 on child and adolescent mental health and treatment considerations / *Behavior Research and Therapy*. – 2022. – Т. 157. – С. 104169.

14. Li F. Impact of COVID-19 on the lives and mental health of children and adolescents / *Frontiers in Public Health*. – 2022. – Т. 10. – С. 925213.

15. Oztosun L., Gonzo F., Nadda V. The impact of digital learning technology on higher education students' mental health / *Digital Learning and Teaching in Higher Education*. – 2023.

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## **ONLINE EDUCATION AND ITS IMPACT ON STUDENTS: A STUDY OF PSYCHOLOGICAL CHALLENGES AND PERFORMANCE IN HIGHER EDUCATION**

**Abstract:** The transition from traditional in-person learning to online platforms during the COVID-19 pandemic posed significant challenges for both students and educators, which warrant close examination. This study investigates how the lack of preparedness for such abrupt changes has impacted students' mental well-being and academic performance. By analyzing various psychological factors, the thesis emphasizes the importance of discussing and proposing modifications to the approach of online learning, considering perspectives from psychology to pedagogy.

**Keywords:** education, online study, pedagogy, psychology

**Introduction.** The COVID-19 pandemic that began in 2019 forced educational institutions worldwide to rapidly adopt online learning platforms. While this shift ensured the continuity of education, it introduced a range of challenges. For many students and educators, the abrupt transition led to feelings of unpreparedness, negatively affecting their psychological well-being and academic performance. Studies show that online education can cause anxiety, depression, and stress, often due to the lack of social interaction, increased screen time, and the demand for self-regulation. These challenges may lead students in higher education to experience lower motivation, reduced academic engagement, and impaired performance. This research aims to explore the psychological effects of online education and propose solutions that enhance learning outcomes while addressing mental health concerns.

### **Research Questions:**

- 1) What are the challenges faced by university students during online education

2) How do the challenges affect students' academic performance and mental health?

3) What best practices can be implemented to enhance student support during online learning?

**Objectives:**

1) To identify the specific psychological challenges faced by university students during the transition to online learning.

2) To analyze the impact of these challenges on students' mental health and academic performance.

3) To evaluate the effectiveness of current education systems in addressing the needs of students in online learning environments.

4) To propose recommendations for improving student support and enhancing their online educational experience.

**Literature Review:**

The existing academic literature on online education, particularly in the context of higher education, highlights various critical issues, ranging from the psychological impact on students to the challenges surrounding academic performance.

*4.1. Psychological Impact of Online Learning*

The literature shows a consistent link between online learning and adverse psychological outcomes. According to research conducted during the pandemic, many students experienced increased levels of anxiety, depression, and stress. These negative emotions were mainly attributed to isolation, limited social interaction, and the sudden transition to unfamiliar online learning environments [1]. Studies also revealed that anxiety is the most common psychological issue faced by students during the online learning period, with reports of stress and depression also rising due to the pressure to maintain academic performance amidst a highly disruptive environment [2].

For instance, a cross-sectional survey found that over 90% of students reported some degree of psychological impact with younger students showing higher levels of anxiety and dissatisfaction with online education compared to their older peers [3]. Similarly, another research identified that students were dealing with high levels of psychological stress, with many reporting a decline in mental health due to the lack of structure in online learning and concerns about their academic future [4].

Heckel discussed how students experienced heightened levels of stress, anxiety, and feelings of isolation due to the abrupt shift to online learning [5]. This aligns with findings by Xu, which reveal that many students reported deteriorating mental health, exacerbated by the lack of social interaction and inadequate support systems [2].

*4.2. Challenges in Academic Performance*

The literature also highlights a significant decline in academic performance tied to the psychological distress brought on by online learning. The transition required students to



adopt self-regulated learning habits, which many struggled to develop. According to Yorguner, students accustomed to face-to-face learning environments found it difficult to adapt to the demands of online education, leading to procrastination, lack of focus, and ultimately lower academic achievement [4].

Research further suggests that the lack of proper guidance and support from educators, many of whom were also unprepared for the transition, exacerbated the problem. The absence of effective communication between students and tutors, combined with technological barriers such as poor internet connectivity, further contributed to the decline in student performance.

#### *4.3. Technological and Social Factors*

Technological issues have also played a major role in impacting students' learning experiences. The sudden need for digital literacy among both students and educators proved to be a barrier for many, as both groups struggled to efficiently navigate new platforms and tools. Studies have shown that students often feel overwhelmed by the sheer volume of online assignments and the lack of structured feedback from instructors [3]. Furthermore, the absence of in-person socialization was another factor that negatively affected students' mental health, as peer-to-peer interactions and teacher-student relationships, which are vital for learning, were significantly reduced [5].

#### *4.4. Kazakhstan Local Research on Current Online Education*

While global studies have consistently shown links between online education and increased anxiety among students, similar patterns are evident in Kazakhstan's education system, though there may be unique local factors contributing to the experience.

Several studies conducted among students, parents, and teachers reveal diverse experiences with online education in Kazakhstan. A survey of secondary school students found that over 60% reported increased stress levels due to online learning, attributing this to inadequate support and ineffective communication with teachers [6]. Another study on parents' satisfaction revealed low satisfaction with the quality of distance education, with many parents concerned about the reduced effectiveness of online learning compared to traditional in-person classes [7].

Research from the Eurasian Research Institute highlighted that students faced challenges with limited interactivity, lack of social engagement, and inadequate digital infrastructure, particularly in rural areas [8]. Additionally, a report on teachers indicated that they struggled with adapting to digital tools, often without sufficient training, which impacted both the quality of instruction and teacher satisfaction [9].

The abrupt shift to online learning significantly affected both students and educators in Kazakhstan. Studies showed that students experienced increased mental health issues, including anxiety and burnout, due to extended screen time, isolation, and difficulties managing assignments [9]. Educators faced substantial stress as they adapted to new teaching platforms without adequate preparation, affecting their performance and job satisfaction [10].

Teachers also reported a need for additional support in mastering digital pedagogy, which would allow them to engage students more effectively in an online environment [11].

To address these challenges, various recommendations have been proposed. Improving digital infrastructure, especially in rural areas, has been suggested as a priority to ensure equitable access to online resources for all students [7]. Additionally, the development of a national framework for digital teaching skills has been recommended to help teachers integrate technology effectively into their teaching practices [8].

There is also a growing emphasis on supporting mental health for both students and teachers. Researchers advocate for the implementation of counseling services within schools and mental wellness programs to alleviate the psychological strain of online learning [6]. Lastly, enhancing online curricula with interactive elements, such as multimedia and virtual discussions, could help improve student engagement and motivation, which many students found lacking in the current online education setup [10].

### **Methodology.**

**Methodology** Data were collected through an online survey administered to 30 bachelor's students who had experience with both online and offline learning, selected through purposive sampling. The survey comprised a mix of multiple-choice questions, Likert-type scales, and binary options to capture students' academic performance, motivation, technical challenges, and social connectivity in online versus offline learning environments. Each respondent provided answers anonymously, ensuring honesty and reducing response bias.

The survey was developed using Microsoft Forms and administered over a one-week period to maximize participation. Data validation was ensured by promoting honesty through anonymity, and descriptive statistics were used to summarize trends. For further analysis, bar charts and pie graphs were used to visualize trends and align the results with the study's objectives.

### **1. Limitations**

This study is subject to certain limitations. The sample size is limited to 30 participants, which may constrain the generalizability of the findings. Additionally, the self-reported nature of survey data introduces a potential bias, as responses may be influenced by individual perceptions or recall inaccuracies.

### **2. Survey results**

The survey questions were designed to explore dimensions of student engagement and stress, based on theories of cognitive load and anxiety response in educational psychology.

The satisfaction rates shown in table 1 and figure 1 are between online and offline learning, showed a notable contrast. Most students report higher satisfaction with offline learning, as seen from the consistently elevated satisfaction ratings in in-person classes. With a mean satisfaction score of 4.07 for offline learning compared to 3.40 for online, it is

evident that students feel more fulfilled academically when physically present in a classroom environment.

**Table 1 - Comparison of Satisfaction Levels: Online vs. Offline Learning**

SATISFACTION RATE	ONLINE	SATISFACTION RATE	OFFLINE
1	0	1	0
2	6	2	1
3	9	3	4
4	12	4	17
5	3	5	8

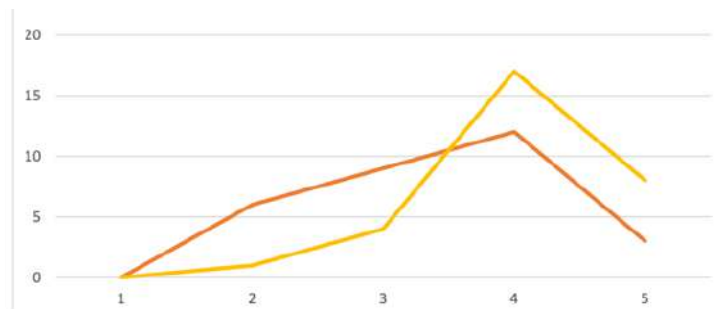


Fig. 1 - Satisfaction Level Comparison

This disparity could reflect various factors, which will be discussed in rest of the survey questions.

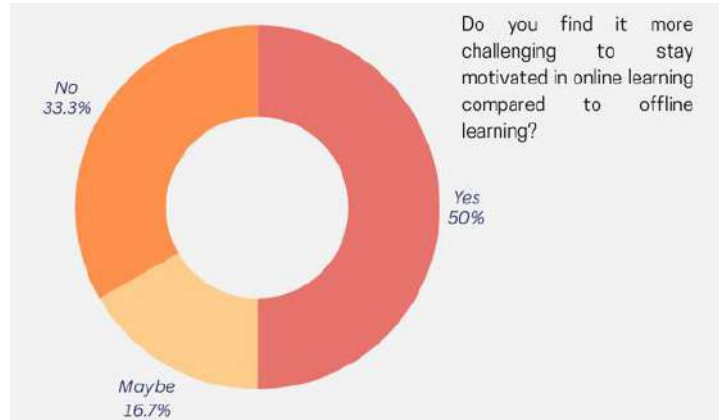


Fig. 2 - Challenges in Maintaining Motivation: Online vs. Offline Learning

The survey results highlight motivation as a significant challenge in online learning: half of the students (15 out of 30) reported finding it more difficult to stay motivated compared to offline classes. This may stem from reduced interaction and engagement, which are often motivating factors in in-person settings. Meanwhile, 33% (10 students) felt their motivation was unaffected by the shift, suggesting some adaptability among learners, while 17% (5 students) were uncertain, likely due to variable factors like course content and support.

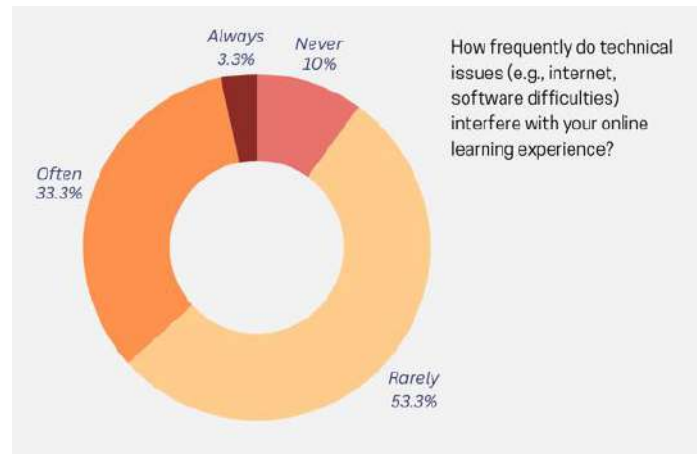


Fig. 3 - Frequency of Technical Issues in Online Learning

Technical difficulties emerged as a frequent obstacle in online learning. A significant portion of respondents reported encountering technical issues often (33%) or always (3%). This high incidence of technical challenges, primarily related to internet stability and software compatibility, directly impacts students' ability to participate fully in online classes. Addressing these technical issues is essential for improving the accessibility and inclusivity of online education.

In terms of social connectivity, a mixed response appeared. A total of 10 students felt that online learning negatively impacted their ability to form social connections, while 11 students saw no difference. This variance could be attributed to individual social preferences and adaptability. The isolation inherent in online learning can pose challenges for students who thrive in social, collaborative settings, potentially leading to feelings of disconnection and loneliness. However, students who are more self-directed may not perceive a difference in social connectivity.

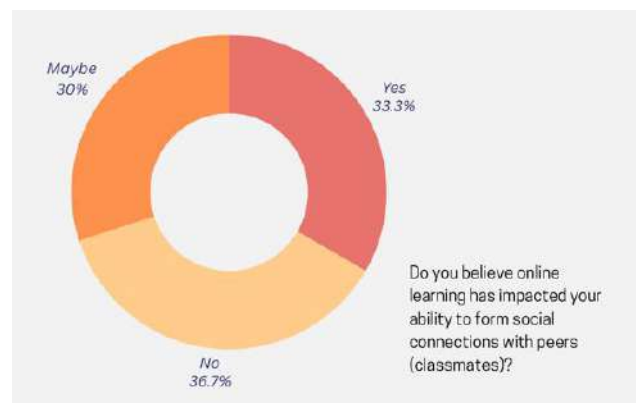


Fig. 4 - Impact of Online Learning on Social Connections

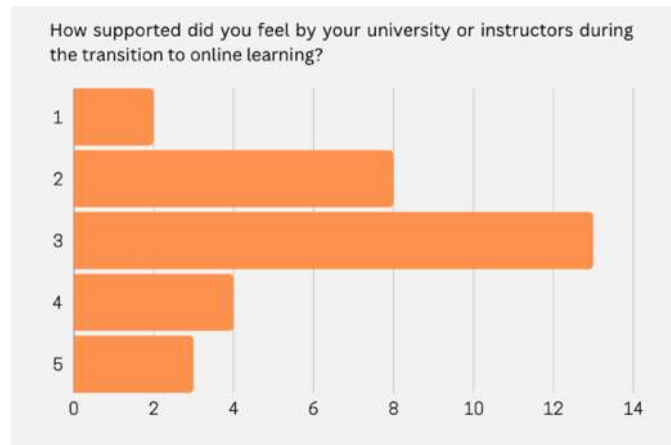


Fig. 5 - Perceived Institutional Support During Transition to Online Learning

The level of institutional support received during the transition to online learning had a mixed but mostly positive outcome. The mean score of 3.07 out of 5, with most students selecting 3 or 4, indicates that students felt moderately supported by their universities. This support was likely crucial in helping students adapt to the rapid transition. Nonetheless, the lower ratings from some students suggest gaps in the type and adequacy of support offered.

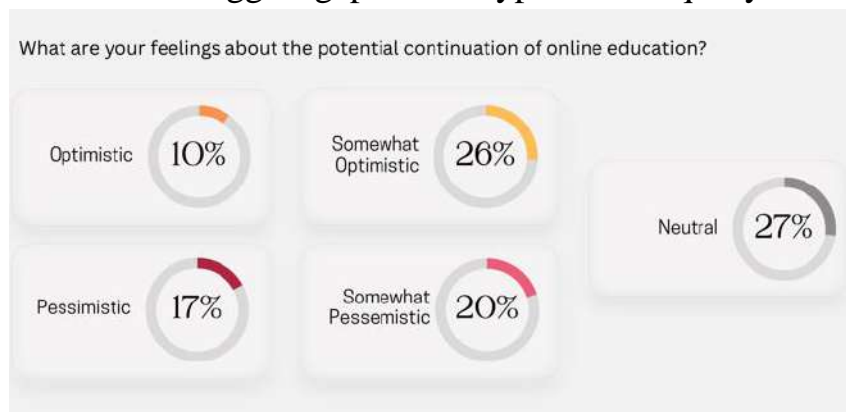


Fig. 6 - Student Perspectives on the Continuation of Online Education

The responses regarding future perspectives on online learning reveal a diverse outlook among students. While some students are optimistic about online learning, a significant number are neutral or pessimistic, with 37% of respondents expressing negative sentiments (somewhat or very pessimistic). This distribution may reflect students' concern towards online learning due to the previously discussed challenges.

**Table 2 - Preferred Support Resources for Online Learning Challenges**

SUPPORT	QUANTITY
Improve internet and technological resources	19
Enhance interactive content and engaging materials	21
Psychological or mental health support	4
Changes in the online education system	18

Finally, when asked what types of support would be most beneficial, students prioritized “enhancing interactive content” and “improvements in internet and technology”. Additionally, a notable number of students expressed a desire for changes in the online education system or teaching approach. Fewer students identified mental health support as a primary need, suggesting that academic and technical support are more pressing concerns in the context of online learning. However, incorporating mental health resources could still offer essential benefits for students struggling with the psychological toll of remote education.

### **Discussion**

The study's findings reveal a close relationship between online education, students' psychological well-being, and academic performance.

One common issue reported was a lack of motivation. According to the Self-Determination Theory, motivation decreases when students feel deprived of autonomy, competence, or a sense of connection with others. In the context of online education, students often feel isolated and disconnected from their learning environment, which weakens their drive, leading to procrastination, lower engagement, and reduced academic performance. Without in-person cues and support, maintaining intrinsic motivation becomes a challenge.

Another prevalent issue was anxiety and stress. In an online learning environment, students are expected to manage their learning independently, often without immediate support. The pressure to self-regulate, combined with performance expectations, amplifies stress and anxiety. Chronic stress not only hinders cognitive functioning and memory retention but can also lead to burnout, compromising both mental health and academic outcomes.

Students also reported feelings of isolation and loneliness. Social Presence Theory posits that face-to-face interaction is crucial for establishing a sense of community and belonging. In online education, the absence of this presence can make students feel disconnected, increasing the risk of loneliness and even depression. This emotional distance often results in disengagement, as students lack the social reinforcement that in-person classes naturally provide.

Screen fatigue and cognitive overload emerged as additional concerns, exacerbated by the digital demands of online learning. Cognitive Load Theory suggests that prolonged screen exposure, paired with constant online tasks, can lead to mental fatigue and overload. This strain negatively impacts productivity and memory retention while also causing physical symptoms such as eye strain and headaches, contributing to both mental and physical exhaustion.

Lastly, students expressed concerns over deteriorating social skills and communication anxiety. Bandura's Social Learning Theory highlights that social skills develop through observation and interpersonal interaction, which are limited in an online setting. Reduced

face-to-face communication can impede social development, potentially increasing anxiety in social contexts and group work, which are critical for collaborative learning.

### *Improving Suggestions According to Findings*

To address the psychological challenges identified, we recommend specific improvements based on existing teaching frameworks and theories.

Incorporating interactive elements like discussion boards, group projects, and gamified features can foster a more engaging and connected environment, aligning with constructivist teaching approaches, which emphasize learning as an active, social process. By implementing the Collaborative Learning Framework, where students work together to explore and solve problems, educators can create opportunities for peer-to-peer interaction, which can enhance motivation and mitigate feelings of isolation.

Establishing a consistent feedback system is also essential. Formative Assessment practices, such as providing regular, timely feedback on assignments and participation, allow students to track their progress and address misunderstandings in real-time. This continuous feedback approach aligns with Assessment for Learning (AfL) principles, where assessment is used as a tool to promote learning rather than just measure it. By offering individualized feedback and recognizing student achievements, AfL helps create a supportive environment that boosts student confidence and engagement.

A structured course design can further alleviate cognitive load and improve time management for students. Adopting a Backward Design Process, where courses are designed with clear learning outcomes and assessment strategies first, ensures that each component of the course aligns with the intended objectives. Structured weekly agendas, clear timelines, and reminders help students plan and manage their learning activities effectively. A structured approach can reduce anxiety by providing students with a clear roadmap through the course content.

Embedding mental health resources and support into the learning platform is another potential way of improvement. The Whole Student Approach, which views student success holistically, integrates mental health and well-being as key elements of the educational process. This framework encourages institutions to provide access to counselling, self-care resources, and stress management tools directly within the learning platform, supporting students' psychological resilience and allowing them to perform at their best academically.

Lastly, improving the online platform's user experience aligns with Universal Design for Learning (UDL), which emphasizes designing educational tools and resources to be accessible and effective for all learners. An intuitive, well-organized interface minimizes distractions and technical frustrations, allowing students to concentrate on learning rather than navigating technological obstacles. A UDL-informed platform design supports varied learning styles and ensures that resources are usable by students with diverse needs and preferences.

### **Conclusion**

This study emphasizes the impact of online education on students' psychological well-being and academic performance, and indicate that while online education has facilitated educational continuity, it requires considerable adaptation to meet students' academic and mental health needs effectively. A holistic approach integrating improved teaching methods, mental health support, and accessible technological resources will be essential for the sustainable development of online education in Kazakhstan.

### References:

1. Wang, Y. (2023). The research on the impact of distance learning on students' mental health. *Education and Information Technologies*, 28. <https://doi.org/10.1007/s10639-023-11693-w>
2. Xu, T., & Wang, H. (2023). High prevalence of anxiety, depression, and stress among remote learning students during the COVID-19 pandemic: Evidence from a meta-analysis. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.1103925>
3. Wajah, K., & Watim, M. B. (2024). A public health view and comparison between online and on-campus learning to evaluate sleep and mental health among undergraduate students | Request PDF. ResearchGate. [https://doi.org/10.4103/jfmpc.jfmpc\\_1790\\_23](https://doi.org/10.4103/jfmpc.jfmpc_1790_23)
4. Yorguner, N., Bulut, N. S., & Akvardar, Y. (2021). An Analysis of the Psychosocial Challenges Faced by the University Students During COVID-19 Pandemic, and the Students' Knowledge, Attitudes, and Practices Toward the Disease. *Archives of Neuropsychiatry*. <https://doi.org/10.29399/npa.27503>
5. Heckel, C., & Ringeisen, T. (2019). Pride and anxiety in online learning environments: Achievement emotions as mediators between learners' characteristics and learning outcomes. *Journal of Computer Assisted Learning*, 35(5), 667–677. <https://doi.org/10.1111/jcal.12367>
6. Nurgaliyeva, S., Bolatov, A., Abildina, S., Zeinolla, S., Kurbonova, B., & Kyyakbayeva, U. (2024). COVID-19 online learning challenges: Kazakhstan secondary schools case study. *Frontiers in Education*, 9. <https://doi.org/10.3389/feduc.2024.1448594>
7. Zharkynbekova, S. K., & Abaidilda, A. E. (2023). The New Challenges of Kazakhstan's Education System: Distance Learning and the Student Environment. Nazarbayev University. <https://research.nu.edu.kz/en/publications/the-new-challenges-of-kazakhstans-education-system-distance-learn>
8. Dautova, I. (2020). COVID-19 and Education: How Does Kazakhstan Face the Pandemic?. Eurasian Research Institute. <https://www.eurasian-research.org/publication/covid-19-and-education-how-does-kazakhstan-face-the-pandemic/>
9. Bokayev, B., Torebekova, Z., Davletbayeva, Zh., & Zhakypova, F. (2020). Distance Learning in Kazakhstan: Estimating Parents' Satisfaction with Educational Quality During the Coronavirus. Emerald.



<https://repository.apa.kz/xmlui/bitstream/handle/123456789/397/Bokayev%20B.,%20Torebekova%20Z.,%20Davletbayeva%20Zh.,%20Zhakypova%20F.%20Distance%20learning%20in%20Kazakhstan%20estimating%20parents%20satisfaction%20of%20educational%20quality%20during%20the%20coronavirus.pdf?sequence=1>

10. Saurambayeva, A. (2021). Difficulties of Transition to Distance Learning: The Case of Kazakhstan. CABAR Asia. <https://cabar.asia/en/difficulties-of-transition-to-distance-learning-the-case-of-kazakhstan>

11. Nurgaliyeva, S. , Bolatov, A. (2021). COVID-19 Online Learning Challenges: Kazakhstan Secondary Schools Case Study. ResearchGate. [https://www.researchgate.net/publication/385356252\\_COVID-19\\_online\\_learning\\_challenges\\_Kazakhstan\\_secondary\\_schools\\_case\\_study](https://www.researchgate.net/publication/385356252_COVID-19_online_learning_challenges_Kazakhstan_secondary_schools_case_study)

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## ИСПОЛЬЗОВАНИЕ КВЕСТ-ТЕХНОЛОГИЙ ДЛЯ РАЗВИТИЯ КРИТИЧЕСКОГО МЫШЛЕНИЯ НА УРОКАХ АНГЛИЙСКОГО ЯЗЫКА

**Аннотация:** Квест-технологии становятся всё более популярными в образовательной практике, поскольку они способствуют вовлечению учащихся в активное обучение и развитию критического мышления. Первоначально возникшие в игровой индустрии, квесты стали мощным инструментом для учителей, особенно в преподавании английского языка. Эти технологии помогают учащимся развивать способности к анализу, синтезу и оценке информации, что особенно важно в условиях современного информационного общества. В статье рассматриваются преимущества квест-технологий, такие как повышение академической успеваемости и мотивации, а также развитие навыков критического мышления. Особое внимание уделено применению метода «Шесть шляп мышления» и стратегий кластеризации и синквейнов на разных этапах урока для лучшего усвоения материала.

**Ключевые слова:** квест-технологии, критическое мышление, английский язык, активное обучение, анализ информации, метод «Шесть шляп мышления», кластеризация, синквейн, образовательная практика, мотивация учащихся.

Квест-технологии в современной образовательной практике становятся всё более популярными благодаря своей способности вовлекать учащихся в активное обучение и стимулировать развитие критического мышления. Эти технологии, которые изначально возникли в игровой индустрии, нашли своё применение в образовании, став мощным инструментом для учителей. В частности, на уроках английского языка они помогают развивать у учеников способности к анализу, синтезу и оценке информации, что особенно важно в современном информационном обществе.

Критическое мышление является одним из ключевых навыков XXI века. Согласно исследованию, проведенному компанией World Economic Forum (2020), критическое мышление вошло в пятёрку наиболее востребованных навыков на

мировом рынке труда. Этот навык включает способность находить, анализировать информацию, делать выводы и принимать решения на основе фактов, а не эмоций или предвзятых мнений. Кроме того, критическое мышление тесно связано с навыками решения проблем, которые также высоко ценятся работодателями. В контексте образования критическое мышление важно не только для успешного обучения, но и для подготовки учеников к жизни в условиях постоянных изменений и большого объёма информации (Sorokina, 2021).

Квест-технологии являются отличным инструментом для развития критического мышления, так как они создают интерактивные условия, при которых учащиеся сталкиваются с проблемными ситуациями, требующими анализа и поиска решений. Прохождение последовательных заданий или уровней в квесте стимулирует учащихся к критическому осмыслению получаемой информации, оценке её достоверности и поиску наилучших решений. Эти технологии не только делают процесс обучения более интересным, но и помогают учащимся развивать важные навыки критического мышления, позволяющие успешно решить сложные задачи.

Квест-технологии являются интерактивной формой обучения, где ученики проходят различные этапы или уровни, выполняя задания и решая проблемы. Примером квест-технологий может служить метод «Шесть шляп мышления», предложенный Эдвардом де Боно, который позволяет учащимся рассматривать проблему с разных точек зрения. В рамках этого метода ученикам предлагается «надеть» воображаемые шляпы разного цвета, каждая из которых символизирует определённый тип мышления. Например, белая шляпа символизирует факты и информацию, красная — эмоции, а зелёная — креативное мышление. Этот метод не только развивает способность критически оценивать ситуацию, но и учит учащихся выражать свои мысли и находить аргументы в пользу своей точки зрения (De Bono, 2000).

Одним из преимуществ использования квест-технологий на уроках английского языка является их способность мотивировать учащихся к активной работе. По данным исследования, проведённого Министерством образования Великобритании (2019), школы, которые внедряли квест-технологии на уроках, отметили улучшение академических показателей на 15% по сравнению с традиционными методами обучения. В ходе квестов ученики решают задачи, анализируют тексты, выполняют групповые задания, что способствует их глубокому погружению в процесс обучения.

Квесты можно эффективно применять на различных этапах урока английского языка. На начальном этапе, известном как стадия вызова, учитель может предложить учащимся создать кластер — визуальную схему, которая помогает структурировать знания. Например, изучая тему «Flora and Fauna», ученики могут создать кластер, который отражает их понимание различных видов животных и их сред обитания.

Затем они могут сравнить свои предположения с информацией из текста, что способствует развитию навыков анализа и синтеза (Skyteach, 2019).

Критическое мышление — это не просто способность решать задачи, но и навык находить, анализировать и синтезировать информацию для принятия оптимальных решений. Джон Дьюи, один из основоположников педагогической философии, определил критическое мышление как «активное, целенаправленное и упорядоченное размышление». Современные исследователи, такие как Дайана Халперн, подчеркивают важность критического мышления для решения сложных проблем и успешной адаптации к быстро меняющимся условиям в образовательной и профессиональной среде (Сорокина, 2021).

В контексте изучения иностранных языков критическое мышление особенно важно, поскольку оно помогает учащимся не просто запоминать правила и лексику, но и активно применять полученные знания для практического общения, чтения и понимания новых культурных контекстов.

Одним из наиболее эффективных инструментов для развития критического мышления на уроках английского языка являются квест-технологии. Эти технологии представляют собой инновационную форму организации учебного процесса, где обучение построено в виде серии заданий или «уровней». Учащиеся взаимодействуют с материалом, решая задачи, которые требуют критического подхода. Квесты создают проблемные ситуации, которые стимулируют учащихся к поиску решений, оценке альтернатив и выбору наилучших действий. В основе квестов лежат принципы проблемного обучения, которые уже доказали свою эффективность в развитии критического мышления, так как ученики вовлекаются в активное взаимодействие с информацией, её переработку и анализ.

Использование квест-технологий в обучении английскому языку не только мотивирует учеников, но и повышает их академическую успеваемость. Согласно исследованию, проведённому Министерством образования Великобритании (2019), школы, которые внедрили квесты на уроках, продемонстрировали улучшение успеваемости на 15-20% по сравнению с традиционными методами обучения. В ходе выполнения заданий ученики погружаются в контекст проблемных ситуаций, требующих комплексного подхода к решению, что помогает им развивать аналитические навыки и навыки решения проблем.

Квесты могут включать задания по анализу текстов, созданию проектов или выполнению практических задач. Например, одна из популярных методик — «6 шляп мышления» Эдварда де Боно. Этот подход помогает учащимся оценивать проблему с разных точек зрения, выделяя эмоциональные, фактические и креативные аспекты ситуации. Такая методика позволяет не только улучшить понимание темы, но и способствует развитию глубокого анализа и выработке обоснованных решений (De Bono, 2000).

Кроме того, квесты предоставляют возможность применения различных техник визуализации и систематизации знаний, таких как кластеры или карты памяти. Эти методы помогают учащимся структурировать информацию и более эффективно её усваивать. В рамках квеста можно задействовать графические инструменты для отображения ключевых понятий, что особенно полезно на уроках по изучению тем, связанных с культурой и литературой. Например, создание кластеров по теме «Великие писатели Великобритании» помогает учащимся систематизировать информацию о жизни и творчестве авторов, развивая при этом навыки анализа и сравнения.

Применение квест-технологий в обучении английскому языку может быть разнообразным. Например, одна из популярных стратегий, используемых в квестах, — это метод "6 шляп мышления" Эдварда де Боно. Он предлагает ученикам рассматривать проблему с разных точек зрения, что помогает развивать навыки анализа и синтеза информации. Каждая из шляп представляет собой определённый тип мышления: белая шляпа — это факты и информация, красная — эмоции, чёрная — критика, жёлтая — оптимизм, зелёная — творчество, синяя — управление процессом мышления (Skyteach, 2019). Эта стратегия помогает учащимся структурировать свои мысли и более глубоко анализировать проблему, что является важным аспектом развития критического мышления.

Ещё одним примером применения квестов на уроках английского языка является стратегия "Fishbone" (рыбья кость), которая используется для анализа причинно-следственных связей. В рамках этой стратегии учащиеся читают текст и идентифицируют основные причины и следствия изучаемой проблемы. Графическое изображение в виде "рыбьего скелета" помогает структурировать информацию и увидеть логические связи между разными элементами (Сорокина, 2021). Эта методика развивает навыки системного анализа и критического подхода к информации.

Применение квест-технологий на уроках английского языка можно разделить на три основные стадии: вызов, осмысление и рефлексия. На стадии вызова учащиеся актуализируют свои знания по теме, определяют цели и задачи урока. Учитель может использовать различные приёмы, такие как кластеризация или синквейн, чтобы помочь ученикам систематизировать свои знания и выдвинуть гипотезы по теме урока (Skyteach, 2019). Кластеры позволяют визуализировать информацию, что способствует лучшему её усвоению и пониманию логических связей. Синквейн, в свою очередь, помогает кратко выразить свои мысли и идеи, что способствует развитию навыков сжатого изложения информации.

На стадии осмысления учащиеся работают с новой информацией, полученной в ходе выполнения заданий квеста. Это могут быть тексты, аудио- или видеоматериалы, которые необходимо проанализировать для решения поставленных задач. Важно, чтобы задания квеста стимулировали учащихся к активному мышлению и применению

критического подхода к изучаемому материалу. Учитель может предложить учащимся использовать такие стратегии, как "Чтение с остановками" или "З-Х-У" ("Знаю — Хочу узнать — Узнал"). Эти стратегии помогают структурировать информацию и отслеживать процесс её усвоения (Батырханова, 2019).

На заключительной стадии рефлексии учащиеся анализируют результаты своей работы, обсуждают выводы в группе и делают обобщения. Этот этап играет ключевую роль в закреплении знаний и развитии критического мышления. Он помогает учащимся не только систематизировать полученную информацию, но и осмыслить свои действия и методы, что способствует осознанному подходу к обучению. Важно, чтобы в этот момент учитель организовал рефлексию таким образом, чтобы каждый ученик мог проанализировать свои успехи и трудности.

Одним из эффективных методов рефлексии является создание кластеров или синквейнов. Например, на уроке английского языка по теме «Экология» учащиеся могут создать кластер, отображающий ключевые экологические проблемы и их последствия. Этот метод помогает визуализировать информацию, структурировать материал и закрепить его в памяти. Согласно исследованиям Skyteach (2019), использование графических методик, таких как кластер, повышает запоминание материала на 20-30% по сравнению с традиционными методами обучения.

Рефлексия также включает обсуждение того, какие методы и стратегии были наиболее эффективны для решения задач. Это важно для того, чтобы учащиеся научились адаптировать своё мышление и применять различные подходы в зависимости от ситуации. Например, при использовании стратегии "тонкие и толстые вопросы" учащиеся могут анализировать свои ответы, определяя, какие из вопросов требуют более глубокой проработки. Этот метод позволяет развить аналитическое мышление и критический подход к решению задач.

Групповые обсуждения играют важную роль в процессе рефлексии. В ходе таких обсуждений учащиеся могут обмениваться мнениями, предлагать свои интерпретации материала и вырабатывать совместные решения. Исследования показывают, что коллективная рефлексия повышает уровень понимания материала на 25-30% (Batyurkhanova, 2019). Это связано с тем, что учащиеся учатся слушать друг друга, учитывать различные точки зрения и аргументировать свою позицию.

Ещё одним полезным инструментом рефлексии является синквейн — краткая поэтическая форма, которая помогает ученикам резюмировать ключевые моменты урока. Например, по итогам урока на тему «Природа Великобритании» учащиеся могут составить синквейн, включающий основные факты и концепции. Этот метод развивает навыки краткого и точного выражения мыслей, что особенно полезно для формирования критического мышления.

Таким образом, заключительная стадия рефлексии помогает ученикам закрепить материал, развить навыки критического анализа и понять, какие стратегии обучения

наиболее эффективны. Использование квест-технологий, включая кластеризацию и синквейн, значительно усиливает процесс рефлексии, делая его более структурированным и продуктивным.

Использование квест-технологий на уроках английского языка доказывает свою эффективность не только в мотивации учащихся, но и в развитии их критического мышления. Эти интерактивные методы позволяют учащимся сталкиваться с проблемными ситуациями, анализировать информацию и искать оптимальные решения, что является важным навыком в современном обществе. Квест-технологии способствуют формированию аналитических и синтетических способностей, что помогает ученикам лучше усваивать учебный материал и успешно адаптироваться к меняющимся условиям информационного мира.

В условиях постоянного роста объёмов информации и необходимости быстрого принятия решений, критическое мышление становится одним из ключевых навыков, востребованных на мировом рынке труда. Поэтому использование квест-технологий в образовательном процессе является не только инновационным, но и стратегически важным инструментом для подготовки учащихся к будущим профессиональным и жизненным вызовам. Применение таких методов, как «6 шляп мышления» и другие квест-стратегии, помогает учащимся развивать многогранное мышление и систематизировать информацию. Заключительная стадия рефлексии, включающая кластеры и синквейны, позволяет учащимся закрепить полученные знания и выработать навыки критического анализа, что делает процесс обучения более глубоким и эффективным. Таким образом, квест-технологии играют важную роль в современном образовательном процессе, способствуя всестороннему развитию учащихся и формированию у них необходимых для успеха навыков критического мышления. Их применение на уроках английского языка открывает новые возможности для эффективного обучения и подготовки учащихся к жизни в информационном обществе.

### Список литературы:

1. Батырханова, Г. Б. (2019). Развитие критического мышления на уроках английского языка. Педагогическая наука и практика, 4(26), 7-15. Алматы, Казахстан.
2. Сорокина, Е. А. (2021). Применение технологии критического мышления на уроках иностранного языка. Вестник Шадринского государственного педагогического университета, 4(52), 128-132. Шадринск, Россия. [https://doi.org/10.52772/25420291\\_2021\\_4\\_128](https://doi.org/10.52772/25420291_2021_4_128)
3. Щербакова, О. (2019). Развиваем критическое мышление на уроках английского языка. Skyteach. Получено из <https://skyteach.ru/methods/razvivaem-kriticheskoe-myshlenie-na-urokax-anglijskogo-yazyka>
4. De Bono, E. (2000). Six Thinking Hats. London, England: Penguin Books.
5. Halpern, D. (2014). Thought and Knowledge: An Introduction to Critical Thinking. New York, USA: Psychology Press.

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## **ПСИХОЛОГИЯ ТОКСИЧНЫХ СВЯЗЕЙ В УПРАВЛЕНИИ: ВЛИЯНИЕ НЕГАТИВНЫХ МЕЖЛИЧНОСТНЫХ ОТНОШЕНИЙ НА РАБОЧУЮ АТМОСФЕРУ И РЕЗУЛЬТАТЫ КОМПАНИИ**

**Аннотация:** В статье рассматриваются вопросы влияния токсичных отношений на рабочую атмосферу и результаты компании. Проводится анализ различных видов токсичного поведения, включая микроменеджмент, фаворитизм и пассивно-агрессивные действия. Результатами исследования являются рекомендации по диагностике и преодолению токсичных связей, такие как развитие эмоционального интеллекта и создание здоровой организационной культуры для повышения эффективности работы.

**Ключевые слова:** токсичные отношения, межличностные конфликты, психологический климат, мотивация, текучесть кадров, эмоциональный интеллект, корпоративная культура, микроменеджмент, психологическая устойчивость.

**Введение.** Современные организации сталкиваются с многочисленными вызовами, среди которых особое внимание заслуживает проблема токсичных межличностных отношений на рабочем месте. Токсичные связи между сотрудниками, проявляющиеся в виде манипуляций, агрессии, фаворитизма, микроменеджмента и других разрушительных форм поведения, могут существенно снизить производительность, ухудшить атмосферу в коллективе и даже привести к высоким показателям текучести кадров. Влияние токсичных отношений на организационную культуру и психологический климат стало предметом активного исследования в последние десятилетия, однако, несмотря на значительные достижения в этой области, многие аспекты остаются слабо изученными и требуют дальнейшего анализа. Проблема токсичных связей не ограничивается индивидуальными проявлениями. В условиях глобализации и быстро меняющегося рабочего окружения токсичное поведение может распространяться и на уровень коллективов, создавая системные и психологические барьеры, которые препятствуют успешному функционированию всей организации. Работники, которые сталкиваются с такими отношениями, как правило, испытывают повышенный уровень стресса, эмоционального выгорания, а также снижение мотивации и вовлеченности, что непосредственно отражается на их производительности и общем настрое внутри команды [1].



В данной статье рассматривается влияние токсичных межличностных отношений на психологический климат и эффективность работы компании. Оцениваются основные виды токсичного поведения, такие как манипуляции, микроменеджмент, фаворитизм и пассивно-агрессивное поведение, а также их воздействие на моральное состояние сотрудников и организационные результаты. В работе также уделяется внимание методам диагностики токсичных отношений и мерам, направленным на их преодоление через развитие эмоционального интеллекта, организационную культуру и внедрение стратегий, направленных на создание здоровых рабочих отношений.

**Целью** данного исследования является анализ причинно-следственных связей между токсичными отношениями и результатами компании, а также предложить практические рекомендации по управлению такими отношениями для улучшения общей производительности и психологического климата в организации.

### **Токсичные Межличностные Отношения: Виды и Проявления**

Токсичные отношения на рабочем месте могут принимать различные формы, включая манипуляции, микроменеджмент, агрессивное поведение и фаворитизм. Эти формы поведения влекут за собой эмоциональное и психологическое давление на сотрудников, снижая их мотивацию и вовлеченность. Микроменеджмент характеризуется излишним контролем над действиями сотрудников, что приводит к ощущению несамостоятельности и недостаточному доверию со стороны руководства. Это не только снижает мотивацию, но и способствует возникновению стресса и выгорания у работников [2]. Манипулятивное поведение может проявляться через попытки скрытого влияния на решения коллег или создание конфликта между другими участниками команды с целью личной выгоды. Это создает токсичную атмосферу, в которой сотрудники чувствуют себя неуверенно и подвержены постоянному стрессу. Фаворитизм — это несправедливое отношение, когда определенные сотрудники получают преимущества, несмотря на их производительность или компетенции. Этот тип токсичности разрушает командную работу, увеличивает напряженность и вызывает недовольство среди других сотрудников [3].

Пассивно-агрессивного поведения — когда токсичные сотрудники проявляют негатив через молчание, избегание или скрытые агрессии, что трудно выявить на начальных стадиях [4]. Ю

Все эти формы токсического поведения наносят вред как отдельным сотрудникам, так и корпоративной культуре в целом, снижая продуктивность и препятствуя успешному развитию организации.

**Таблица 1. Виды токсичных отношений на рабочем месте**

<b>Тип токсичного поведения</b>	<b>Описание</b>	<b>Последствия для коллектива</b>
<b>Микроменеджмент</b>	Чрезмерный контроль за действиями сотрудников.	Снижение мотивации, стрессы, недостаток инициативы.
<b>Манипуляции</b>	Скрытые и/или манипулятивные способы влияния на коллег.	Доверие между коллегами подрывается, напряженность в коллективе.
<b>Фаворитизм</b>	Предпочтение определенным сотрудникам, несправедливое отношение.	Создание неравенства, снижение командного духа.
<b>Пассивно-агрессивное поведение</b>	Косвенные способы выражения недовольства, избегание открытых конфликтов.	Ухудшение общения, рост скрытых конфликтов, снижение удовлетворенности.

### **Влияние Токсичных Отношений На Производительность и Моральное Состояние Сотрудников**

Результаты деятельности компании напрямую зависят от качества ее корпоративной культуры и психоэмоционального климата. Токсичные отношения могут оказывать разрушительное влияние на несколько ключевых аспектов, таких как производительность, текучесть кадров и репутация компании. Снижение мотивации сотрудников и рост эмоционального выгорания ведет к ухудшению качества работы и снижению эффективности выполнения задач. По данным исследования [1], высокая степень токсичности на рабочем месте увеличивает количество ошибок, замедляет выполнение проектов и приводит к конфликтам внутри команды. Кроме того, организации сталкиваются с высокой текучестью кадров, что увеличивает затраты на обучение и подбор новых сотрудников. Проблемы токсичности также способствуют ухудшению репутации компании, что затрудняет привлечение квалифицированных специалистов. В некоторых случаях токсичная атмосфера может даже привести к юридическим последствиям, если сотрудники подают в суд на компанию за нарушения в области психосоциальных рисков [5]. Также исследования показали, что негативные межличностные отношения значительно ухудшают психоэмоциональное состояние сотрудников, снижая их удовлетворенность работой и вовлеченность и приводят к следующим проблемам:

- эмоциональное выгорание- одним из наиболее разрушительных последствий токсичных отношений является эмоциональное выгорание. Сотрудники, подвергающиеся постоянному стрессу из-за токсичной атмосферы, часто теряют мотивацию и интерес к работе, что может привести к снижению их производительности и повышению уровня текучести кадров [6].

- психологическая безопасность- отсутствие психологической безопасности на рабочем месте, когда сотрудники боятся высказывать свои идеи или мнения, снижает продуктивность и инновационность коллектива. Важно, чтобы сотрудники чувствовали себя в безопасности, выражая свои мысли, без страха быть осужденными или наказанными [7].

### **Методы Диагностики и Преодоления Токсичных Отношений**

Преодоление токсичных отношений в организации требует комплексного подхода, включающего диагностику, корректировку организационной культуры и развитие эмоционального интеллекта среди руководителей и сотрудников. Каждый из этих аспектов имеет важное значение для создания здоровой рабочей атмосферы и повышения продуктивности команды.

Эффективная диагностика токсичных отношений на рабочем месте — это первый шаг к их преодолению. Одним из наиболее распространенных методов является регулярное проведение анонимных опросов среди сотрудников. Эти вопросы помогают выявить источники недовольства, конфликты и другие негативные явления, которые могут существовать в коллективе. Такой подход дает сотрудникам возможность свободно выражать свои переживания без страха быть наказанными или осужденными. Результаты опросов позволяют руководству своевременно реагировать на возникающие проблемы, предлагая пути их решения [8].

Другим эффективным методом диагностики является проведение 360-градусной оценки, которая включает сбор обратной связи от коллег, подчиненных и руководства о поведении сотрудника. Это помогает выявить, как он воспринимается в разных ролях и как его действия влияют на коллектив. 360-градусная обратная связь способствует выявлению скрытых проблем в межличностных отношениях и позволяет более точно понять динамику токсичных взаимодействий[9].

Эмоциональный интеллект (ЭИ) является важнейшим инструментом для управления токсичными отношениями и создания здоровой рабочей среды. Лидеры с высоким уровнем эмоционального интеллекта способны не только распознавать эмоции других, но и адекватно реагировать на них, что способствует эффективному разрешению конфликтов. Эмоциональный интеллект помогает руководителям находить баланс между справедливостью и поддержкой, мотивируя сотрудников без использования манипуляций или агрессии[10].

Для развития ЭИ в организации необходимо внедрять тренировки и программы обучения, которые включают такие аспекты, как самосознание, самоконтроль, эмпатия

и социальные навыки. Эти навыки позволяют руководителям и сотрудникам лучше понимать собственные и чужие эмоции, эффективно управлять стрессом и строить доверительные отношения [11]. Программы обучения ЭИ должны стать обязательной частью корпоративного развития, так как они способствуют не только личностному росту сотрудников, но и укреплению командной работы.

Развитие эмоционального интеллекта также способствует созданию культуры открытых коммуникаций, где сотрудники чувствуют себя комфортно в выражении своих переживаний, не опасаясь критики или насмешек. Это снижает уровень стресса и способствует повышению морального климата в организации [10]. Создание здоровой организационной культуры является важной стратегией для преодоления токсичности в коллективе. Организационная культура формирует поведение сотрудников, их отношения друг к другу и к руководству, а также способствует созданию среды, в которой ценятся уважение, доверие и справедливость [12]. Чтобы культура была здоровой, необходимо внедрять стратегии, которые способствуют развитию этих ценностей. Одной из важных составляющих здоровой организационной культуры является создание атмосферы доверия, где сотрудники уверены, что их мнения и чувства будут услышаны и учтены. Доверие между руководителями и подчиненными значительно снижает вероятность появления токсичных отношений, так как в таких условиях сотрудники чувствуют, что их ценят и уважают, что способствует повышению мотивации и вовлеченности [13]. Поддержка также играет ключевую роль в создании здоровой культуры. Важно, чтобы руководство активно поддерживало сотрудников, предоставляя им возможности для профессионального роста и обеспечивая комфортные условия для работы. Это создает среду, в которой сотрудники могут работать в коллективе без страха перед негативным воздействием токсичных факторов. Программы менторства, консультации с HR-специалистами и поддержка лидеров помогают вовремя выявить проблемы и поддержать сотрудников в сложных ситуациях.

**Заключение.** Токсичные отношения на рабочем месте представляют серьезную угрозу как для сотрудников, так и для организации в целом. Для эффективного преодоления этой проблемы необходимо применять комплексный подход, включающий диагностику токсичности, развитие эмоционального интеллекта и создание здоровой организационной культуры. Регулярные опросы, 360-градусная оценка и тренировки по ЭИ помогают своевременно выявлять проблемы и минимизировать их влияние. Кроме того, важно создавать атмосферу доверия, справедливости и взаимного уважения, что способствует улучшению морального климата и повышению производительности. В конечном итоге, решение проблемы токсичных связей требует активного вовлечения всех членов организации и работы над долгосрочными изменениями, которые помогут создать эффективную и гармоничную рабочую среду.

### Список литературы:

1. Tepper, B. J. (2020). Abusive Supervision: The Organizational Antecedents and Consequences of Abusive Supervision. In *The Oxford Handbook of Organizational Psychology* (pp. 479-500). Oxford University Press.
2. Yukl, G. (2017). *Leadership in Organizations* (8th ed.). Pearson Education.
3. Frost, P. J. (2021). *Toxic Emotions at Work: How Compassionate Managers Can Reduce Burnout and Build Organizational Resilience*. Harvard Business Review Press.
4. Harvey, P., Stoner, J. A. F., & Hochwarter, W. A. (2021). Understanding the Impact of Toxic Leadership on Followers: The Role of Emotional Intelligence and Work Outcomes.
5. Salin, D. (2021). Toxic Leadership and Organizational Culture: The Role of Harassment and Interpersonal Conflict. *Journal of Business Ethics*, 169(1), 1-16. <https://doi.org/10.1007/s10551-020-04575-x>
6. Maslach, C. (2018). The Cost of Caring: Burnout and the Role of Leadership. In *The Oxford Handbook of Organizational Psychology* (pp. 1079-1097). Oxford University P.
7. Edmondson, A. C. (2019). *The Fearless Organization: Creating Psychological Safety in the Workplace for Learning, Innovation, and Growth*. Wiley.
8. Bakker, A. B. (2020). The Job Demands-Resources Model: A Decade of Research on Burnout, Engagement, and Well-being. *Work & Stress*, 34(3), 193-206. <https://doi.org/10.1080/02678373.2020.1770846>
9. Hough, L. M. (2019). *Personality, Cognition, and Social Dynamics in the Workplace: A Psychological Approach to Management*. Routledge.
10. Goleman, D. (2017). *Emotional Intelligence: Why It Can Matter More Than IQ* (10th Anniversary Edition). Bantam Books.
11. Salovey, P., & Mayer, J. D. (2016). Emotional Intelligence: Theory, Findings, and Implications. *Psychological Inquiry*, 27(1), 1-20. <https://doi.org/10.1080/1047840X.2015.1130249>
12. Schein, E. H. (2017). *Organizational Culture and Leadership* (5th ed.). Wiley.
13. Mayer, J. D., Salovey, P., & Caruso, D. R. (2019). Emotional Intelligence: New Ability or Eclectic Traits? *American Psychologist*, 74(5), 541-556. <https://doi.org/10.1037/amp0000146>

## ПӘН АРАЛЫҚ ҒЫЛЫМДАР – МЕЖДИСЦИПЛИНАРНЫЕ НАУКИ – INTERDISCIPLINARY SCIENCES

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### АКТУАЛЬНОСТЬ ФОРМИРОВАНИЯ НАЦИОНАЛЬНОГО ТУРИСТИЧЕСКОГО БРЕНДА «СЕМИРЕЧЬЕ» ДЛЯ ВЫДВИЖЕНИЯ НА МИРОВОЙ РЫНОК

**Аннотация:** Цель статьи рассмотреть вопрос актуальности разработки национального экспортоориентированного бренда «Семиречье», в Алматинском регионе. Это позволит улучшить конкурентоспособность туристской индустрии Казахстана, обеспечит рост занятости населения, стабилизирует доходы государства, и населения области за счет увеличения объемов въездного туризма. При написании статьи применялись такие методы как анализ, экономико-статистическая оценка, полевое и кабинетное исследования и др. Материалами научного исследования послужили труды ученых, данные предприятий РК за 2018-2023 гг., правовые документы и аналитические отчеты по данной теме. Исследованием доказана необходимость создания собственного туристического бренда. Бренд «Семиречье», возможен на основе подачи наших достопримечательностей, а именно редкой флоры и фауны, произрастающих и живущих исключительно на территории Алмаатинской области, и внесенных в Красную книгу. Результаты: выявлена определяющая роль основных факторов формирования своего бренда, как особого материального объекта нового турпродукта предприятия Казахстана. Раскрыта суть национального продукта как базовой ценности и представлений, разделяемых членами общества. Определены основы воздействия бренда на аспекты человека, желающего культурно и качественно провести свой досуг.

**Ключевые слова:** бренд, внутренний туризм, индустрия, занятость, климат, достопримечательность, туристическая услуга.

Во многих государствах мира туризм развивается как система, которая предоставляет все возможности для ознакомления с историей, культурой, обычаями,

духовными и религиозными ценностями посещаемой страны и её народа, и даёт ощутимый доход в казну. Современный мировой туризм является одним из высокодоходных и динамично развивающихся сфер экономики, формируя 8% мировых доходов от экспорта и 37% экспорта сектора услуг [1]. Одновременно, система «кормит» много физических и юридических лиц, связанных с оказанием туристических услуг. Помимо значительной статьи дохода, туризм является одним из мощных факторов усиления престижа и имиджа страны. Хороший туризм способствует укреплению здоровья нации, расширению мировоззрения общества. По данным Всемирной туристской организации (WTO), на современном этапе туризм обеспечивает десятую часть ВВП, свыше 11% международных инвестиций, каждое 9-е рабочее место в мировом производстве [1]. Являясь источником валютных поступлений и средством для обеспечения занятости, он расширяет вклады в платежный баланс страны, способствует диверсификации экономики страны, создавая отрасли, обслуживающие сферу туризма. Кроме того, с ростом занятости в сфере туризма растут доходы населения, повышается уровень благосостояния нации, увеличивается их прибыльность.

Туризм в Казахстане до недавнего времени не рассматривался, как перспективная отрасль экономики, которая может стать одним из богатейших источников пополнения валового внутреннего продукта (ВВП) страны.

Туристическая индустрия в своей совокупности может обеспечить воплощение экономического принципа «производитель – выгода – потребитель», который сейчас находится в центре внимания многих жителей Казахстана, которые мечтают хорошо провести свой досуг или отдых.

Реализация отечественного туристического бренда позволит ускорить развитие экономики РК через создание новых бизнес-структур, увеличение рабочих мест, повышение производительности труда, повышение прибыльности предприятий и банков, рост въездного туризма, создание условий для формирования смежных отраслей, совершенствование туристического обслуживания по международным стандартам, сокращение безработицы в регионе, увеличение оборачиваемости капитала и др.

В Казахстане функционируют 713 туристских фирм и 330 гостиниц [2].

Подавляющее большинство туристических предприятий занимаются отправлением соотечественников отдыхать за рубеж, т.е. в другие страны. И лишь небольшая часть турагентств работает на привлечение гостей в республику. Таким образом, большая часть прибыли от туристского бизнеса в основном уходит за рубеж. Тур индустрия на региональном уровне в РК не развита, и почти не решаются проблемы внутреннего туризма, несмотря на наличие большого количества возможностей. Внутренний туризм в нашей области практически не развит, за исключением санаторно-курортного лечения и самостоятельных походов населения.

Туризм в основном носит сезонный самостоятельный характер и курортно-лечебный [3]. Поэтому именно сейчас тема актуальна, и требует безотлагательного изучения, так как напрямую связана с нестабильностью в мире – инфляцией, кризисы, войны, рост цен и др.

Туристический бизнес интересен тем, что для начала нужен небольшой уставной капитал, быстрый срок его окупаемости, постоянный спрос на услуги туризма, высокий уровень рентабельности произведенных затрат, наличие постоянных потенциальных туристов как из РК, так и ближнего зарубежья.

Но в условиях формирования национального туристского рынка, турфирмы часто работают не имея полного представления о действительных запросах потребителей, о своем положении на рынке, о возможностях банковских услуг. Маркетинговые решения носят случайный, односторонний характер, нет квалифицированных специалистов. Алматинский регион, имея уникальные природные, культурные и исторические достопримечательности, интересные климатические условия, не имеет национальных тур брендов [4].

Сегодня бренд – это новая подача товара (услуги) с учетом названия, выгоды, марки, сервиса, качества, цены, соответствия мировым стандартам и т.д.

В переводе с английского, brand (как товарный знак, торговая марка, клеймо) – термин маркетинга, символизирующий комплекс информации о компании, продукте или услуге; популярная, легко узнаваемая и юридически защищённая символика какого-либо производителя или продукта [5].

Бренд – это совокупность представлений и ожиданий потребителя в отношении данного «брендированного» товара или продукции. Успех создания бренда во многом зависит от совместных действий региональных и местных предприятий, коммерческих банков, поддержки надлежащих органов государства, определения ответственности каждого за решение имеющихся проблем туристической отрасли и смежных сфер. Для качественного обслуживания туристов в регионе нужно построить инфраструктуру: сеть гостиниц, ресторанов, кафе с готовкой национальных блюд и развлекательных комплексов, благоустроить дороги и паркинги, открыть сувенирные магазины и комплексы для показа национальных традиций, обрядов...

В создавшихся условиях все эти вопросы представляются необходимыми и дополняют актуальность выбранной статьи.

Центр предлагаемого нами бренда будет г.Талдыкорган – сердце Семиречья. Бренд «Семиречье» позволит организовать для населения достойный отдых в Алматинской области. Туристы смогут получить широкое представление о достоинствах края через презентацию бренда, укрепив лояльность потребителей и увеличив въездные тур-продажи. Получат развитие новые инвестиционные проекты регионального, национального и международного масштабов по открытию и модернизации инфраструктуры и обслуживающих предприятий (общепит,



гостиничный бизнес, сувенирное производство, мясо-молочная промышленность, сельское хозяйство, народные промыслы и др.). Все это позволит в разы повысить занятость населения региона и его благосостояние. В целом разработка экспортоориентированного бренда будет способствовать формированию привлекательности туристского имиджа страны. При этом, ставку узнаваемости бренда можно делать на казахстанском гостеприимстве семиреченцев – жителей нашего края. Через наш бренд, мир лучше узнает Казахстан. Оригинальность и новизну бренда «Семиречье» мы видим на основе новой подачи достопримечательностей, а также флоры и фауны, живущих и произрастающих исключительно на территории Казахстана и внесенных в Красную книгу [6].

В регионе много красивейших природных мест, памятников старины. Климат и природные условия нашего края идеально подходят для отдыха и лечения разных людей. Создание бренда в регионе сегодня возможно и решаемо. Для этого в стране имеются законодательные и нормативно-регламентированные законы и акты РК. Проблематика вопроса широко освещается в прессе и СМИ, научные разработки казахстанских ученых по организации туристического продукта, позволяют говорить о комплексном походе к совершенствованию всей сферы туризма в Казахстане.

В результате полевого исследования мы выявили, что наибольшее число туристов предпочитают доступный, кратковременный отдых, приходящийся на летний или зимний сезон, с целью развлечения и отдыха [7].

Предлагаемый нами бренд – реальность современной жизни, а именно отдых детей, молодежи, бизнесменов, домохозяек, интеллигенции, рабочих и другой заинтересованной аудитории, через познание собственного края, собственных достопримечательностей. При этом, особое внимание важно уделять обслуживанию зарубежных туристов и их финансированию.

Ключевым направлением деятельности бренда «Семиречье» являются модернизация и диверсификация национальной экономики Президента РК К.Токаева, в «Стратегии индустриально-инновационного развития страны на 2023-2025 годы, программы «30 Корпоративных лидеров Казахстана», поставленных перед предприятиями и банками РК [8].

Инновационность нашего бренда мы видим в следующем:

- а) содействие в модернизации и диверсификации национальной экономики;
- б) содействие в стабилизации финансов и финансовых потоков в страну;
- в) повышение эффективности деятельности местных предприятий.

*Для брендинга мы предлагаем включить следующие маршруты:*

1) *по г. Талдыкорган и ее окрестностям:* на гору «Чертобай»; в живописное ущелье реки «Кора»; поездку на поющие барханы; на водопад «Бурхан-булан»; на ледник «Асылбай»; на теплые (незамерзающие) ключи «Чимбулака».

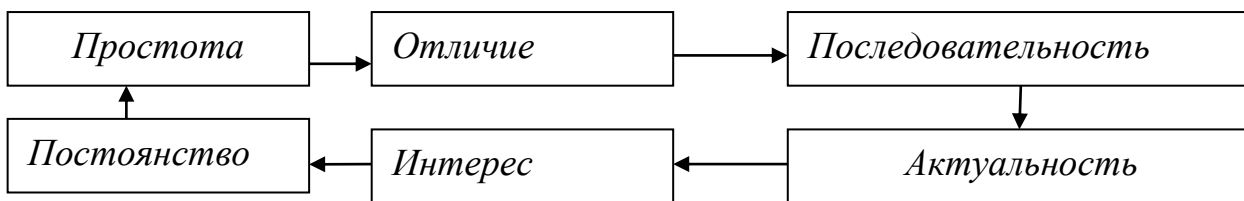
2) *на знаменитые целебные озера:* Алаколь; Жасылкол; Капчагай; Балхаш.

3) *историко-познавательные маршруты*: «Родина Чокана Валиханова»; по местам гражданской войны «Черкасская оборона»; знаменитые «Раскрпки города Койлы», (Золотого человека); новый Каландайк «Комплекс Чарын».

4) на лечебно-курортные, спортивные и оздоровительные комплексы [7].

Каждый маршрут по своему уникален и неповторим, но нет качества обслуживания и сервиса, многим туристам о них ничего не известно. Для этого необходимо проводить ознакомительно-рекламные мероприятия через СМИ, телевидение. Это разработка медиа-стратегии, презентаций и изображений с помощью пиктограмм и ifttt. com., паблик-рилейшнз, сейлз-промоушн, директ-маркетинг, рекламных роликов, трейд-промоушн, видео материалов и др. [9].

Успех и новизну бренда «Семиречье» мы видим в следующем:



В работе с туристами по рекламе бренда, можно использовать слэнды:

«Семиречье посети, море удовольствия получи!»; «В Семиречье приезжай! Друзей и семью приглашай! Здоровье, красоту и радость вместе получай!»; «Семиречье – зеленый рай! Приезжай и отдыхай, и финансы не считай!»; «Наша продукция поможет Вам правильно отдохнуть, укрепив здоровье, и получив незабываемые впечатления!».

Согласно проведенного опроса, мы выявили, что *Целевая группа* потребителей бренда – это люди со средним достатком, думающие о своем здоровье и приятном отдыхе. Это женщины, мужчины, возможно с семьей в возрасте от 18-65 лет и выше, ориентированные на карьеру и жизненный успех, независимые для удовлетворения личного интереса. Т.е. сущность бренда, в том, что человек покупает не товар, и не выгоду, а определенное ощущение.

*Категория бренда*: туристические маршруты через массовый или индивидуальный отдых, в удобное время, в удобном месте и по нужной цене.

*Масштаб бренда*: национальный и международный.

*Рыночная ситуация*: производство тур услуг растет медленнее, чем потребление. В среднем, каждый клиент имеет возможность отдыхать на природе по 3-4 раз в месяц (1-2 дня), но отдыхает 1 раз в год (отпуск).

*Маркетинговая ситуация*: стабильная и благоприятная. Создание уникальной эмоциональной территории бренда, выделит его из многих категорий на массовом рынке, и позволит дистанцироваться от конкурентов.

*Доступность*: дать возможность потенциальному туристу получить исчерпывающую информацию повсюду – дома, на работе, и вне дома.

*Качество:* продемонстрировать превосходство тур продукта по новизне; соотношению «цена/качество»; полезности; уникальности, простоте покупки.

*Позиционирование бренда:* широкий ассортимент маршрутов на любой вкус, по любому природно-климатическому условию. В Семиречье можно наблюдать пустыни, полупустыни, степи и лесостепи, леса и горы одновременно, в течении светового дня или с остановками за неделю.

*Обоснование выбора:* проведенные опросы показали, что именно такое позиционирование наиболее успешно для роста марки, так как объединяет в себе две самые привлекательные для клиента идеи: уникальность и цена.

*Креативная стратегия:* цель креативной стратегии – создание имиджа, который превратит бренд в узнаваемую марку с ярко выраженным характером – активным, динамичным, и с высоким качеством обслуживания [7].

Внедрение и адаптация бренда «Семиречье» на рынок тур услуг Казахстана и зарубежных стран позволит также развитие отечественного туристического маркетинга; экскурсионное и консалтинговое обслуживание; транспортные и банковские услуги; развитие посреднических услуг внутри страны и за ее пределами; параллельно развитие научно-технических, информационных, агентских, рекламных, представительских и других услуг.

Наш бренд будет иметь свои преимущества:

- 1) Виды маршрутов (марки) для определенных целевых аудиторий.
- 2) Уменьшается риск, так как нет необходимости уезжать далеко и дорого.
- 3) Каждый маршрут (марка) вносит вклад в общий уровень осведомленности о товаре, ее ценности и доступности.

В ходе реализации бренда будут достигнуты следующие результаты:

- стабильный рост потока туристов в Казахстан;
- будет способствовать вхождению РК в мировой туристический рынок;
- если в среднем предположить, что один турист за время своего пребывания принесет в бюджет около 63 500 тенге, за период с 2024 по 2027 годы, поступления в бюджет от въездного туризма составят 303,2 млрд. тенге;
- будет также обеспечена занятость населения в сфере туризма с 447,6 тыс. человек в 2023 году до 550,0 тыс. человек в 2027 году [10].

Таким образом, бренд «Семиречье» – реальный проект, с помощью которого не только тысячи человек смогут культурно отдохнуть и поправить здоровье, но и каждый третий житель региона будет обеспечен постоянной работой. А это еще раз подтверждает актуальность выбранной темы.

### Список литературы:

1. World Tourism Organization (WTO). Tourism Highlights 2023 Edition. UNWTO, 2023. URL: <https://www.unwto.org/tourism-statistics> (дата обращения: 25.10.2024).
2. Комитет по статистике Республики Казахстан. Ежегодный статистический сборник по туризму. Министерство национальной экономики РК, 2018-2023.
3. Геннадьев, М. П. Особенности развития внутреннего туризма в Республике Казахстан. Туристический бизнес: исследования и аналитика, 2022, №4, с. 33-41.
4. Шаймерденова, Л. Ж. Роль регионального брендинга в привлечении туристов в Казахстан. Маркетинг и логистика в туризме, 2021, №2, с. 112-117.
5. Kotler, P., & Keller, K. L. Marketing Management. 15th ed., Pearson, 2016.
6. Красная книга Казахстана. Информация о редких и исчезающих видах флоры и фауны. Национальная академия наук РК, 2022. URL: <https://redbook.kz/> (дата обращения: 25.10.2024).
7. Сагадиев, С. А. Проблемы и перспективы развития туристического потенциала Алматинской области. Вестник экономики и менеджмента Казахстана, 2023, №3, с. 52-59.
8. Токаев, К. Ж. Стратегия индустриально-инновационного развития Казахстана на 2023-2025 годы. Министерство индустрии и инфраструктурного развития РК, 2023. URL: <https://www.miid.gov.kz/> (дата обращения: 25.10.2024).
9. Иванова, Е. А., & Петров, Д. С. Основы формирования национального бренда в туризме. Маркетинг и туризм: теория и практика, 2023, №1, с. 19-26.

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## **ИНТЕЛЛЕКТУАЛЬНАЯ ПЛАТФОРМА ОБРАТНОЙ СВЯЗИ С ИСПОЛЬЗОВАНИЕМ ИИ ДЛЯ МООС**

**Аннотация:** В данной статье представлена разработка интеллектуальной платформы обратной связи с использованием искусственного интеллекта (ИИ) для массовых открытых онлайн-курсов (МООК). Использование ИИ позволяет автоматизировать процесс обратной связи, анализировать и прогнозировать результаты обучения, а также адаптировать образовательные материалы под индивидуальные потребности обучающихся. В результате исследуется, как интеграция ИИ может повысить эффективность обратной связи, улучшить вовлеченность учащихся и способствовать персонализированному подходу в МООК. Проведены эксперименты по внедрению предложенной платформы, результаты которых свидетельствуют о повышении качества образовательного процесса.

**Ключевые слова:** ИИ, массовые открытые онлайн-курсы, обратная связь, адаптивное обучение, образовательные платформы, МООС, персонализация

**Введение.** В последние годы массовые открытые онлайн-курсы (МООК) стали важной составляющей современной образовательной системы, позволяя получить доступ к высококачественным образовательным материалам широкому кругу пользователей. Однако одной из проблем, с которой сталкиваются разработчики и пользователи МООК, является ограниченная возможность персонализированной обратной связи для каждого ученика. Современные технологии, в частности, искусственный интеллект (ИИ), открывают новые возможности для улучшения обратной связи и автоматизации оценки обучения.

Использование ИИ для анализа поведения учащихся и адаптации учебных материалов позволяет не только экономить время преподавателей, но и способствует созданию более продуктивной учебной среды. Цель данной работы — исследовать и разработать интеллектуальную платформу для обеспечения обратной связи, которая

будет способствовать улучшению качества обучения на MOOK за счет анализа данных о поведении студентов и их успеваемости.

### **Обзор литературы**

Обратная связь играет важную роль в образовательном процессе, влияя на учебные результаты и мотивацию студентов. В исследованиях Фидлера и Майера (2019), а также Кэмпбелла и Смита (2020) были описаны модели применения ИИ в сфере образования, которые помогают выявлять трудности у студентов и персонализировать учебные траектории. Например, использование алгоритмов машинного обучения для анализа больших данных, собираемых на образовательных платформах, позволило выявить, какие типы заданий вызывают наибольшие трудности.

Одной из перспективных технологий является обработка естественного языка (NLP), позволяющая платформам на базе ИИ анализировать текстовые ответы студентов и предоставлять корректную обратную связь, как это показали исследования Грейвса и Джонсона (2021). В то же время, использование чат-ботов для консультирования студентов, как было описано в работах Саймона и Ванга (2022), также позволяет улучшить пользовательский опыт и повысить вовлеченность студентов.

### **Материалы и методы**

Разработка интеллектуальной платформы обратной связи состояла из нескольких этапов, включая:

1. **Сбор данных** — анализ учебных данных, таких как успеваемость студентов, их активность на платформе и результаты выполнения заданий.
2. **Обработка данных** — предобработка, включая очистку и нормализацию данных для улучшения точности алгоритмов.
3. **Создание моделей ИИ** — для автоматического анализа данных использовались модели машинного обучения, в частности, алгоритмы классификации и прогнозирования. Особое внимание уделялось моделям для обработки естественного языка (NLP), чтобы распознавать эмоциональные и текстовые паттерны в ответах студентов.
4. **Интеграция с MOOK** — разработанная система интегрировалась с популярными платформами для проведения онлайн-курсов, такими как Coursera и edX, через API для сбора и анализа данных об успеваемости студентов.

### **Основная часть**

Разработанная платформа включает несколько ключевых модулей: модуль сбора данных, модуль обработки и анализа данных, модуль рекомендаций и модуль отчетности. Основной принцип работы системы заключается в автоматизации процесса обратной связи. Платформа собирает данные о поведении студентов на курсе, их активности, выполнении заданий и посещаемости лекций.

Алгоритмы машинного обучения анализируют собранные данные, такие как время, затраченное на задания, процент завершенных задач и общая активность на платформе. На основе этих данных алгоритмы ИИ выявляют закономерности, которые могут свидетельствовать о возникновении трудностей или, напротив, об успехах в обучении.

Для анализа текстовых ответов студентов и распознавания их настроения и эмоционального состояния применяются технологии обработки естественного языка (NLP). Это позволяет платформе давать более точные рекомендации и обеспечивать корректную обратную связь, учитывая контекст ответов.

Модуль рекомендаций нацелен на предоставление персонализированных советов и подсказок. Платформа анализирует данные и предлагает ученикам дополнительные материалы или практические задания. Например, если студент испытывает затруднения в какой-либо теме, система может порекомендовать ему дополнительные лекции или упражнения.

Система также создает персонализированные отчеты, которые отражают прогресс студентов и указывают на проблемные темы. Эти отчеты могут быть отправлены преподавателям для корректировки учебного процесса и более точной поддержки студентов.

### **Результаты и обсуждения**

Экспериментальное тестирование платформы показало улучшение успеваемости среди студентов, а также повышение уровня вовлеченности. В ходе тестирования была собрана обратная связь от студентов и преподавателей, которые отметили, что персонализированная обратная связь помогла им лучше понять трудные темы и улучшить свои результаты. Автоматизация процесса обратной связи позволила сократить временные затраты преподавателей на оценку заданий и предоставление рекомендаций.

### **Заключение**

Разработка интеллектуальной платформы для обратной связи с использованием ИИ в MOOK показала, что автоматизация и персонализация обучения могут значительно повысить качество образовательного процесса. Применение ИИ для анализа поведения студентов и их текстовых ответов помогает не только своевременно выявлять трудности в обучении, но и адаптировать учебные материалы под потребности каждого ученика. Перспективы дальнейших исследований включают улучшение алгоритмов обработки естественного языка и интеграцию платформы с другими образовательными ресурсами для повышения её адаптивности.

### **Список литературы:**

1. Fiedler, R., & Meyer, K. (2019). Artificial Intelligence in Education: Models and Applications. *Educational Technology Journal*, 45(2), 112-130.

2. Campbell, J., & Smith, L. (2020). Machine Learning for Personalized Learning: Trends and Challenges. *Journal of Educational Research*, 37(4), 221-234.
3. Graves, S., & Johnson, R. (2021). Natural Language Processing in Educational Platforms: A Review. *Computer Science in Education*, 16(1), 75-93.
4. Simon, T., & Wang, Y. (2022). Chatbot-Assisted Learning for MOOCs: A Case Study. *Technology Enhanced Learning Journal*, 28(3), 102-117.



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## ЭТИЧЕСКИЕ АСПЕКТЫ ПРИМЕНЕНИЯ ИИ В ЛЕКСИКОЛОГИИ

**Аннотация:** В данной статье рассматриваются этические вопросы, возникающие при применении технологий искусственного интеллекта (ИИ) в области лексикологии. В последние годы ИИ стал важным инструментом для анализа языка, семантики и лексических структур. Однако его использование также поднимает важные вопросы, касающиеся приватности данных, возможного искажения языковых норм и культурного разнообразия, а также ответственности за ошибки, связанные с машинной обработкой языка. В статье представлены основные этические аспекты, рассмотрены подходы и перспективы регулирования применения ИИ в лексикологии, и даны рекомендации для разработчиков и пользователей таких технологий.

**Ключевые слова:** искусственный интеллект, лексикология, этика, обработка естественного языка, культура, лингвистика, анализ языка, предвзятость данных

### Введение

Системы искусственного интеллекта и, в частности, технологии обработки естественного языка (NLP) сегодня находят широкое применение в лексикологии и лингвистике. С их помощью автоматизируется анализ текстов, создаются лексические базы данных, словари, а также проводится семантический анализ и обработка огромных массивов текстовых данных. Несмотря на очевидные преимущества, использование ИИ в лексикологии порождает многочисленные этические вопросы. Это касается не только корректности анализа и обработки данных, но и возможных социальных и культурных последствий. Например, ошибки или предвзятость в алгоритмах могут приводить к некорректному представлению языковых норм, что может в свою очередь повлиять на культурное восприятие, искажение значений и даже дискриминацию на уровне языка.

Цель данной статьи — исследовать этические проблемы, связанные с использованием ИИ в лексикологии, и предложить пути их решения для обеспечения справедливости, прозрачности и точности в обработке языковых данных.

### **Обзор литературы**

Вопросы этики ИИ стали одной из самых актуальных тем в научном сообществе. Работы, посвященные проблемам этики ИИ, в частности применению этих технологий в лингвистике, появляются регулярно. Так, исследование Бендера и Гебру (2021) указывает на необходимость учета предвзятости данных и справедливости в обработке естественного языка. Они подчеркивают, что данные, используемые для обучения ИИ, часто содержат предвзятости, которые могут привести к некорректным выводам и стереотипам в отношении различных социальных групп.

В работе Грин и Вальд (2022) рассматривается применение ИИ в создании словарей и лексических баз, отмечая, что автоматическая обработка и категоризация слов и выражений могут исказить смыслы, особенно если речь идет о культурно значимых словах и выражениях. Также Ли и Ян (2023) акцентируют внимание на правовых и социальных последствиях автоматизации языковых процессов, включая риск нарушения авторских прав и приватности пользователей при использовании данных из открытых текстовых источников.

### **Материалы и методы**

Для анализа этических аспектов применения ИИ в лексикологии были использованы методы качественного анализа литературы и тематическое интервью с экспертами в области лингвистики и этики ИИ. Проведено также изучение данных по конкретным случаям, связанным с этическими проблемами в автоматизированном анализе языка, а также анализ нормативных документов, касающихся использования ИИ в различных отраслях, в том числе и в лексикологии. Обсуждение велось на основе нескольких ключевых категорий: культурное влияние, приватность данных, предвзятость и справедливость, ответственность и право.

### **Основная часть**

#### **Культурное и социальное влияние**

Одним из важнейших вопросов применения ИИ в лексикологии является культурное и социальное влияние, которое он может оказывать. Алгоритмы обработки языка, основанные на обучении на больших текстовых данных, могут не учитывать культурные и региональные особенности. Это может приводить к формированию и распространению стереотипов и негативных образов, а также к искажению значений слов и выражений. Примером является использование ИИ для перевода или анализа сленговых выражений, культурно значимых слов и идиом, что может привести к их неверному толкованию.

#### **Приватность данных**

Сбор и обработка данных для систем ИИ требуют особого внимания к вопросам конфиденциальности. В лексикологии данные для обучения часто включают тексты пользователей, которые могут содержать личные и чувствительные данные. Проблемы конфиденциальности возникают, когда алгоритмы ИИ анализируют персональные данные пользователей без их явного согласия или в случаях, когда собранные данные передаются третьим лицам. Это нарушает приватность и может быть расценено как вторжение в личное пространство.

### **Предвзятость и справедливость**

Алгоритмы ИИ склонны к предвзятости, которая возникает из-за неоднородности данных, используемых для их обучения. Эта проблема особенно актуальна для лексикологии, где ИИ обрабатывает большие объемы текстов, потенциально содержащих предвзятые представления и стереотипы. Например, при анализе текстов, написанных на определенном языке или принадлежащих к конкретной культуре, алгоритмы могут воспринимать специфические черты как нейтральные и воспроизводить предвзятости в результатах анализа.

### **Ответственность и право**

Еще один важный аспект касается вопроса ответственности. Так как ИИ все чаще применяется в лексикологии для создания словарей, анализа текстов и других целей, важно понимать, кто несет ответственность за ошибки, которые могут возникнуть в процессе обработки данных. Например, если система ИИ, анализируя тексты, делает выводы, которые могут быть расценены как оскорбительные или дискриминационные, то возникает вопрос о том, кто отвечает за последствия.

### **Результаты и обсуждения**

В результате анализа были выявлены несколько ключевых этических проблем. Во-первых, наличие предвзятости в данных, которые используются для обучения алгоритмов ИИ, может приводить к нежелательным социальным последствиям и распространять стереотипы. Во-вторых, вопросы приватности и конфиденциальности данных становятся более актуальными в свете растущих объемов персональных данных, используемых для обучения систем ИИ. И, наконец, проблема ответственности требует дополнительных нормативных и юридических решений, чтобы избежать ситуации, когда разработчики и пользователи остаются без правовой защиты при возникновении ошибок или недоразумений в работе ИИ-систем.

### **Заключение**

Применение ИИ в лексикологии предоставляет уникальные возможности для анализа и обработки языка, однако требует осознанного и этически ответственного подхода. Важно разрабатывать нормативные и правовые механизмы, которые помогут избежать негативных последствий и сделают использование ИИ справедливым и этически оправданным. Необходимо продолжать исследования в области предвзятости данных и конфиденциальности, чтобы улучшить качество и достоверность ИИ-

решений в лексикологии, минимизировать социальные и культурные риски и повысить доверие к таким технологиям.

### Список литературы

1. Bender, E. M., & Gebru, T. (2021). On the Dangers of Stochastic Parrots: Can Language Models Be Too Big? In *Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency*, 610–623.
2. Green, J., & Wald, E. (2022). Ethical Considerations in Lexicographic Applications of AI. *Lexical Studies Journal*, 33(2), 123–137.
3. Lee, S., & Yan, P. (2023). AI-driven Language Processing and the Impact on Privacy. *Journal of Language Technology*, 12(4), 145–159.

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## **THE IMPACT OF VR AND AR ON THE CREATIVE INDUSTRIES: NEW PARADIGMS OF ARTISTIC EXPRESSION AND INTERACTION WITH THE AUDIENCE**

**Abstract:** Virtual reality and augmented reality are two key technologies in transforming creative industries, art and education in recent years. By creating immersive and interactive experiences, these innovative tools give us unique means of creating out of the box experiences where users can not only observe, but actively participate in the perception process. This article takes a look at how VR and AR have impacted on art, music, cinema and educational practice and their development and history. Additionally, we analyze problems and challenges, for example high cost of equipments, low content quality, legal and ethical problems, social and cultural barriers. While there are still so many hurdles towards achieving this, and the future for VR and AR looks bright, this new medium promises exciting applications for creative professionals and educational institutions alike. It emphasizes the significance of investments in research and development, discussion of legal aspects needed to take best advantage of VR and AR in creative industries and educational processes.

**Keywords:** virtual reality, augmented reality, artistic expression, audience interaction, immersive experiences.

During the last few years it has been observed that the media landscape underwent very radical changes due to quick technological evolution and the change in consumer preferences. Digital technologies are becoming everyday life and audiences expect more personalized/interactive interactions with content. While traditional forms of media such as cinema, music and visual arts continue to be important, the modern consumer expects more: the opportunity to be present in the world as it is formulated.

In line with this trend, virtual reality (VR) and augmented reality (AR) technologies have been actively introduced into creative industries and one of them has become the key driving force making this process. As this is done fully immersed computer simulated environments where a user can interact with an object or space consider it as feeling part of virtual reality. On the other hand, AR superimposes digital objects or informational, information onto the real world to allow users to interact the digital and the natural.

Over the past few decades, the development of VR and AR has been greatly accelerated, and these technologies are widely used in medical, education, games and entertainment industries. But because creative industries and art are particularly affected, they significantly affect the way works are created and how they are perceived, respectively. At the same time, VR and AR are becoming creative traditional media once again coined now as new languages in artists, musicians, designers and filmmakers exploring the potentials of the new medium in the art forms that are becoming more interactive, multi layered and immersive. These technologies let you not just watch a work of art, you can actually be immersed in the new worlds it creates: moving the composition, or interacting with objects.

One example is the use of the visual arts, where artists create an entire virtual gallery for people to not only see works, but to walk through exhibitions that are only real in the digital space. On the contrary in AR one can conceive paintings or sculptures who come to life, reacting to the viewers movements, or architectural projects where virtual objects are ‘built’ on real spaces.

In this article, we will explore how VR and AR have completely revolutionized the creative industries and art. We will look at the history of creation of these technologies, their present application, in art, music, film and design, and discuss some of the problems and difficulties faced by artists and developers. The impact of VR and AR on the perception of art, audience interaction, and future possibilities for creative professionals in the setting of a digital revolution, will be given special attention.

**Literature review.** Shkalenko, Fadeeva (2022) [1] investigate how artificial intelligence influences creative industries by looking at content creation and process management transformations brought by AI. AI makes our workflows faster and gives us new ways to interact with an audience but it doesn’t come cheap. Harnessing through this research could be useful for examining how artificial intelligence, virtual and augmented reality technologies influence works of art creation and distribution.

Khristoforova, Chernikova, Elkanova (2023) [2] assess the evolution of "the experience economy" in Russia, wherein the use of VR and AR technologies contributes to a sophisticated development of such experiences and interactive interaction. And these technologies give people a chance to enter in other worlds, which changes the perception of art and of cultural products. This research can help to understand how VR and AR impact how the creative industries are creating experiences.

In Zaitseva (2023) [3], the author analyzes the innovative development of the creative industries market in the context of the technologies, VR and AR. It talks about new art and design opportunities such as creating virtual exhibitions and interactive installations. Nevertheless, the big issue in the dissemination of these technologies is the high cost of their implementation. This study draws upon VR and AR to help measure how they engender business models and assist to develop growing creative industries.

In Novakova, S'tarchon' (2021) [4], explore the challenges and possibilities XR technologies, VR and AR, bring into creative industries. The inclusion of XR in mass art and commercial projects; and possibilities of creating completely new forms of creativity with these technologies. Even if this research can be used to analyze problems and the reality of using VR and AR in contemporary art, there will be no other reports on this topic in the scientific environment.

Anantrasirichai (2021) [5] gives an overview of how artificial intelligence (AI) is being used in creative industry and how VR and AR technologies are merging with AI to bring about new creative possibilities. The article talks about how AI can automate the creative processes using it to create virtual worlds and interactive environments. The synergy of AI, VR and AR, and their combined effect on the art transformation is what this details out.

Yang et al. (2018) [6] seek to determine how virtual reality might enable and aid creative processes by establishing novel interactive environments for artists and designers. Therefore, the article discusses the data regarding the influence of VR on the growth of creativity which may be important to comprehend how VR affects the processes of creation of art or creation of thoughts generally.

This explores the development of virtual reality in Japan and its effect on culture and art Columbia University Press (2022) [7] . What's more, they argue that VR is not just a means for entertainment, but serves to build deep cultural work, and that expands the potential for creative industry. The utility of this research lies in allowing us to look at the ways in which VR shapes the meaning and outcome of art in different cultural contexts, as well as broadening the scope of what creative expression can be.

### **The history and development of VR and AR**

The adoption of virtual and augmented reality technologies will not be their first wave, however. Ideas about VR and AR came about in the middle of the 20th century. In 1962 engineer Morton Hayling built Sensorama, a device that immersed the user in three dimensional scenes via multimedia. Despite not being a hugely popular thing, it was an early and fairly good instance of immersive technology.

Ivan Sutherland's 1968 3D graphics system, "Sword Striking Evil"helmet, was a big step in the development of VR. Further research developed from this primitive VR display.

Jaron Lanier founded VPL Research in the 1980s, and proposed the term "virtual reality ."Meanwhile, the idea of augmented reality was, too—and in 1990, Boeing researcher Tom Codell was one of the first to describe the thing: augmenting reality with digital data, or as he called it, augmented reality.

Over the past twenty years, computing power has increased and VR and AR have been developed. Virtual reality was revolutionized by the Oculus Rift helmet (2012) and AR had a mass audience through Pok'emon GO (2016).

Today VR and AR is used in games and entertainment as well as health, education and art. This is the creation of virtual galleries and interactive installations by artists, which are revolutionising creative industries and providing other ways for audience to interact.

### **Impact on creative industries**

#### **1 Visual art**

VR and AR gives artists a way to break the physical bounds of galleries and museums. With VR, there you can develop virtual exhibitions and installations that people can enter even if they are far away. Becoming especially relevant during the Pandemic, many physical spaces were closed. Virtual galleries enable showing works, but also using the objects to create interactive worlds where people can change the objects and change the composition.

Visual art is also being used for AR which allows us to 'bring to life' paintings and sculptures. As an example, viewers can see a painting turning into animation using smartphone apps, or how sculptures change just by moving. It introduces new level of interactivity to traditional art forms.

#### **2 Music and sound**

VR and AR had made fantastic contributions to the music industry by giving us new ways to make and listen to sound. Virtual concerts bring artists together to perform their concerts digitally by using digital platforms both for sound and visual effects. There is an example: the Fortnite game's Travis Scott concert which brought millions of viewers from across the world. This event merged a physical special effects and a piece of music that would have been impossible to perform on a physical stage.

Jean—Michel Jarre is a great example of this: An electronic music pioneer, who, bathed in a lavish stage show under a glass sphere, performed a string of VR concerts such as Alone Together. These performances allowed an audience to immerse themselves in to virtual worlds where they could navigate and interact with music in real time.

Music then uses augmented reality as well. For example, the Muse band's digital concert that their Stageverse app uses allows fans to participate in the concert using AR to enjoy a personal viewing experience. These technologies enable visitors to a music event to become immersed in its interactive features as they become more interactive, and viewers can also have a unique experience of interacting with artists and sharing in their content.

#### **3 Cinema and multimedia**

VR movies and multimedia projects provide filmmakers with new storytelling opportunities. We're stuck on a flat screen which limits traditional cinema, while VR indeed immerses us in to how the very essence of events are occurring and makes us the spectator. The film 'Carne y Arena' by Mexican director Alejandro Gordon Inarritu is one of the most striking of examples. The Oscar for technical achievements was won by this VR project focused on the problems of migrants. Three simulations of migrants' path through the desert in virtual reality made such an emotionally charged and powerful experience that viewers could really walk on the die, literally taking their path.



Cinema also embraces augmented reality which enhances the interaction between the cinema's audience. The AR application that I developed around the movie, "Blade Runner 2049" is one of the most striking examples. Viewers interacted with the film's digital objects using the app, which generated the effect of the story continuing off screen.

These overview examples demonstrate that these tools change not only the technological capabilities that movies have but also the way they're made; becoming more interactive and emotionally intense.

#### 4 Design and architecture

Architects and designers use AR and VR to visualize projects before they're even developed as well as interact with them in VR and AR. By providing virtual models of buildings and interiors, clients can see the project before implementation, helping to enormously speed the approval and impact process. This, for example, is how architectural firms like Zaha Hadid Architects are actually using VR to present their projects to clients. It allows for a more accurate and visual representation of how the object will actually look and be used in real life.

By the same token, AR enables designers and architects to see objects in real space. For example, companies like IKEA will provide AR applications where users can put virtual furniture objects into their homes to see what it may look like in real life. Not only does this better the user experience, but it also aids in making more up to date decisions.

#### **Education and training**

As virtual reality (VR) and augmented reality (AR) become more important in the field of education, they are changing how it is done, and creating new opportunities for both teachers and students. In making learning more fun, accessible and successful, these technologies help to create interactive, immersive learning materials.

##### 1 VR in education

With VR, you can dream up the perfect opportunity to create realistic simulations and learning environments that students won't get in traditional classrooms. Already, virtual reality is used to train specialists in such areas as medicine, engineering and military sciences and etc.

An example of the use of VR in the field of medicine is virtual surgery, where students can do practical work with a very sophisticated operation in a safe environment. Osso VR is platform that lets medical students learn anatomy and surgical technique in immersive 3D simulations. In addition to getting better at using those skills, it cuts down on the chance to make mistakes in live practice.

##### 2 AR in training

It enables more accessible opportunities for integration of the interactive technologies to the educational process. AR enables games with digital objects painting the real world to enhance the understanding of complex and often complex topics and materials.

Interactive tutorials and applications: Tutorials can be made interactive by AR apps including Merge Cube or Quiver. For example, students can imagine how three dimensional models of atoms, animals, geographical objects, etc 'come to life' directly on the pages of a textbook. It makes the process of learning abstract concepts easier and more like scaling work.

Gamification and engagement: AR is also used to gamify the educational process, but here it is particularly productive in primary and higher educational establishments. An example is Pok´emon GO, the game adapted to educational purposes. Kids use it to learn biology and geography, 'catching' Pokemon on real landscapes while tying it into education.

### **Problems and challenges**

Virtual reality (VR) and augmented reality (AR) offer a great potential in the creative industries, but their general adoption is hindered by a great number of problems and challenges that can be grouped under technical, economic and social.

#### **1 Technical barriers and content issues**

However, high cost of equipment is one of the biggest impediments in the mass adoption of VR and AR. But many users and educational institutions cannot afford the virtual helmets and the powerful computers needed to utilize these technologies. Furthermore, developing top quality content demands own resources, as good as programming and three-dimensional modeling. Poor performance causes loss of user experience and poor content optimization.

In addition, users may get cyberneisibility, where they get dizziness and extra awkwardness as there is a gap between visual and physical experience. As a result, the time permitted for use of VR, especially in educational and professional contexts, is limited.

#### **2 Economic and social challenges**

One big problem is the digital inequality. VR and A Rare too expensive for small companies to afford the, large companies and institutions, instead of small ones can afford to invest in them. This is where a space is made between those who are able to take advantage and those who decide to stay away.

Additionally, VR and AR raises legal and ethical issues. Unauthorized use of the collected information is possible about users and environment that there would be need for a legal framework to protect privacy. Virtual objects are also becoming relevant to copyright issues since virtual objects might infringe intellectual property rights.

#### **3 Educational and cultural barriers**

In order to implement VR and AR in educational processes, the specialists should be trained, who are ready to work with such technologies. And education on how to make VR and AR content doesn't go far enough, along with some being self taught, which ultimately is a bottle neck.

Integration of new technologies can also be slowed down by traditional educational and cultural institutions' resistance to change. They do need time and resources that are sometimes not available.

Furthermore, if used VR and AR can isolate the user from the real world and if preferred by the user to reach other virtual worlds. New technologies also spread differently from country to country and may even be perceived differently by each culture.

### **Conclusion**

Virtual reality (VR) and augmented reality (AR) have great powers to shrink industries and arts and educational processes in fundamentally innovative ways. They offer special prospects of construction of immersive and interactive experiences aimed at upholding and enhancing the perception of art, music, cinema and education. They do more than let you observe the works: They become an active participant in newer worlds, new opportunities.

While all of them have their own advantages, however, VR and AR have their own serious challenges. Equipment can be expensive, the quality of content minimal, legal and ethical, and social and cultural are some factors that can delay their full adoption. But understanding these challenges is essential and overcoming them makes it possible for technologies to deliver maximum benefit to society.

With the fast development of digital technologies and growing interest for VR and AR, a promising future for the latter awaits. Opening new horizons of creative professionals and educational institutions this enables new ways in which creative professionals and educational institutes can interact and learn. In addition to expanding the field of opportunities for self expression for VR and AR use in the creative and educational process, this also opens up even the possibility of a more inclusive and accessible environment for all participants.

To be able to truly take advantage of VR and AR, research, development and education on the subject will need to continue, along with constant discussion on both the legal and ethical applications. In this way, the basis will be laid for the sustainable development of digital creative industries and art, for their accessibility and usability to the widest range of audience.

### **References:**

1. Shkalenko A. V., Fadeeva E. A. Impact of artificial intelligence on creative industries: trends and prospects. cyberleninka.2022. URL: <https://cyberleninka.ru/article/n/vliyanie-iskusstvennogo-intellekta-na-kreativnye-industrii-tendentsii-i-perspektivy/viewer>.
2. Khristoforova I.V. Chernikova L. I., Elkanova E. A. The economy of impressions in Russia: development trends, Methodological foundations and support tools. cyberleninka.2023. URL: <https://cyberleninka.ru/article/n/ekonomika->

vpechatleniy-v-rossiitendentsii-razvitiya-metodologicheskie-osnovy-i-instrumenty-podderzhki/viewer.

3. T., Zaitseva. Innovative development of the creative industries market.econbull-icsras.2023. URL:<https://econbullicsras.ru/index.php/Test/article/view/143>.

4. Novakova H, STarchoňn P. Creative Industries: Challenges and Opportunities in XR Technologies. shs-conferences.2021., URL:  
<https://www.shsconferences.org/articles/shsconf/abs/2021/26/shsconfappsconf202103011/shsconfappsconf202103011.html>

5. N., Anantrasirichai. Artificial intelligence in the creative industries: a review springer. 2021. URL: <https://link.springer.com/article/10.1007/s10462-021-10039-7>.

6. Yang, Xiaozhe, et al. “Examining Creativity through a Virtual Reality Support System.” Educational Technology Research and Development, vol. 66, no. 5, 2018, pp. 1231–54. JSTOR. URL: <http://www.jstor.org/stable/26746313>. 2024.

7. Michael .V. The Immersive Enclosure: Virtual Reality in Japan . JSTOR. 2022. URL: <https://www.jstor.org/stable/48706729>

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## MULTISCREENS: USERS' MEDIA MULTITASKING MOTIVATION

**Abstract:** The rapid growth of multiscreen services has transformed video consumption behaviors globally, allowing users to engage with content across various devices such as smartphones, tablets, and computers. Despite the increasing adoption of multiscreen video consumption, there is limited research examining how individual user traits influence the use of these services, particularly the distinction between passive viewing and active dual screening. This study integrates the Uses & Gratifications Theory (U&G) and the media repertoire approach to investigate how factors like polychronicity, media multitasking motivations, and media repertoire affect multiscreen video consumption. A web-based survey will be conducted among university students who actively use multiple devices for video consumption and social interactions. The survey will measure key variables, including polychronicity, media multitasking motivations, and media repertoire, to understand their relationship with passive viewing and active dual screening behaviors. By focusing on a student demographic, this research aims to provide new insights into the factors that predict multiscreen video use to further prototype strategies to enhance user engagement.

**Key words:** Multiscreen Video Consumption, Polychronicity, Media Multitasking, Dual Screening

**Introduction.** The rapid growth of multiscreen or N-screen services has transformed video consumption behaviors worldwide. These services allow users to access videos and information across various devices, such as smartphones, tablets, and computers, anytime and anywhere (Shin, 2016). This trend, driven by advancements in wireless connectivity, platform interoperability, and cloud-based content, has led to a "conjunctural and contextual" mode of video consumption, where traditional and new media forms are utilized to create engaging experiences for users (Helles, Ørmen, Radil, & Jensen, 2015). Improved cross-screen viewing experiences have attracted both younger audiences and older multitasking users, as they consume videos and engage in related activities on multiple screens concurrently (Statista, 2018). While multiscreen video services present significant opportunities for the media industry, they also introduce new challenges for producers, brands, and policymakers (Lin, 2013). Despite the global rise in multiscreen video consumption, research examining how users' personal traits influence their use of various

devices for both passive viewing and active interactions remains limited. Previous studies have explored factors affecting user attitudes, intentions, and motivations toward multiscreen services (Shin, 2013) and the role of dual screening in enhancing user engagement (Pynta et al., 2014) and channel loyalty (Lim, Hwang, Kim, & Biocca, 2015). However, there is still a need to understand how various user traits, including polychronicity, media multitasking motivations, and media repertoire, impact different types of multiscreen video consumption, particularly distinguishing between passive cross-platform viewing and active dual screening.

To address this gap, the current study integrates the Uses & Gratifications Theory (U&G) and the media repertoire approach to investigate the relationship between user traits and multiscreen video consumption. Specifically, it examines how factors like polychronicity (individuals' preference for multitasking), media multitasking motivations, and media repertoire influence passive video viewing and active dual screening. By applying the repertoire-oriented approach, which considers users' media behaviors and selections (Taneja, Webster, Malthouse, & Ksiazek, 2012), this research provides new insights into the variables that predict both forms of multiscreen video use. Understanding these relationships is crucial for video producers, brands, and policymakers to develop effective strategies, content, and services that cater to different consumer segments and enhance user engagement in the evolving multiscreen environment.

**Literature Review.** Prior research has investigated the factors influencing multiscreen users' attitudes and intentions to adopt new services (Shin, 2013b) and identified social motivations that drive individuals to engage in discussions or interactions on a second screen while watching videos (Shin, 2013a). Dual screening, or the simultaneous use of two screens for video viewing and social media engagement, has emerged as a crucial segment of the multiscreen video market (Bercovici, 2014; Gil de Zúñiga, Garcia-Perdomo, & McGregor, 2015). Studies suggest that Social TV users, who interact on social media while watching videos, exhibit increased viewer engagement (Pynta et al., 2014) and channel loyalty (Lim, Hwang, Kim, & Biocca, 2015). Although the rise of multiscreen services presents challenges for the audiovisual industry, enhancing the quality of user experiences through these services is vital. Shin and Shim (2017) emphasize that by focusing on user engagement, video producers and brands can develop marketing strategies tailored to specific consumer segments. In recent years, several market reports (e.g., Appier, 2015; Fitzgerald & Clarke, 2012) have conducted applied research to better understand the multiscreen video industry and its users.

A few scholarly studies have also explored this area through various approaches: some have examined user motivations and consumption behaviors using qualitative methods (Jago, Sebire, Gorely, Cillero, & Biddle, 2011), while others have used experimental methods to test user attention to screen content (Van Cauwenberge, Schaap, & Van Roy, 2014) or discussed the convergence and regulatory issues related to multiscreen television (Lin, 2013;

Lin & Oranop, 2016). Survey research in the multiscreen video literature has investigated factors influencing user attitudes and intentions to use these services (Lin, in press; Shin, 2013b), as well as aspects related to adoption, diffusion (Shin & Biocca, 2017), and quality of user experiences (Shin, 2016).

However, there remains a gap in understanding the various factors that affect multiscreen video consumption, particularly when considering passive cross-platform viewing versus active dual screening. To address this gap, the present study integrates Uses & Gratifications Theory (U&G) with the media repertoire approach to examine how user traits, such as polychronicity, media multitasking motivations, media repertoire, and demographics, influence these two types of multiscreen video use. The repertoire-oriented approach is especially important in exploring the personal media palettes of users who select different multiscreen video viewing modes, as it allows researchers to investigate the relationship between media repertoire and user behavior (Taneja, Webster, Malthouse, & Ksiazek, 2012).

To understand multiscreen video consumption, it is important to explore key user traits. Polychronicity refers to an individual's preference for engaging in multiple activities simultaneously (Kaufman-Scarborough & Lindquist, 1999). Research indicates that individuals with high polychronicity are more comfortable with interruptions and can manage intense stimuli effectively, suggesting they may be more inclined toward multiscreen use (Lindquist & Kaufman-Scarborough, 2015). This trait has been linked with multitasking behaviors in media environments, making it a crucial factor to investigate in the context of multiscreen video consumption (Kononova & Chiang, 2015). Media multitasking motivations also play a significant role in driving multiscreen behaviors. Motivations such as control, efficiency, entertainment, connection, and addiction have been identified as reasons for engaging in media multitasking (Bardhi, Rohm, & Sultan, 2010; Wang & Tchernev, 2012). For example, cognitive needs like information processing and efficiency motivate users to multitask, while affective needs, such as entertainment and social connection, further drive these behaviors (Hwang, Kim, & Jeong, 2014). However, there is still a gap in understanding how these motivations relate to both passive multiscreen video viewing and active dual screening. The concept of media repertoire refers to the variety of media platforms and devices that an individual regularly uses (Hasebrink & Popp, 2006). In the context of multiscreen services, media repertoire includes the various screens - TVs, smartphones, tablets - used for video consumption. Previous studies have suggested that users with a larger media repertoire are more likely to engage in multiscreen consumption, as they seek to access different content across platforms (Taneja, Webster, Malthouse, & Ksiazek, 2012). However, little attention has been given to how media repertoire size specifically influences both passive video viewing and active dual screening.

From a theoretical perspective, this research aims to provide new insights into the variables that predict active multiscreen video use, as few previous studies have

comprehensively examined factors affecting both passive viewing and active dual screening. Practically, a deeper understanding of the relationship between user traits and the types of multiscreen video use can help industry stakeholders develop more relevant content, services, and platforms to better appeal to target consumers and increase engagement across intended screen media.

**Data collection.** A web-based survey was conducted in October 2024 via Google Forms, to gather data from an online panel of university students. This panel reflected the demographic profile (e.g., academic level and field of study) of active multiscreen users within the university. To qualify, participants were required to be current university students enrolled in courses and active multiscreen users with experience in video viewing and related social interactions on multiple devices (e.g., smartphones, tablets, laptops) within the past six months. After data cleaning, the final sample size was 37 valid respondents. The survey included various sections designed to measure key variables, such as polychronicity, motivations for media multitasking, and media repertoire. Additionally, self-generated items assessed the frequency of passive multiscreen video viewing and active dual-screening activities.

**Results & Discussion.** The survey findings reveal distinct influences of user traits on passive multiscreen video viewing and active dual-screening behaviors among university students. Polychronicity and media repertoire emerged as significant predictors in both types of multiscreen video use, aligning with expectations that highly polychronic individuals are more inclined to engage in multiple screen-based activities simultaneously. Respondents with high polychronicity scores showed a tendency to increase both passive video consumption across screens and active engagement through dual-screening. This supports the notion that individuals who are comfortable with multitasking are well-suited to the multiscreen environment, efficiently managing both video content and social or informational interactions.

Media repertoire size also showed a strong positive association with active dual-screening activities, though its effect on passive multiscreen viewing was comparatively modest. This suggests that students who routinely use a broader range of devices are not only more engaged in consuming video content across multiple screens but also more inclined to perform interactive or social tasks while viewing. The results underscore the role of an extensive media repertoire in encouraging dual-screening, as users diversify their content consumption across platforms to satisfy different informational and entertainment needs.

When examining media multitasking motivations, we observed varied impacts on dual-screening behaviors depending on the device used. Respondents using smartphones or tablets for dual-screening frequently cited motivations related to social connection, suggesting that portable devices facilitate quick, interactive exchanges that complement the primary viewing experience. Conversely, those who relied on laptops or desktops for dual-screening activities were more often motivated by entertainment, perhaps due to the



immersive nature and higher functionality of these devices for extended content exploration. These findings indicate that device type may influence the nature of multiscreen motivations, with more portable devices enabling social interaction and larger screens supporting deeper engagement in entertainment content.

Finally, while demographic data was limited, certain patterns emerged in how students engaged in multiscreen video use. Respondents were slightly more likely to dual-screen with smartphones, reinforcing findings in existing research that younger audiences often favor mobile technologies for media engagement. Gender-based differences were minimal in this sample, but a slight tendency for males to use tablets more actively for video-related interactions was observed.

**Conclusion.** This study explored how user traits such as polychronicity, media multitasking motivations, and media repertoire affect multiscreen video consumption among university students. Findings reveal that both polychronicity and an extensive media repertoire are strong predictors of active dual-screening and passive cross-platform video viewing. Media multitasking motivations also influence dual-screening behaviors, with device type impacting the specific nature of these motivations. Students are more likely to engage in dual-screening with mobile devices, reflecting their preference for portable technology in media use. By highlighting the distinct factors that shape passive and active multiscreen engagement, this research enhances our understanding of student media habits and provides insights for developing content and experiences that align with varied user profiles. Future research could build on these findings by exploring additional demographic factors and expanding the scope to other student populations.

### Reference:

1. Appier. (2015). Appier research report – Cross-screen user behavior insights Asia 1H 2015. Retrieved from <https://blog.appier.com/appier-cross-screen-user-behavioral-insights-report-1h-2015/>
2. Bardhi, F., Rohm, A. J., & Sultan, F. (2010). Tuning in and tuning out: Media multitasking among young consumers. *Journal of Consumer Behavior*, 9(4), 316–332. doi:10.1002/cb.320
3. Fitzgerald, J., & Clarke, J. (2012). How multiscreen consumers are changing media dynamics. Findings from a comScore study for the coalition for Innovative Media Measurement. Retrieved from [http://cimmusorg.startlogic.com/wp-content/uploads/2012/08/CD\\_XPWP.12.pdf](http://cimmusorg.startlogic.com/wp-content/uploads/2012/08/CD_XPWP.12.pdf)
4. Gil de Zúñiga, H., Garcia-Perdomo, V., & McGregor, S. C. (2015). What is second screening? Exploring motivations of second screen use and its effect on online political participation. *Journal of Communication*, 65(5), 793–815. <https://doi.org/10.1111/jcom.2015.65.issue-5>

5. Jago, R., Sebire, S. J., Gorely, T., Cillero, I. H., & Biddle, S. J. (2011). “I’m on it 24/7 at the moment”: A qualitative examination of multi-screen viewing behaviors among UK 10–11 year olds. *International Journal of Behavioral Nutrition and Physical Activity*, 8(85), 1–8. <https://doi.org/10.1186/1479-5868-8-1>
6. Hasebrink, U., & Popp, J. (2006). Media repertoires as a result of selective media use. A conceptual approach to the analysis of patterns of exposure. *Communications*, 31(3), 369–387. doi:10.1515/COMMUN.2006.023
7. Helles, R., Ørmen, J., Radil, C., & Jensen, K. B. (2015). The media landscapes of European audiences. *International Journal of Communication*, 9, 299–320.
8. Hwang, Y., Kim, H., & Jeong, S. H. (2014). Why do media users multi- task? Motives for general, medium-specific, and content-specific types of multitasking. *Computers in Human Behavior*, 36, 542–548. doi:10.1016/j.chb.2014.04.040
9. Kaufman-Scarborough, C., & Lindquist, J. D. (1999). Time management and polychronicity: Comparisons, contrasts, and insights for the workplace. *Journal of Managerial Psychology*, 14(3/4), 288–312. doi:10.1108/02683949910263819
10. Kononova, A., & Chiang, Y.-H. (2015). Why do we multitask with media? Predictors of media multitasking among Internet users in the United States and Taiwan. *Computers in Human Behavior*, 50, 31–41. doi:10.1016/j.chb.2015.03.052
11. Lin, T. T. C. (2013). Convergence and regulation of multi-screen television: The Singapore experience. *Telecommunications Policy*, 37(8), 673–685. doi:10.1016/j.telpol.2013.04.011
12. Pynta, P., Seixas, S. A. S., Nield, G. E., Hier, J., Millward, E., & Silberstein, R. S. (2014, March). The power of social television: can social media build viewer engagement? a new approach to brain imaging of viewer immersion. *Journal Of Advertising Research*, 71–80. doi:10.2501/JAR- 54-1-071-080
13. Shin, D. (2013b). N-Screen: How multi-screen will impact diffusion and policy. *Information, Communication and Society*, 16(6), 918–944. doi:10.1016/j.telpol.2010.07.001
14. Shin, D. (2016). Cross-platform user experience towards designing an inter-usable system. *International Journal of Human-Computer Interaction*, 32(7), 503–514. doi:10.1080/10447318.2016.1177277
15. Statista. (2018). Second screen usage-statistics & facts. Retrieved from <https://www.statista.com/topics/2531/second-screen-usage/>
16. Taneja, H., Webster, J. G., Malthouse, E. C., & Ksiazek, T. B. (2012). Media consumption across platforms: Identifying user-defined repertoires. *New Media & Society*, 14(6), 951–968. doi:10.1177/ 1461444811436146
17. Van Cauwenberge, A., Schaap, G., & Van Roy, R. (2014). “TV no longer commands our full attention”: Effects of second-screen viewing and task relevance on cognitive load and learning from news. *Computers in Human Behavior*, 38, 100–109. doi:10.1016/j.chb.2014.05.021

18. Wang, Z., & Tchernev, J. M. (2012). The “myth” of media multitasking: Reciprocal dynamics of media multitasking, personal needs, and gratifications. *Journal of Communication*, 62(3), 493–513. doi:10.1111/jcom.2012.62.issue-3

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## **HOW CREATING A PSYCHOLOGICALLY SAFE WORKPLACE ENVIRONMENT ENCOURAGES INNOVATION AND ENHANCES EMPLOYEE WELL-BEING**

**Abstract:** The aim of this paper is to identify the reasons it is so crucial for organizations to create a psychologically safe workplace and how it can enhance innovation and employees' well-being. A psychologically safe environment encourages employees to share ideas, collaborate, and undertake risks without any hesitation from possible negative judgment or consequences. Organizations can foster a culture of trust, openness, and inclusion through supportive leadership styles, such as servant, benevolent, and transformational. This will not only improve productivity and job satisfaction but also reduces stress and burnout in employees, creating a workforce that is resilient and engaged. The findings underline that psychological safety starts to be a crucial enabler of continued innovation and business outcomes.

**Keywords:** psychologically safe workplace, innovation, well-being, collaboration, group, engagement, psychology of management, leadership.

**Introduction.** At the current time, a psychologically safe workplace environment offers many opportunities and benefits. A psychologically safe workplace refers to a workplace where employees feel psychologically safety and have positive mental health without worrying to be disrespected, unsupported and freely sharing their ideas and insights [1]. Today's organizations that take into account the well-being of their employees gain more efficiency and job performance. As well as psychological safety is crucial in creating open communication and innovation within the organization, where employees tend to take interpersonal risks without worrying, and share ideas ensuring that they will be heard [2]. In order to foster a psychologically safe and positive workplace, there are considerations and techniques to reach the desired outcome. Those can be finding the right leadership style, as a leader has a node with every employee and the leader has authority and weight within the team. A leader who aids their employees during tasks, and conflicts puts great value on forming a positive workplace. There are different styles of leadership as leader-member exchange, authentic leadership, servant leadership, etc. Another way is to build and reinforce trust, create a positive organizational culture and climate, and find the best ways to resolve conflicts. Organizational culture is pivotal in how team members share the work experience, and a healthy culture leads to a united team and job performance [3]. The goal of this research is to analyze how a psychologically safe workplace promotes innovation, leads to employees' well-being, and defines how that kind of workplace can be achieved.

**Literature review.** The concept of a positive and psychologically safe workplace has been explored in numerous research studies; each author contributed to developing an environment that supports employees' well-being and enhances organizational performance. These studies emphasize that such an atmosphere will not only increase employees'

confidence but also create a strong element of trust between employees and leadership. It is assured that this developed trust will go a long way in ensuring that employees are better engaged, satisfied, and even secure to eventually develop creativity, innovation, and productivity within the workplace. This chapter presents a literature review that synthesizes key findings from various studies on strategies and benefits regarding the creation of a positive, psychologically safe workplace.

The study [2], relating to the association of psychological safety with organizational innovation leads to ways in which employees are able to voice their ideas and take risks without fear, thus fostering a collaborative and creative atmosphere. The feeling of psychological safety influences team dynamics through open dialogues and risk-taking. An appropriate leadership approach in combination with transparent communication is crucial for building confidence and openness toward stimulating innovation and adaptability in organizations. This review of the systematic article was performed by the PRISMA method. From the findings, a psychologically safe place of work promotes open communications, innovations, and teams operating at high levels. It concludes that organizational policy in support of psychological safety is relevant for driving innovation and productivity within teams.

Chapter [4] addresses ways in which a positive workplace culture can help bring improvement to both performance and agility within an organization. The product of positive psychology principles here leads to deep insight into how such supportive, employee-centric culture fosters resilience and psychological safety, which actually empowers employees to take risks, innovate, and move swiftly with the timing of market changes. It involves instilling a growth mindset, creating an environment of trust where people feel safe sharing ideas and dealing with challenges as a team. The chapter emphasizes the importance of psychological safety as a critical component of building a trustworthy workplace environment to which people will be more inclined to take initiative and contribute innovative solutions to solve problems. The leaders should integrate into the work culture those factors involving engagement, resilience, and emotional intelligence that will help in achieving the employees' satisfaction, matching the goals of the organization for increased productivity and adaptability.

The article [3] discusses how to develop a human-centered culture within technology teams working in high-pressure environments. According to the author, psychological safety can create an open and innovative team atmosphere where "people feel free to bring their ideas and learn through mistakes." Their investigation specifically focuses on human-centered managerial practices. In regard to this particular point, supportive leadership, managerial stress management strategies, and flexible work policies result in lower burnout and increased productivity. Psychological safety allows team members to be vulnerable: they take risks, collaborate without judgment, and have open input. With practice and support, open communication, continuous feedback, and nonpunitive error management can go a long way in improving morale and engagement across the tech setting. The important conclusion reached by this study was that psychological safety and empathetic management result in retention of talent, drive innovation, and subsequently a healthier and productive work environment.

**Main part.** This part of the research includes such topics as key components of psychological safety and employee well-being like trust, effective leadership style,

appropriate conflict handling, and organizational climate, and the impacts of the well-being of employees on the organization and themselves.

**Trust.** Trust is a psychological state of mutual positive expectations between people—both depend on each other and are genuinely concerned for each other's welfare [5]. Building trust is one of the important things between individuals. When people trust each other, it creates better nodes between each other reducing the possibility of conflicts occurring and promoting collaboration and active engagement. Having trust in a person allows you to less worry about different situations and lowers stress. Additionally, it causes harmony within the team and promotes employees' well-being which in turn facilitates innovation and creativity on various tasks and projects which increases job performance. Building trust in leaders is also important as leaders and members will have a better understanding of each other which positively affects psychological well-being for each of them and reduces stress [6]. One of the advantages of trust between leaders and group members is that trusting groups is more effective compared to mistrusting groups. As trusted groups tend to work together, they have a better chance to bring innovation and creativity to the organization [5].

**Effective leadership style.** Another important aspect of creating a psychologically safe workplace is to choose the appropriate leadership style, as a leader is the person who manages and directs the team toward the set goals. Certain leadership styles are more effective in cultivating such an environment, as they prioritize trust, open communication, and employee development, which in turn supports mental well-being and encourages creativity. The following leadership styles are appropriate for the creation of a psychologically safe environment taking into account employees' well-being:

**Benevolent leadership:** Benevolent leadership is provided by a leader who focuses on care and concern for the employee's personal and professional needs. Such leadership would facilitate the development of a culture of empathy, understanding, and trust that would enhance psychological well-being. The benevolent leader provides support to rectify mistakes and develop skills that would instill a sense of safety and loyalty among team members. As argued by [6], benevolent leadership strongly improves employee well-being because the workers are comfortable expressing their needs and concerns without feeling condemned. This positive relationship is even more emboldened through psychological safety, in that employees feel even more secure when their leaders show concern for their well-being. The benevolent leader in the hospitality industry can treat the team members very much like family, working with them on work-related and personal issues. In such a way, the atmosphere of mutual respect prevails, whereby employees may be motivated by their leader's care and show more commitment, as well as put more effort into their jobs.

**Transformational leadership:** Transformational leaders activate employees to work towards the shared vision in a manner that motivates them to go beyond their individual interests for the collective good of teams and organizations. This is the kind of leadership that raises the level of psychological safety by instituting trust and opening up rings of communication, thus giving carte blanche to the employees to be bold and innovative. Transformational leaders provide the requisite boost for organizational change and creativity. They allow the creation of an inclusive environment that would support the ability of employees to be comfortable exploring new ideas and working on creative problem-solving. As mentioned by [5], transformational leadership promises more resiliency and adaptability, and team engagement that would directly support psychological safety and well-being. This

would mean that within an advertising agency, the transformational leader may allow each member to propose even the most audacious campaign ideas, and recognize their contribution, irrespective of whether the idea succeeded or failed. Such an open and supportive approach allows employees to try out more ideas without fear of failure.

**Servant leadership:** Servant leadership highly emphasizes the needs, growth, and development of the employees, which also closely relates to psychological safety. Servant leaders support their team without ruling over it, facilitators rather than masters, which creates a feeling of safety and trust where employees can express themselves freely. Servant leaders enhance psychological safety by making their people feel valued and heard. According to [7], servant leadership increases levels of creativity since this kind of management eliminates employees' fear of taking a risk. If employees perceive certain support from a servant leader, they will more likely show their innovative behaviors, believing that their leader appreciates their contribution. In this regard, it can be said that the servant leader often has regular, sometimes even individualized, one-on-one meetings with team members in a software development team to hear their needs and provide resources for skill development. Open dialogue is an atmosphere where employees feel quite at ease sharing ideas and concerns; thus, it foments both innovation and job satisfaction.

**Inclusive leadership:** Inclusive leadership is all about creating the right environment where diverse viewpoints are valued, and every member of the team is respected and included. Embracing and celebrating differences, inclusive leaders ensure psychological safety across their diverse teams, allowing employees to share unique viewpoints without feeling excluded. The leaders promote psychological safety where everybody feels their opinion is taken into consideration and valued. Such a leadership style is quite apt in organizations where the cultural background of the employees is multicultural or diverse. Inclusive leadership provides opportunities to elicit diverse perspectives that may drive innovation and problem-solving. In a global corporation, the inclusive leader can establish frequent "voice sessions" where employees from varied walks of life discuss their ideas on how to better corporate practices. It creates an enabling and supportive environment wherein employees can share ideas that might have otherwise remained unvoiced [5].

Thus, the correct leadership style enhances group productivity and considers all team members equally, giving them the opportunity to be heard and supported.

**Appropriate conflict handling and organizational climate.** Conflict is a process that begins when one party perceives that another party has negatively affected, or is about to negatively affect, something that the first party cares about [5]. The conflict occurs in two forms: functional and dysfunctional. While functional conflict supports the team's goal and improves performance, dysfunctional conflict hampers goal attainment by reducing performance. Conflicts may occur during the work process as a conflict on the goal of the project or during the engagement as discrepancies. In order to ensure employees' well-being and foster innovation, and group productivity, proper conflict handling should be implemented. Constructive conflict handling in a psychologically safe workplace is where employees are confident enough to say anything, even raise concerns, with no fear of negative consequences. By handling the conflict constructively, it speaks volumes to an organization's culture, where disagreement is taken as an opportunity for growth and building. Leaders are highly instrumental in modeling good ways of resolving conflict by way of active listening, empathy, and fairness. The research [7] indicates that servant

leadership, by nature, a high level of open communication, respect creates an enabling psychological safety climate to support comfort in constructive conflict engagement among its members.

Psychological safety requires an enabling organizational climate molding the perceptions of employees about the degree to which it will be safe for them to take risks, make mistakes, or contribute ideas without fear or censure. Innovation and well-being, in summary, benefit from a developed inclusive and trusting climate using consistent and transparent practices of leading. [6] add that psychological safety is strengthened with benevolent leadership, which engages in individualized care and support to provide a nurturing environment making valued and motivated the employees.

Transformational leadership also leads to a positive organizational climate; transformationally led employees are motivated by and respond to the shared vision that provides meaning for them and a sense of shared ownership. Employees in such climates are less fearful about voicing new ideas or other novel thoughts, resulting in more innovative outcomes. As [5] note, openness and supportiveness in climate breeds greater employee engagement, satisfaction, and adaptability, which in turn positively reinforces psychological safety and creativity.

#### **The impacts of the well-being of employees on the organization and themselves.**

Well-being employees tend to showcase better productivity, active engagement within the group, and collaboration with other team members. Additionally, well-being affects job satisfaction, less burnout and stress, and less work-life conflicts.

Increased productivity and engagement: Psychological safety and well-being at work form the very foundation on which far better productivity and engagement are possible. According to a study by [2], psychologically safe environments let employees speak up and share ideas without judgment. They have the confidence to take creative risks, thereby raising individual commitment and, in general, improving team productivity. Such employees are most likely to engage themselves meaningfully in their work, thus often leading to increased productivity and overall team output. Also, [5] observe that people working within psychologically safe environments are intrinsically more motivated because they can focus on their roles without the stress brought about by possible punitive measures. This increased engagement not only improves individual productivity but also focuses staff more clearly on the long-term aims of the organization.

Enhanced collaboration and team dynamics: Employee well-being also means a lot for teamwork because it builds trust and openness within the group. In explanation, research [2] on psychological safety presents the very notion that when employees feel safe, they are more open to collaboration, more open to supporting each other's ideas, building a culture of teamwork and respect. Diversity can then be trusted to work together even more, bringing their unique sets of ideas that drive innovation. The study [7] further discusses how servant leadership can increase teamwork because a leader may allow the establishment of a supportive environment that encourages employees to work as a team. Servant leaders promote open communication and shared responsibilities, thus increasing interpersonal ties. For instance, in a team context where the leader only ensures that emotional support and clear communication are in place, the level of idea-sharing and problem-solving is increased because employees are willing to share their ideas and solve issues with one another, and thus their overall performance becomes considerably stronger.



**Reduced Burnout and Stress:** There is psychological safety and well-being in the workplace to help alleviate stress and burnout in such high-intensity environments. The article [4] discusses how positive psychological climates are about reducing stress since employees would have the ability to manage workloads with increased resilience and mental focus. By encouraging work-life balance and building a support culture, an organization could reduce the levels of stress related to high-stakes roles. As suggested by the research [6], benevolent leadership is particularly vital in handling stress because it reflects genuine concern about the well-being of employees. Leaders who practice this form of management minimize negative impacts on their teams by showing personal care for employees, thus encouraging them to open up about the challenges they are facing. The emotional burden on employees would, therefore, be minimized since they will find easy access to help and advice if needed, hence minimizing the risks of burnout.

Improved job satisfaction and work-life conflict can be achieved easily because the well-being of every employee is highly related to job satisfaction. A favorable organizational climate would, therefore, help people in balancing their personal as well as professional lives in a much better way. The article [2] proceeds to assert that such psychologically safe working conditions ensure that employees maintain better work-life balances, which improves work satisfaction and reduces conflict between demands from work and domestic life. This supportive setting allows them to be themselves at work, without the fear of judgment or punishment for taking time off work to manage their personal commitments. Inclusive and transformational leadership styles further amplify job satisfaction by creating a respectful and inclusive climate. According to a discussion by [5] transformational leaders inspire workers by setting a vision that orients personal goals toward the mission of the organization. Such alignment of personal and organizational missions will enhance job satisfaction and bind one more to their job and the greater organization.

**Conclusion.** In conclusion, psychological safety at work provides creativity and well-being among workers. As a result of this, employees may be more active at work, produce more innovative ideas, and share their thoughts. The supportive corporate climate, encouraged by inclusive, servant, and transformational approaches, further promotes a proper, reliable, and caring culture. This psychology of safety is going to create a foundation for increasing productivity both at an individual and team level, and it will build a resilient and adaptive workforce invested in the success of the company for the long haul. Fundamentally, psychological safety is important to foster a creative, productive, and healthy work environment.

### References:

1. S. Mohammed, “Joyful Workplace: How to Create a Psychological Safe Workplace”, January 2023, URL: <https://shahmm.medium.com/joyful-workplace-how-to-create-a-psychological-safe-workplace-97cdcdf6f08#:~:text=A%20psychological%20workplace%20refers%20to,by%20their%20leaders%20and%20colleagues.>
2. A. Mahdia, “Psychological Safety in the Workplace: Fostering Open Communication and Innovation,” *Management Studies and Business Journal*

(PRODUCTIVITY), vol. 1, no. 5, pp. 809-816, May 2024, doi: <https://doi.org/10.62207/skyy4p96>.

3. J. H. Salina, “Humanizing the Culture of Technology Teams: Strategies for Creating Healthier and More Productive Work Environments,” *Journal of Software Engineering and Applications*, vol. 16, no. 12, pp. 641-671, December 2023, doi: 10.4236/jsea.2023.1612033.

G. Radu, “Fostering a Positive Workplace Culture: Impacts on Performance and Agility,” in: *Human Resource Management - An Update*, pp. 1-18, 2023, doi: 10.5772/intechopen.1003259.

4. S. P. Robbins and T. A. Judge, *Organizational Behavior, 19TH EDITION, GLOBAL EDITION*, 2024.

5. H. Erkutlu and J. B. Chafra, “Benevolent leadership and psychological well-being: The moderating effects of psychological safety and psychological contract breach,” *Leadership & Organization Development Journal*, vol. 37, no. 3, pp. 369-386, May 2016, doi: 10.1108/LODJ-07-2014-0129.

6. W. Wang, S. W. Kang, and S. B. Choi, “Servant Leadership and Creativity: A Study of the Sequential Mediating Roles of Psychological Safety and Employee Well-Being,” *Frontiers in Psychology*, vol. 12, pp. 1-13, February 2022, doi: 10.3389/fpsyg.2021.807070.

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## **МҮМКІНДІГІ ШЕКТЕУЛІ ЖАСТАРДЫҢ ЖҰМЫСҚА ОРНАЛАСУ КЕЗІНДЕ КЕЗДЕСЕТІН КЕДЕРГІЛЕР МӘСЕЛЕЛЕРІ**

**Аңдатпа:** Бұл мақаланың мақсаты мүмкіндігі шектеулі жастардың жұмысқа орналасу кезінде кездесетін кедергілерді егжей-тегжейлі талдау және олардың еңбек нарығына сәтті интеграциялануын жеңілдететін әдістер мен тәжірибелерді зерттеу болып табылады. Мақалада мүмкіндігі шектеулі жандардың жұмысқа орналасуына және қоғамның белсенді мүшесі болуына көмектескен сәтті бастамалардың құқықтық аспектілері де, нақты мысалдары да қарастырылған.

*Мақала Қазақстан Республикасы Ғылым және жоғары білім министрлігі Ғылым комитетінің BR24993150 «Мүмкіндігі шектеулі білім алушыларды бейін алды даярлауда психологиялық-педагогикалық сүйемелдеуді ұйымдастыру» бағдарламалық-мақсаттық қаржыландыру жобасы аясында дайындалған.*

**Түйін сөздер:** мүмкіндігі шектеулі азаматтар, әлеуметтік инклюзия, кедергілер, жұмыспен қамту.

Мүмкіндігі шектеулі азаматтарды жұмыспен қамту әлеуметтік инклюзияның және әрбір адамның лайықты еңбекке құқықтарын жүзеге асырудың маңызды аспектісі болып табылады. Дүниежүзілік денсаулық сақтау ұйымының мәліметтері бойынша, әлем халқының 15% -дан астамының денсаулығында қандай да бір

шектеудің түрі бар екендігі, бұл мәселенің өзектілігін көрсетеді. Мүмкіндігі шектеулі азаматтар еңбек нарығына кіруде көптеген кедергілерге тап болады, соның ішінде стереотиптер, физикалық шектеулер және тағы басқалары. Бұл олардың кәсіби қалыптасуын және экономикалық тәуелсіздігін қиындатады.

Бүгінгі таңда мүмкіндігі шектеулі жанды жұмыспен қамту жағдайы елге және оның әлеуметтік саясатының даму деңгейіне байланысты өзгерген. Елімізде заманауи заңнамалық база мен арнайы бағдарламалардың арқасында инклюзия деңгейі жоғары деп айта аламыз. Дегенмен, кедергілер бүгін де жиі кездеседі және мүмкіндігі шектеулі азаматтар арасындағы жұмыссыздық деңгейі жоғары болып қала беруде. Адам құқықтары мен заңнама саласындағы елеулі жетістіктерге қарамастан, нақты жағдай жиі идеалдан алыс болып қалады, бұл одан әрі зерделеуді және инновациялық шешімдерді енгізуді талап етеді. Мүмкіндігі шектеуліді адамдарды жұмыспен қамту әлеуметтік инклюзия мен теңдіктің маңызды аспектісі болып, мүмкіндігі шектеулі жандарға өздерін маңызды сезінуге және қоғамға пайдалы болуға мүмкіндік береді. Біз қарастырып отырған категория үшін жұмыс, адамдарға қоғам өміріне белсенді қатысуға, қарым-қатынас дағдыларын жақсартуға және тәуелсіз болуға көмектеседі. Бұл олардың әлеуметтік бейімделуіне ықпал етеді, оқшаулануды азайтады және өзіне деген сенімді арттырады [1]. Сонымен қатар, жұмыспен қамту мұндай адамдарға ақша табуға және өзін қаржылық тәуелсіз сезінуге мүмкіндік береді. Бұл сондай-ақ олардың әлеуметтік төлемдерге тәуелділігін азайтады және өмір сүру сапасын жақсартуға көмектеседі. Осы саланы зерттеген ғалымдардың пікірінше еңбек, жұмыстағы жетістіктер, тіпті кішігірім болса да, мүмкіндігі шектеулі адамның өзін-өзі бағалауын айтарлықтай арттыруы мүмкін [2]. Бұл өз қабілеттеріне деген сенімді нығайтады және жауапкершілік пен жеке маңыздылық сезімін дамытады. Зерттеушілер жұмыспен қамтудың негізгі қиындықтары деп [3]:

1. Стереотиптер мен бейтараптықты атайды. Мүмкіндігі шектеулі адамдарды жұмысқа орналастырудағы негізгі кедергілердің бірі – жұмыс берушілердің стереотиптері мен теріс пікірі. Кейбір жұмыс берушілер мұндай қызметкерлер тапсырмаларды тиімді орындай алмайды және тұрақты бақылауды қажет етеді деп санайды. Бұл сенім көбінесе олардың мүмкіндіктері мен сипаттамаларын білмеуге негізделген.

2. Бейімделетін ортаның болмауы: жиі жұмыс орындары мүмкіндігі шектеулі адамдардың қажеттіліктеріне бейімделмейді. Бұл бейімделген тәсілдер мен икемді басқаруды талап ететін физикалық жағдайларға да, жұмыс тапсырмаларын орындау ерекшеліктеріне де қатысты болуы мүмкін.

3. Білім мен оқытудың болмауы: Табысты жұмысқа орналасу дағдылар мен білімді қажет етеді. Дегенмен, мүмкіндігі шектеулі көптеген адамдар кәсіптік білім мен оқытуға қол жеткізе алмайды, бұл олардың еңбек нарығындағы мүмкіндіктерін айтарлықтай шектейді.

Осы ретте, біз табысты жұмыспен қамту үлгілері деп келесі әрекеттерді атап өтеміз:

1. Қолдау көрсетілетін жұмыс: Бұл модель мүмкіндігі шектеулі қызметкерге жұмыс ортасына бейімделуге көмектесетін тәлімгерлердің немесе жетекшілердің болуын қамтиды. Тәлімгерлер оқуда, мәселелерді шешуде қолдау көрсетеді және әріптестермен қарым-қатынас орнатуға көмектеседі.

2. Қорғалатын цехтардағы жұмыс: Мұндай цехтар ерекше қажеттіліктері бар адамдарды жұмысқа орналастыру үшін арнайы құрылған. Олар қызметкерлердің ерекшеліктерін ескереді және олардың мүмкіндіктеріне сәйкес жұмыс тапсырмалары таңдалады. Бұл ыңғайлы және ынталандыратын жұмыс атмосферасын құруға мүмкіндік береді.

3. Әлеуметтік кәсіпкерлік: көптеген әлеуметтік кәсіпорындар мүмкіндігі шектеулі адамдарды жұмыс орындарымен қамтамасыз ету мақсатында арнайы құрылған. Мұндай компаниялар бейімделген еңбек жағдайларына және ерекше қажеттіліктері бар қызметкерлерге құрметпен қарауға көңіл бөледі.

Жұмыс берушілер қалай көмектесе алады

1. Хабардар болу және оқыту: Жұмыс берушілер мен қызметкерлер инклюзивті жұмыс ортасын құру үшін өзара әрекеттесуге үйретілуі мүмкін. Инклюзивті басқару бойынша тренингтер өткізу мүгедектігі бар қызметкерлерді қабылдау мен емдеуді айтарлықтай жақсарта алады.

2. Жұмыс орнындағы икемділік: кестелерді бейімдеу, тапсырмаларды өзгерту және сәйкес технологияны пайдалану мүмкіндігі шектеулі жұмысшыларға жұмыс орнында өзін жайлы сезінуге және өз міндеттерін орындауға көмектеседі.

3. Тәлімгерді қолдау: басшылық пен қолдау көрсете алатын тәлімгерлерді немесе қамқоршыларды тағайындау да жұмыс орнында табысты жұмысқа кірісудің кілті болып табылады.

Қорыта келе, біз мүмкіндігі шектеулі адамдарды жұмыспен қамту – әркімге өзін-өзі жүзеге асыру үшін тең мүмкіндіктер берілген инклюзивті қоғам құру жолындағы маңызды қадам деп ойлаймыз. Ол жұмыс берушілерден, қоғамнан және мемлекеттен күш-жігер мен міндеттемені талап етеді, бірақ түптеп келгенде жұмысшылардың өздеріне ғана емес, сонымен бірге жалпы экономика мен қоғамға да пайда әкеледі. Қолдау бағдарламаларын әзірлеу, стереотиптерді бұзу және бейімделу ортасын құру – мүмкіндігі шектеулі адамдарды жұмысқа орналастыруда табысқа жетудің кілті.

### Әдебиеттер тізімі:

1 Юрьева И.А. Психолого-педагогическое сопровождение профессионального самоопределения старшеклассников. Дисс... магистра пед.наук. -Тольятти, 2016. -114 с.

2 Григорьев Г.Г. Педагогическое содействие как условие развития готовности учащихся к профессиональному самоопределению. Автореф. дисс... канд.пед. наук 13.00.01. - Екатеринбург, 2009. – 31 с.

3 Федорова С.С. Психолого-педагогическое сопровождение детей с ограниченными возможностями. Дисс... канд. пед. наук: 13.00.01. - Ставрополь, 2006. - 222 с.

## БИОЛОГИЯ ҒЫЛЫМДАР – БИОЛОГИЧЕСКИЕ НАУКИ – BIOLOGICAL SCIENCES

УДК 574.587

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### СОВРЕМЕННОЕ СОСТОЯНИЕ МАКРОЗООБЕНТОСА РЕКИ СИЛЕТЫ

**Аннотация:** В данной статье представлены результаты исследований видового состава и количественного развития зообентоса в реке Силеты на летний период 2023 года. Определена трофность водоема, приведены значения индекса Шеннона-Уивера и индекса сапробности по Пантле-Букку рассчитанные по зообентосу для реки Силеты. НИР проводились в рамках бюджетной программы 256, подпрограмма 102 «Обеспечение сохранения, воспроизводства и рационального использования ресурсов животного мира»

**Ключевые слова:** макрозообентос, река Силеты, таксономический состав, трофность, индекс Шеннона-Уивера и Пантле-Букка.

В современных условиях водные экосистемы в наибольшей степени подвержены антропогенному воздействию. Многочисленные населенные пункты оказывают влияние на речные системы. Изучение видового состава и структуры бентосных сообществ имеет большое значение для исследования состояния водных экосистем. Бентосные животные играют важную роль в трофической цепи водоемов. Зообентос является высококалорийной пищей для большинства видов рыб и других водных организмов, населяющих водоемы, а также для прибрежных обитателей. Питаясь мертвыми растениями и животными, эти организмы способствуют самоочищению воды и обмену питательными веществами между дном и толщей воды.

Они также являются хорошими индикаторами экологического состояния водоема. Сочетание различных методов, использующих индикаторные свойства зообентоса, обеспечивает объективный подход к определению качества воды [1].

Целью настоящей работы является изучение зообентоса на реке Силеты в 2023 году.

**Материал и методики.** Материалом для публикации послужили пробы зообентоса из реки Силеты, собранные в 2023 году. Отбор проб проводили на станциях с. Новомарковка, с. Изобильное, с. Шолаксор и с. Кайрат. Гидробиологические пробы отбирали и обрабатывали согласно общепринятым

методам исследования [2,3]. Также использовался индекс Шеннона-Уивера и индекса сапробности Пантле-Букка [4,5].

**Результаты и обсуждения.** Исследования бентофауны реки Силеты были проведены нами в летнем периоде. Было проанализировано 8 проб зообентоса и занесены в таблицы.

Зообентический комплекс организмов реки Силеты в пробах за период исследований 2023 года представлен довольно разнообразно и представлен олигохетами (2 представителя), брюхоногими моллюсками (4 представителя), насекомых (11 представителя), пиявками (2 представителя), и ракообразными. По частоте встречаемости донных организмов на 100% формировала личинками хирономид, по той же частоте встречаемости доминировали малоцетинковые черви 75% и ракообразные 75%.

Таксономический состав зообентоса показан в таблице 1.

**Таблица 1 – Таксономический состав макрозообентоса р. Силеты в 2023гг.**

Таксоны	р. Силеты			
	с. Новомарковка	с. Изобильное	с. Шолаксор	с. Кайрат
<i>Gastropoda</i> – Брюхоногие моллюски				
<i>Cincinna depressa</i> (Pfeiffer)	-	+	-	-
<i>Bythinia tentaculata</i> (L., 1758)	+	-	+	-
<i>Lymnaea fontinalis</i> (Studer, 1820)	-	-	-	+
<i>Physa adversa</i> (Da Costa, 1778)	-	-	-	+
<i>Oligochaeta</i> – Малоцетинковые черви				
<i>Tubifex tubifex</i> (O. F. Müller, 1773)	+	-	+	+
<i>Lubricious variegates</i> (O. F. Müller, 1773)	+	+	-	-
<i>Hirudinea</i> – Пиявки				
<i>Glossiphonia complanata</i> (L., 1758)	-	+	-	-
<i>Erpobdella octoculata</i> (L., 1758)	+	-	+	-
<i>Crustacea</i> – Ракообразные				
<i>Gammarus lacustris</i> L., 1758	-	+	+	+
<i>Insecta</i> – Насекомые				
<i>Odonata</i> – Стрекозы				
<i>Argion virgo</i> (L., 1758)	+	+	-	-
<i>Gomphus vulgatissimus</i> (L., 1758)	+	-	-	+
<i>Coena grionpuella</i> (L., 1758)	-	+	+	-
<i>Ephemeroptera</i> – Поденки				
<i>Potamanthus luteus</i> (L., 1758)	-	-	+	-
<i>Hemiptera</i> – Полужесткокрылые				
<i>Sigara lateralis</i> (Leach, 1817)	-	+	-	+
<i>Gyrinus substriatus</i> (Stephens, 1827)	-	+	+	-
<i>Hydrobius fuscipes</i> (L., 1758)	+	-	-	+
<i>Diptera</i> – Двукрылые				
<i>Tanypus Meigen</i>	-	-	-	+
<i>Chironomus plumosus</i> (Linnaeus)	+	+	+	+
<i>Trichoptera</i> – Ручейники				
<i>Ecnomus tenellus</i> (Rambur, 1842)	+	-	+	-
<i>Lepidostoma hirtum</i> (F., 1775)	-	+	-	-
<b>Всего:</b>	<b>9</b>	<b>10</b>	<b>9</b>	<b>9</b>



Общее состояние бентосных сообществ в водоеме достаточно для поддержания постоянного запаса промысловой рыбы, а основным фактором динамики биомассы бентоса являются естественные изменения среды обитания.

В таблице 2 отражены средние значения численности и биомассы зообентоса реки Силеты в 2023 году.

Численность зообентоса зависит как от особенностей биотопа, так и от сезона года. Численность этой группы водных беспозвоночных в 2023 году колебалась от 894 (с. Изобильное) до 1025 экз./м<sup>2</sup> (с. Кайрат), а биомасса находилась в пределах от 1,7 г/м<sup>2</sup> (с. Изобильное) до 2,9 г/м<sup>2</sup> (с. Шолаксор).

По численности и по биомассе в большинстве проб доминировали насекомые.

По результатам исследований 2023 года по развитию зообентоса река Силеты является водоемом с умеренной кормностью (с. Новомарковка, с. Шолаксор, с. Изобильное, с. Кайрат) и в соответствии со «шкалой трофности» Китаева С.П. может быть отнесена к  $\alpha$  - мезотрофному типу.

**Таблица 2 – Численность (Ч, экз./м<sup>2</sup>) и биомасса (Б, г/м<sup>2</sup>) зообентоса реки Силеты**

Основные группы	с. Новомарковка		с. Изобильное		с. Шолаксор		с. Кайрат		В среднем	
	Ч.	Б.	Ч.	Б.	Ч.	Б.	Ч.	Б.	Ч	Б
Oligochaeta	200	0,17	200	0,18	180	0,15	220	0,20	200	0,17
Molluska	8	0,11	0	0	9	0,14	18	0,27	8,75	0,13
Hirudinea	0	0	0	0	20	0,24	10	0,11	15	0,08
Crustacea	0	0	10	0,16	38	0,65	37	0,61	21,3	0,35
Insecta	780	1,61	684	1,36	760	1,72	740	1,53	741	1,55
<b>Всего</b>	<b>988</b>	<b>1,89</b>	<b>894</b>	<b>1,7</b>	<b>1007</b>	<b>2,9</b>	<b>1025</b>	<b>2,72</b>	<b>986</b>	<b>2,3</b>

Индекс разнообразия Шеннона показывает, сколько видов содержится в сообществе. Она увеличивается с увеличением численности видов и повышением равномерности их численности.

Индекс Шеннона-Уивера свидетельствует о том, что река Силеты является водоёмом с ненарушенной структурой видов [4].

По шкале сапробности Пантле-Букка река Силеты является  $\beta$ -мезасапробным водоемом, относится к **III классу качества воды** (умеренно загрязнённая).  $\beta$ -мезасапробные – это воды в которых происходит процессы самоочищения, протекают менее интенсивно, чем в  $\alpha$ -мезасапробных. В них доминируют окислительные процессы, нередко наблюдается перенасыщенные кислородом, преобладают такие продукты минерализации белков, как аммонийные соединения, нитраты и нитриты. В этих водах разнообразно представлены животные и растительные организмы, среди последних - диатомовые, сине-зеленые и зеленые.

Индекс сапробности Пантле-Букка, рассчитанный по формуле  $S = \sum sh / \sum h$  (где  $S$  – индекс сапробности пробы,  $s$  – индекс сапробности каждого вида пробы,  $h$  – относительное количество особей вида) составил 2,556 [5].

В таблице 3 представлены индексы Шеннона-Уивера и сапробность Пантле-Букка

**Таблица 3 – Значения индекса Шеннона-Уивера и сапробности Пантле-Букка реки Силеты в 2023 год**

Таксон	h	s	sh	Индекс Шеннона -Уивера
<i>Cinclinna depressa</i> (Pfeiffer,)	1	2.1	2,1	0,0814
<i>Bythinia tentaculata</i> (L., 1758)	2	2.15	4,3	0,1793
<i>Lymnaea fontinalis</i> (Studer, 1820)	1	1.85	1,85	0,0848
<i>Physa adversa</i> (Da Costa, 1778)	1	2.05	2,05	0,0382
<i>Tubifex tubifex</i> (O. F. Müller, 1773)	3	3.8	11,4	0,4210
<i>Glossiphonia complanata</i> (L., 1758)	2	3.0	6,0	0,1921
<i>Erpobdella octoculata</i> (L., 1758)	1	1.7	1,7	0,2190
<i>Gammarus lacustris</i> L., 1758	5	0.65	3,25	0,5938
<i>Gomphus vulgatissimus</i> (L., 1758)	2	2.5	5,0	0,1952
<i>Potamanthus luteus</i> (L., 1758)	1	6.75	6,75	0,2513
<i>Chironomus plumosus</i> (Linnaeus)	5	3.8	19,0	0,5130
<i>Ecnomus tenellus</i> (Rambur, 1842)	2	2.0	4,0	0,1707
<i>Lepidostoma hirtum</i> (F., 1775)	1	1.7	1,7	0,1360
Сумма	27	34,05	69,02	

**Вывод:** В составе зообентоса реки Силеты в 2023 году было зарегистрировано 20 видов таксонов. Доминантами по частоте встречаемости были из насекомых *Chironomus plumosus*, малощетинковых червей *Tubifex tubifex* и ракообразные *Gammarus lacustris*.

Результат исследований показал, что по численности зообентоса варьировался от 894 (с. Изобильное) до 1025 экз./м<sup>2</sup> (с. Кайрат), а биомасса находилась в пределах от 1,7 г/м<sup>2</sup> (с. Изобильное) до 2,9 г/м<sup>2</sup> (с. Шолаксор). Также в соответствии со «шкалой трофности» Китаева С.П. река Силеты относится к умеренному классу ( $\alpha$  - мезотрофному типу).

Индекс Шеннона-Уивера свидетельствует о том, что река Силеты является водоёмом с ненарушенной структурой. По индексу сапробности Пантле-Букка река Силеты является  $\beta$ -мезасапробным водоемом.

### Список литературы:

1. [https://kpfu.ru/staff\\_files/F1338903533/VIDOVOE\\_RAZNOOBRAZIE\\_I\\_KOLICHESTVENNYE\\_POKAZATELI\\_ZOOBENTOSA.pdf](https://kpfu.ru/staff_files/F1338903533/VIDOVOE_RAZNOOBRAZIE_I_KOLICHESTVENNYE_POKAZATELI_ZOOBENTOSA.pdf)

2. Китаев С. П. Основы лимнологии для гидробиологов и ихтиологов. – Петрозаводск: КНЦ РАН, -2007, - 395 с.

3. Шарапова Л.И., Фаломеева А.П. Методическое пособие при гидробиологических рыбохозяйственных исследованиях водоемов Казахстана (планктон, зообентос). – Алматы, 2018. – 25 с.

4. Методические пособие по биоиндикации экологического состояния водоемов Казахстана, основанное на использовании беспозвоночных гидробионтов // Алматы, 2017. – 50 с.

5. Методы биоиндикации и биотестирования природных вод. Вып. 2. – Л.: Гидрометеиздат, 1989. – 276 с.

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## **СОВРЕМЕННОЕ СОСТОЯНИЕ ПРОМЫСЛА ГАММАРУСА В ВОДОЁМАХ СЕВЕРО-КАЗАХСТАНСКОЙ ОБЛАСТИ И ПЕРСПЕКТИВЫ ЕГО РАЗВИТИЯ**

**Аннотация:** В статье приведена оценка современного состояния промысла гаммаруса в водоёмах Северо-Казахстанской области. Приведены данные по оценке продуктивности водоёмов потенциально пригодных для организации промыслового лова гаммаруса. Оценены перспективы добычи этого биоресурса. Исследование финансируется Министерством сельского хозяйства Республики Казахстан (Грант № BR23591095).

**Ключевые слова:** озеро, продуктивность, промысел, гаммарус (*Gammarus*)

*Gammarus lacustris* Sars – (гаммарус, бокоплав, мормыш) - один из наиболее обычных и широко распространённых ракообразных в водоёмах Северного Казахстана. Во многих из них он достигает значительной численности и биомассы и играет заметную роль в питании различных позвоночных животных. В последние годы в водоёмах Северо-Казахстанской области значительно сократились объёмы промышленного отлова этого рачка, который используется в медицине, птицеводстве, рыбоводстве. На рисунке 1 отражена динамика изменения предельно-допустимых объёмов изъятия (ПДУ) гаммаруса за последние 10 лет [1].

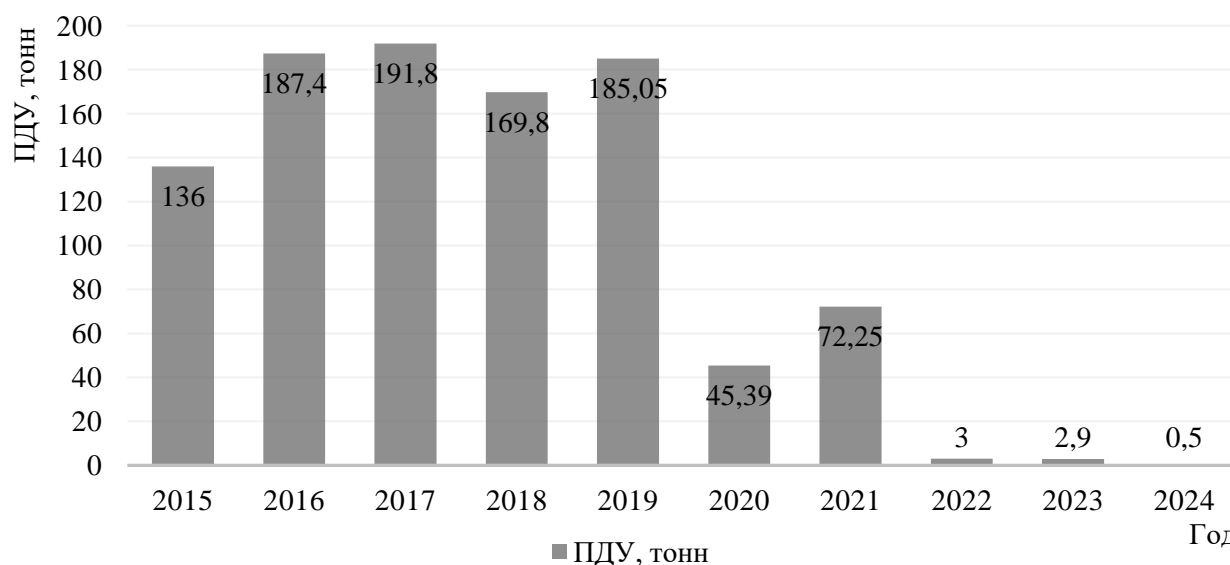


Рис. 1 - Предельно-допустимые объёмы изъятия (ПДУ) гаммаруса за последние 10 лет

За последние 10 лет максимальный объём изъятия гаммаруса на водоёмах Северо-Казахстанской области составлял 191,8 тонны в 2017 году. Добыча этого рачка в 2017 году осуществлялась на 7 водоёмах с общей площадью 2264 га, объём изъятия составил в среднем 84,7 кг/га. В 2018 году происходит незначительное снижение объёмов добычи гаммаруса в связи с переходом озера Куспек (Айыртауского района) в озёрно-товарное рыбоводное хозяйство, промысловые запасы этого рачка в водоёме выедаются объектами товарного выращивания и озеро утрачивает своё значение для промысла гаммаруса. Это является причиной исчезновения промысловых запасов гаммаруса и в некоторых других водоёмах Северо-Казахстанской области (например, озеро Питное (Островское)) и Акмолинской области (например, озера Акколь и Мырзакольсор). После 2021 года предельно допустимые объёмы изъятия гаммаруса сокращаются до минимальных значений, так в 2022 году объём добычи составил всего 3,0 тонны, а в 2024 году – 0,5 тонны. Причиной этому стали введённые ограничения, связанные с пандемией Covid-2019, так как рынок сбыта (страны Европейского Союза), на который были ориентированы предприятия, добывающие гаммаруса в водоёмах Северо-Казахстанской области, оказался не доступен.

В связи со сложившейся ситуацией одной из задач исследований 2024 года являлся поиск водоёмов потенциально пригодных для промысла гаммаруса и оценка их продуктивности. По результатам предварительного анализа, имеющихся данных, нами было выбрано для исследований 5 водоёмов Северо-Казахстанской области. В таблице 1 отражено месторасположение и географические координаты исследованных водоёмов.

**Таблица 1 – Месторасположение и географические координаты водоёмов**

Водоём	Район	Месторасположение	Координаты
Горькое	Кызылжарский	З с. Якорь 2,7 км	54°56'55.70// 68°57'20.23//
Косагаш	Мамлютский	ЮЗ с. Новомихайловка 0,1 км	54°38'57.86// 68°10'51.42//
Алыя	Жамбылский	ЮВ с. Благовещенка 9,4 км	54°16'58.46// 67°03'44.91//
Большие Сливки	Жамбылский	Ю с. Симаки 3,0 км	54°41'58.77// 67°48'07.10//
Козявочное	Жамбылский	Ю с. Островка 7,0 км	54°34'30.63// 66°58'12.50//

По результатам проведённых исследований в озёрах Горькое, Косагаш, Большие Сливки и Козявочное были отмечены промысловые запасы гаммаруса. В озере Алыя биомасса этого рачка находилась на низком уровне (1,4 г/м<sup>2</sup>), что не позволяет говорить о пригодности данного водоёма для промысла гаммаруса.

На водоёмах, где были обнаружены промысловые запасы гаммаруса, был проведён комплекс научно-исследовательских работ, направленных на изучение состояния популяций гаммаруса и оценку их продуктивности. В таблице 2 отражена продуктивность популяций гаммаруса в исследованных водоёмах Северо-Казахстанской области.

**Таблица 2 - Продуктивность популяций гаммаруса в исследованных водоёмах Есильского бассейна.**

Водоём	Биомасса, г/м <sup>2</sup>	Продуктивность, кг/га
Озеро Горькое	8,75	175,0
Озеро Косагаш	15,8	316,0
Озеро Большие Сливки	6,77	135,4
Озеро Козявочное	6,93	138,6

Максимальная продуктивность популяций гаммаруса в исследованных водоёмах отмечена в озере Косагаш (316,0 кг/га), в остальных водоёмах она не превышает 175 кг/га. Такие значения продуктивности исследованных водоёмов позволяют говорить о перспективности озёр для организации промыслового лова гаммаруса. Учитывая площадь исследованных озёр, общий запас гаммаруса в этих водоёмах составляет более 274 тонн, что при коэффициенте изъятия 0,5 [2, 3] позволяет установить ПДУ на уровне 137 тонн в сыром весе.

В настоящее время на рынке Казахстана готовая продукция гаммаруса представлена в основном российскими производителями, её стоимость составляет

около 12 долларов США за килограмм [4]. Рациональное использование запасов гаммаруса позволит обеспечить не только потребности рыболовов-любителей, но и занять свою нишу на рынке реализации готовой продукции (сухого гаммаруса), являющегося ценным компонентом кормов для рыбоводства и птицеводства, а также используется в качестве компонентов в косметической и медицинской промышленности.

#### **Выводы:**

1. Сокращение объёмов промышленного отлова гаммаруса произошло по двум причинам:

- использование водоёмов с промысловыми запасами гаммаруса для товарного выращивания рыбы;

- отсутствие рынка сбыта продукции.

2. В водоёмах Северо-Казахстанской области есть промысловые запасы гаммаруса и в исследованных озёрах они оценены на уровне 274 тонн.

3. С учетом значительных запасов гаммаруса в исследованных водоёмах, можно сделать вывод, что восстановление промышленного отлова гаммаруса в Северо-Казахстанской области имеет хорошие перспективы.

#### **Список литературы:**

1. <https://adilet.zan.kz/rus/> (дата обращения: 06.11.2024).

2. Приказ Министра окружающей среды и водных ресурсов Республики Казахстан от 4 апреля 2014 года № 104-Ө «Об утверждении Правил подготовки биологического обоснования на пользование животным миром» с изменениями и дополнениями.

3. Определение общих допустимых уловов (ОДУ) амфиподы *Gammarus lacustris* (Методические указания). Тюмень, Госрыбцентр, 2004. – 20 с.

4. <https://barrom.ru/products/price/> (дата обращения: 03.10.2024).

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