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CAN YOU TELL A POKÉMON'S TYPE BY ITS COLOUR? COLOUR AND BODY SHAPE IN THE DESIGN OF 1,025 CHARACTERS

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Abstract: Character designers want players to understand a character at a glance, and colour is one of their main tools. This study uses the colour, type and body shape recorded for all 1,025 Pokémon species to ask how well colour shows a character's type. For the elemental types it works well: 61% of Grass Pokémon are green, 59% of Fire Pokémon red and 54% of Water Pokémon blue. Ghost Pokémon are split between two dark colours (black and purple together, 54%), while Psychic Pokémon (17% in their most common colour) and Bug Pokémon (23%) are weakly tied to any colour. Guessing a species' type from the types of species in other evolution families is right for 30% of species when based on colour, 22% when based on body shape and 32% with both, against 13% by always guessing the most common type. Colour is therefore the stronger signal, and shape adds little to it overall, although some types, such as Bug and Fighting, are concentrated in particular shapes.

Keywords: character design, colour, silhouette, game art, Pokémon, visual communication

1. Introduction

In games, a character often has to be understood in a fraction of a second: a player has to see whether it is a friend or an enemy and what it can do. Designers use colour, silhouette and details for this. Research on colour psychology shows that colour "can carry important meaning" and affects how people feel and think [1]. This study counts how consistently one large game uses colour to signal what a character is.

Pokémon offers a natural test. Every one of its 1,025 species has a type, such as Fire, Water or Ghost, one colour and one body shape, all recorded in a public community database built from the game data [2]. If designers use colour to show type, Pokémon of one type should mostly share one colour. This study measures how far that is true for each type and whether body shape carries the information where colour does not.

2. Hypothesis

Asked, before any data were analysed, what most often stops people from reading a character as the artist intended, the author, who studies game art and design, wrote (15 October 2026) about "unnecessary details that cannot be explained by the story, and creating a character design without thinking through its future role in the story", and added that "the silhouette of a character and colour harmony are among the most important criteria in creating a character design, so that it is readable, pleasant to the eye and memorable" (original in Russian). This study takes from her answer the two visual features she named, colour and silhouette, and measures how much each of them tells about a character's type.

3. Data and methods

The data come from PokeAPI [2]. For each of the 1,025 species of generations 1-9 (default forms only), its colour (one of ten), its primary type (the first of its one or two types, one of 18) and its body shape (one of 14 broad categories, such as quadruped, humanoid, fish or armor) were recorded (downloaded on 16 and 30 October 2026). For each type, the share of its species that have the most common colour of that type was calculated, together with the lift: how many times more common that colour is in the type than among all species. To compare colour and shape directly, the type of each species was guessed as the most common type among species with the same colour, the same shape, or the same combination of the two. Because species of one evolution family (for example Charmander, Charmeleon and Charizard) usually share colour, shape and type, the whole family of the species was left out when making its guess (540 families from PokeAPI evolution chains), and ties were broken in favour of the more common type. Always guessing the most common type gives 13.1%.

4. Results

4.1. Where colour shows type

The elemental types are strongly tied to one colour (Table 1): 61.2% of Grass Pokémon are green, 59.1% of Fire Pokémon red, 54.5% of Water Pokémon blue and 47.5% of Electric Pokémon yellow, although red, for example, is the colour of only 9.5% of all species (lift 6.2). Ghost Pokémon are spread over two colours: 28.6% are black and 25.7% purple, together 54.3%; because black is rare among all species (5.0%), the lift of black for Ghost (5.7) is as high as for the elemental types. The weakest types by both measures are Psychic (16.7% pink and as many blue, lift 2.8), Bug (22.9% red, lift 2.4), Dragon (27.0% green, lift 2.1) and Rock (29.3% brown, lift 2.0). Taken together, 56.1% of Fire, Water, Grass and Electric Pokémon have their type's most common colour, against 21.1% of Ghost and Psychic Pokémon. For the four elemental types the share was similar for species introduced in generations 1-3 (53.4%), 4-6 (60.4%) and 7-9 (55.6%).

Table 1. Most common colour and body shape of each primary type, 1,025 Pokémon species [2] (Flying, with 9 species, is omitted)

Type	Species	Most common colour	Share, %	Lift	Most common shape	Share, %
Grass	103	green	61.2	4.8	humanoid	22.3
Fire	66	red	59.1	6.2	upright	37.9
Water	134	blue	54.5	3.3	fish	28.4
Poison	42	purple	50.0	5.9	quadruped	23.8
Electric	59	yellow	47.5	5.5	quadruped	33.9
Steel	36	gray	41.7	4.0	humanoid	19.4
Fairy	29	pink	41.4	7.1	humanoid	31.0
Ground	40	brown	37.5	2.6	quadruped	30.0
Normal	118	brown	35.6	2.5	quadruped	34.7
Ice	31	white	35.5	4.1	quadruped	29.0
Rock	58	brown	29.3	2.0	quadruped	17.2
Ghost	35	black	28.6	5.7	arms	28.6
Fighting	40	gray	27.5	2.6	humanoid	50.0
Dragon	37	green	27.0	2.1	upright	45.9
Dark	45	black	24.4	4.9	quadruped	37.8
Bug	83	red	22.9	2.4	armor	36.1
Psychic	60	pink	16.7	2.8	humanoid	33.3

4.2. Colour against shape

Some types are concentrated in particular body shapes: half of Fighting Pokémon (50%) are humanoid, 46% of Dragon Pokémon are upright, and 58% of Bug Pokémon have one of the two insect-like shapes ("armor", described in PokeAPI as chitinous, and "bug-wings"). The last result

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partly follows from how the shapes are defined, since these categories describe insect bodies. Over all species, however, colour is the stronger signal. With whole evolution families left out, guessing the type from colour is right for 29.5% of species, from shape for 22.1% and from both together for 32.1%, against 13.1% by always guessing the most common type.

5. Discussion

Of the two features the author named, colour carries more information about type than silhouette in this database, but neither is enough on its own: even with both, the type of only about a third of species can be guessed. The data cannot test the other part of her answer, about details and story role, because the database does not describe them, and the broad shape categories capture silhouette only roughly.

When she saw that colour works for Fire and Water but not for Ghost and Psychic, the author explained (18 October 2026) that "everyone has a different idea of ghosts and psychics, while fire and water have a fixed image"; ghosts, she added, are drawn differently in every culture and usually need more meaning in their design, because they either frighten the audience or tell a story (original in Russian). The data fit this explanation for Psychic Pokémon, which have no dominant colour. Ghost Pokémon turned out to be more consistent than the first figures suggested, but in a different way: they share a range of dark colours rather than one colour. Bug Pokémon add another case. Insects are real and familiar, yet Bug Pokémon are weakly tied to any colour, perhaps because real insects come in many colours. A possible rule is that colour works when the thing a type stands for has one typical colour, as fire, plants and water do. Rock is a partial exception: rocks have typical colours, yet Rock Pokémon are spread between brown and gray. This rule was formed after seeing the data and would need to be tested on other games.

The author also described five Ghost and Psychic designs and what in each shows its type (24 October 2026): Gengar's round silhouette, wide grin and sharp teeth; Mimikyu's uneven cloth and painted eyes, like a home-made disguise; Chandelure's chandelier form with floating flames and no ordinary body; Espeon's forked tail, large ears and the red gem on its forehead; and Alakazam's long moustache, closed eyes and the spoons in its hands (original in Russian). The spoons suggest telekinesis. Three of these designs do use colours common in their type: Gengar is purple and Chandelure black, the typical Ghost colours, and Espeon purple, one of the three most common Psychic colours. Mimikyu (yellow) and Alakazam (brown) do not, and for them the features she named carry the type instead of colour.

Limitations. PokeAPI gives one colour per species, so two-coloured designs are reduced to one. Only the primary type was used, while many species have two types. Body shapes are broad categories and partly overlap with types. The study counts how designs are made, not how players actually read them.

6. Conclusion

In Pokémon, colour shows a character's type well for Fire, Water, Grass and Electric, moderately for Ghost through a range of dark colours, and poorly for Psychic, Bug, Dragon and Rock. Colour carries more information about type than body shape overall, and shape adds only a little to it, so for the hardest types, as the author's examples show, the meaning is carried by details that a colour and a shape category cannot capture.

Data availability

The data are public [2]. The table of species and the analysis script are available from the author or her mentoring team on request.

Author contributions and use of AI tools

The author chose the research question from three of her own earlier choices, wrote the answer quoted in Section 2 before any data were analysed, and proposed the explanation and the five design examples discussed in Section 5. The data were analysed and the text was drafted by her

mentor with the help of a generative AI assistant (Claude, Anthropic). Every number was computed by the analysis script from PokeAPI.

Conflicts of interest

The author declares no conflicts of interest. No funding was received for this study.

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