

Usability Comparison: *Magic: The Gathering* vs. *Yu-Gi-Oh!*

Sam Huffer

25 September 2019

It's Time to Duel!

The *Magic: The Gathering* (Garfield 1993) and *Yu-Gi-Oh!* (Konami 1999) trading card games feature similar cards. However, there are small but cumulative differences in their layout and design that allow *Magic* cards to convey their flavour and function to players better than *Yu-Gi-Oh!* cards.

Note: I've engaged more with *Magic* recently than *Yu-Gi-Oh!*, and while Wizards of the Coast (WOTC) offer substantial content on their design process and decision making, Konami offers none.

Magical Flavour



Figure 1: cards of all colours of frames, including multicolour (gold and appropriately-coloured lines) and colourless (silver).

WOTC leans on resonance (Rosewater 2019a) to convey what each *Magic* card is and can do, baking it into all of its flavourful elements. For example, *Magic*'s card frames match cards' colour(s), with each colour receiving a distinct frame pattern (fig. 1). WOTC strictly enforces colours' character traits and mechanical allocations (Rosewater 2003c, 2014, 2016, 2017a, 2017b), so colouring cards' frames accordingly makes them indexical icons of their potential mechanical affordances (Burks 1949, p. 674, Norman 2013, p. 11). Colours' traits and mechanics also piggyback off of and naturally map to the colours' existing connotations (Groenholm, pp. 3-5, Norman 2013, p. 115, Rosewater 2012, 2019a), maximising resonance and discoverability of potential affordances (Norman 2013, p. 72).

Magic card names are either a character name and descriptive title, or are descriptive of the card's concept or function (Rosewater 2018a). Invoking the iconic imagery (Burks 1949, p. 674) of the cards' concepts, they help players construct accurate conceptual models of their cards.

Magic card artworks always show clearly what the card concept is, making them resonant, iconic signs that designers piggyback off of to convey the cards' mechanical affordances. The artworks' subjects are always situated in generic fantasy environments or the current expansion's setting (WOTC 2019a, 2019b). Each world has particular themes that everything set on them leans into (Rosewater 2014, 2019b). Consequently, if one recognises a card's background, expectations of cards' subjects are narrowed down to what's setting appropriate.

What is this?

Konami, however, is comparatively worse at indicating functionality with resonance. *Yu-Gi-Oh!*'s card frames are coloured not by monsters' attributes (*Yu-Gi-Oh!*'s equivalent of colours; fig. 3) but by card type (fig. 2). This makes frames indexical symbols (Burks 1949, p. 674) of playability restrictions, but they consequently offer no perceptible affordance (Gaver 1991, p. 80) of individual cards' effects. Furthermore, attributes are relegated to the upper-right corner, making them much less visible compared



Figure 2: Yu-Gi-Oh! cards of all colours of frames. L-R: Normal, Effect, Ritual, Fusion, Synchro, Xyz, Pendulum and Link Monster cards, Spell cards, and Trap cards. Only Xyz and Link monsters have unique patterns.

to colour, lessening how discoverable cards' affordances are at a glance. That attributes' mechanical themes (The Organisation 2018b, 2018c, 2019a, 2019b, 2019c, 2019d) aren't as strictly enforced as *Magic's* colour pie exacerbates this.

English *Yu-Gi-Oh!* card names are usually character names or descriptive of the card, like *Magic*, but are sometimes transliterations of the original Japanese name (fig. 4), or just seem disconnected from the card's concept or mechanics, leading to greater dissonance between cards' concepts (Rosewater 2019a) and players' conceptual models of them (Norman 2013, p. 72). Additionally, many cards are part of named archetypes (The Organisation 2018a), so their names have to include the archetype's name. Named archetypes play to particular strategies, making names indexical symbols of what their cards might do. However, such names don't necessarily give card-specific details or convey an archetype's strategy within the first few cards.



Figure 3: Yu-Gi-Oh!'s main attributes.

Yu-Gi-Oh! card artworks clearly portray the cards' concepts, but on some cards, the concept and art fail to align with and perceptibly convey cards' mechanical affordances, fracturing players' conceptual models of them. That the art is usually given a thematically appropriate but locationally abstract background doesn't help this. As *Yu-Gi-Oh!* sets lack settings and mechanical themes (Konami 2019), this characteristic is understandable, but it robs cards of one way to indicate what mechanical space they play in.

Additionally, while not a design issue, many card concepts for *Yu-Gi-Oh!* derive from source material unfamiliar to Western audiences. This sometimes impacts how naturally cards' concepts map to their mechanical affordances for Western audiences (Norman 2013, pp. 11, 118-122).



Figure 4: Kikinagashi Fucho's, English name is the transliteration of its Japanese name. The translation ("Disdainful Bird of Paradise") would have been more resonant.

It's Quite Cramped, Here

Given how many opportunities Konami misses to embed *Yu-Gi-Oh!* cards with flavour and marry it to mechanics to aid comprehension, Konami should compensate by making the rules text as easy to understand as possible. But *Yu-Gi-Oh!*'s rules text is relatively difficult to read, due to its text box size, and rules text concision.

Cards have the inbuilt physical constraint (Norman 2013, p. 125) of size: they have to be big enough to include all their information but small enough to hold easily. Therefore, designers need to lay card elements out carefully to maximise the conveyance of information with limited space. *Magic* and *Yu-Gi-Oh!* cards have roughly comparable dimensions, but their use of said dimensions differs in efficiency (fig. 5, fig. 6). *Yu-Gi-Oh!* cards have a slightly wider margin between their border and text box than *Magic* cards, and an even wider margin between their border and their art. While comparable in area, *Yu-Gi-Oh!* card art is slimmer and taller than *Magic's*. *Magic's* type line and *Yu-Gi-Oh!*'s level line are equally thick, but while *Magic* cards have a set icon in the type line and the set number in their legal text, *Yu-Gi-Oh!* gives cards' set numbers their own line between the art and text boxes.



Figure 5: Measurements of a typical Yu-Gi-Oh! card.

has become progressively more concise and unambiguous (Konami 2011, The Organisation 2019e, Todash 2019), albeit not as much as *Magic's* rules text. However, it's written in a relatively small font, and new effects usually immediately follow their predecessors rather than starting new lines. This allows for more rules text, but diminishes the visibility of distinct effects and results in the small text boxes becoming dense walls of text. This makes them more intimidating (Strunk 2000, pp. 17, 23), raises comprehension complexity and parsing difficulty (Rosewater 2018a, 2019a), and obstinately hin-



Figure 7: F.A. Shining Star GT exemplifies how dense Yu-Gi-Oh! cards can be, something particularly problematic at common (Rosewater 2018b, Strunk 2000, p. 17).

ders perceptibility of cards' mechanical affordances (Gaver 1991, p. 80, Heidegger 2001, pp. 103-104). Consequently, the interpretive labour required of players (Graeber 2012, pp. 117-118) to construct conceptual models of cards (Norman 2013, p. 72) is increased, forcing them to spend less time in the front stage of the operative or character keys playing the game ready-to-hand, and more time in the back stage of the operative or even social key, trying to understand what the now present-at-hand cards do (Conway 2019, Heidegger 2001, pp. 98, 103, 121).

Above and Beyond

Thanks to *Magic's* better distribution of space in its card layout, its text box is significantly larger than *Yu-Gi-Oh's*, allowing for a moderately-sized font for ease of reading (Rosewater 2003a). The rules text features generally concise language, and lists distinct effects on separate lines, enhancing their relative visibility (Joyce 2019). Consequently, it has low to moderate density and low comprehension complexity (Rosewater 2011), requiring little interpretive labour (Graeber 2012, pp. 117-118) to

Due to *Yu-Gi-Oh's* comparative and cumulative vertical sacrifices and horizontal inefficiencies, its card layout leaves text boxes with just over half the space of *Magic's*. This is further worsened on Monster cards, which list their types, ATK and DEF in the text box, not just rules text (Extra Deck Monsters also list their summoning requirements, taking another line), reducing the effective area of *Yu-Gi-Oh!* text boxes to about a third of a *Magic* card's text box.

To compensate for limited text box space, *Yu-Gi-Oh!* rules text wording

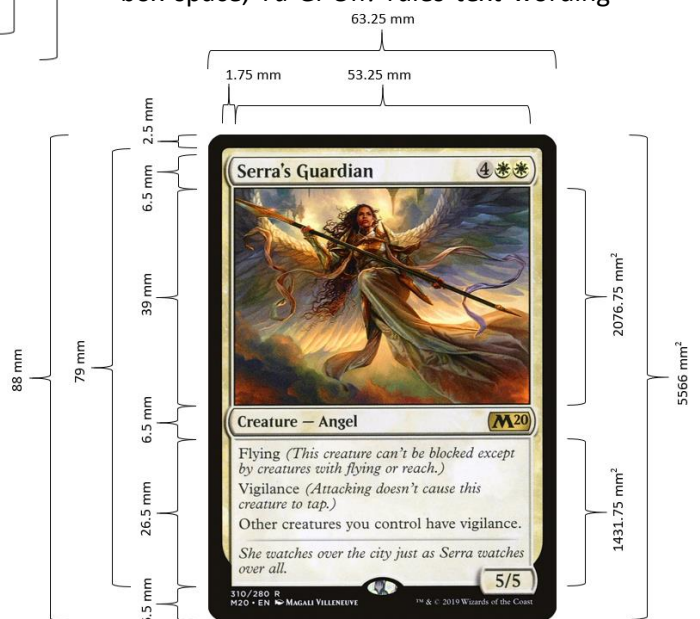


Figure 6: Measurements of a typical Magic card.

construct a conceptual model of a card (Norman 2013, p. 72).

Even so, WOTC still employs several other means of reducing the density and comprehension complexity of *Magic* cards' rules text, even adding more resonance (Rosewater 2019a) in the process.

Many *Magic* cards have keyword mechanics – where a keyword replaces lines of rules text (fig. 6, fig. 8, fig. 9, Rosewater 2003b). The words chosen are resonant words that naturally map to what the mechanic is doing (Rosewater 2003b, Norman 2013, p. 115). Once memorised, keywords serve as accelerative, recognisable indexes to one's recollections of different mechanics' workings (Burks 1949, p. 674, Joyce 2019).

Cards with extra space often summarise keywords' workings with italicised reminder text, which describes keywords more informally and clearly than rules text might. It is recognisable, targeted, on-card help documentation (Joyce 2019) for beginners yet minimises distractions for advanced players familiar with a mechanic, and lowers comprehension complexity for both parties.

Magic cards also regularly have flavour text: italicised lines of card-appropriate dialogue or description. An iconic symbol (Burks 1949, p. 674), it's sometimes used to reinforce players' conceptual models of cards (Rosewater 2018a), particularly on cards whose concept (2019a) and mechanical affordances (Norman 2013, p. 11) wouldn't otherwise appear related.

Game Over

Magic cards do a better job of conveying their concepts (Rosewater 2019a) to the player and naturally mapping them to mechanical affordances to facilitate construction of conceptual models of cards (Norman 2013, pp. 11, 72, 115). Where *Yu-Gi-Oh!* cards would want to make up by clearly conveying rules text, they drop the ball with poor layout decisions that reduce text box space, and obstinate, intimidating walls of rules text that increase interpretive labour (Graeber 2012, pp. 117-118. Heidegger 2001, pp. 103-104, Strunk 2000, p. 17). *Magic* pulls further ahead with easily legible, concise rules text that takes advantage of keyword mechanics, reminder text and flavour text to further lower comprehension complexity and increase resonance (Rosewater 2003b, 2011, 2019a). Consequently, *Magic* cards more easily and effectively convey their concepts and affordances than *Yu-Gi-Oh!* cards.

Glossary

TCG Terms

Archetype (*Yu-Gi-Oh!*): a group of cards with mechanical support due to part of their Japanese names (The Organisation 2018a).

Attribute (*Yu-Gi-Oh!*): the “elemental” groups for Monster Cards. The common attributes are EARTH, WATER, FIRE, WIND, LIGHT and DARK (The Organisation 2018b, 2018c, 2019a, 2019b, 2019c, 2019d).

Colour (*Magic*): *Magic* cards are split amongst five colours, and can be one or several colours, or colourless. To cast a card of a given colour, one must be able to pay mana of that colour. Each colour



Figure 8: Gift of Doom.



Figure 9: Zetalpa, Primal Dawn.

and colour combination has its own philosophy and characteristics attributed to it, and its own playstyle, strengths and weaknesses (Rosewater 2016, 2017b).

Magic Design Terms

Card Concept: what a card flavourfully represents (Rosewater 2018a).

Comprehension Complexity: complexity regarding players understanding what a card does. Can they read the card and know how it works in the game (Rosewater 2011)?

Piggybacking: to build a design around a concept that is already known and understood by your audience (Rosewater 2012).

Resonance: a resonant design or game component builds on top of information the audience is already familiar with (Rosewater 2019a). For example, “flying” creatures that can only be blocked by other flying creatures are resonant, vampiric creatures that drain an opponent’s life points are resonant, etc.

Terms from Academic Theory

Affordance: the relationship between the properties of an object and the capabilities of a person that determine how it could be used. For example, a chair affords (“is for”) sitting on, a pen affords writing, etc. (Norman 2013, p. 11).

Conceptual Model: a user’s conception of a system or object that they have constructed in their mind. The better a conceptual model, the more understanding and control the user feels regarding the system or object (Norman 2013, p. 72).

Interpretive Labour: work done to accurately interpret information, particularly in relation to who that burden falls to (Graeber 2012, pp. 117-118).

Keys: modes of thinking about oneself as one engages with a game or other media (Conway 2019). They include:

- **The Social Key:** “I, John-the-friend, am playing this game on my couch with my friends.”
- **The Operative Key:** “I, John-the-player, am collecting points to level up my avatar.”
- **The Character Key:** “I, Master Chief-the-character, have to escape these zombie-aliens.”

Natural Mapping: generally, where the relationship between the controls and the object to be controlled is obvious (Norman 2013, p. 115). For trading card games, where the relationship between a card’s concept and function is obvious.

Obstinate: equipment that is not missing or unusable, but that stands in the way of the task one tries to achieve with it (Heidegger 2001, pp. 103-104).

Present-at-hand (vorhanden): an object (i.e. not equipment) that we are aware of as an abstract entity, and that we become mindful of it as the object of our activity, is considered present-at-hand (Heidegger 2001, pp. 103, 121).

Ready-to-hand (zuhanden): equipment that is taken up and incorporated into one's bodily schema is ready-to-hand, withdrawing from the user's immediate concern as they act through the equipment rather than upon it (Heidegger 2001, p. 98).

Sign: something that represents or signifies an object to an interpreter (Burks 1949, p. 673). Signs include (p. 674):

- **Icons:** signs that resemble what they represent (e.g. a hat icon that looks like a hat).
- **Symbols:** signs that don't resemble what they represent (e.g. the word "hat").
- **Indexes:** signs that point to or imply something (e.g. the word "they" is an index that refers to something defined before its usage in a written piece; just above, "they" is used point to the concept of icons, and then to symbols).

Stage: the "distance" between a player's thoughts and actions, and the content (social interaction / gameplay / narrative) of the key they are engaging with the game from (Conway 2019):

- **Front Stage:** "I am moving my avatar", "I am firing on the enemy", "I am scoring a goal".
- **Back Stage:** "I am setting up the game console", "I am configuring the game's settings", "I am researching this NPC's stats".

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