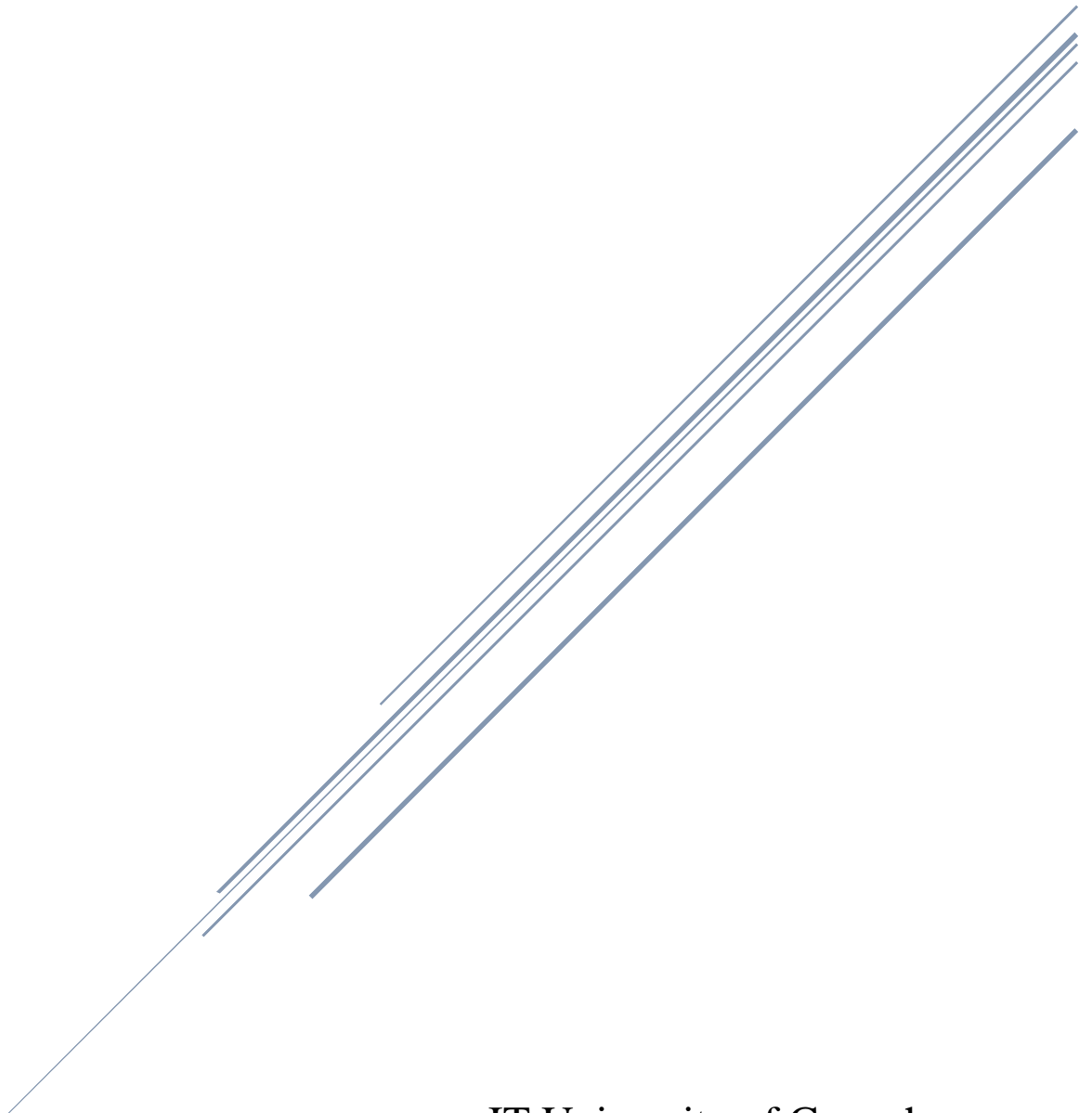


Seeing Red and Feeling Blue: Colors in Magic: The Gathering as ludic personality typology

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of characters (excluding notes & sources): 28736



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*“The depths are mostly disingenuous over-complications
created by nerds in need of more archetypes to identify with,
not depth inherent in the game itself.”*

- u/WindhorseRider¹

Introduction

Even with an estimated trillion having passed into the mists of time, no two human beings are supposedly alike. And yet, throughout the history of humankind, philosophers and mystics have sought to identify and categorize the multifarious masses into groups of people – or rather, *types of personalities* – refracting the myriad wavelengths of humanity to understand who, what, and how many we really are. Insofar as being the literal *study of the soul*, modern psychology of course concerns itself with such questions as well.² Throughout the 20th century, a wide range of theories for ensnaring the types and traits of the human psyche have been proposed. Meanwhile, an altogether different phenomenon has emerged in parallel: games, both analogue and digital, have grown to become a dominant cultural form, not only of entertainment, but *expression* as well. With countless virtual worlds and fictional stories for players to discover and explore themselves *in* and *through*, games have become a new prism of self-development, a Rorschach-like projection on a scale all its own.

This paper is an investigation into what I provisionally term *ludic personality typology* – a hitherto ill-defined phenomenon in which games are actively used *by players* to discover, describe, and develop aspects of their own personality, not just *within* the contextual practice of gaming, but *outside* as well. First, a thorough account of the history of player typologies and the use of games as a psychological profiling tool will be provided, drawing on a breath of relevant literature. Then, a descriptive and somewhat experimental analysis of the collectible card game *Magic: The Gathering* will be conducted, illustrating how a small portion of the player community uses the philosophical concept of the ‘color pie’ as a tool for diagnosis and self-understanding. Finally, the contrasting viewpoints and observations are further discussed, as I then go on to suggest that the introspective and self-revelatory potential of games is not only untapped by designers, but also seriously neglected as a subject of study by researchers.

== REVIEW ==

Typologies that suit games...

While the origins of many widespread and influential personality typologies may date back to prehistoric times, the history of studying and classifying behavior in games is comparatively short. One foundational text in this field is Richard Bartle’s seminal “Hearts, clubs, diamonds, spades: Players who suit MUDs”.³ In the article, Bartle presents a taxonomy of the four primary player types found in multi-user dungeons (MUDs), a popular genre of online games during the late 1980s. In the article, Bartle distinguishes between Achievers, Explorers, Socializers, and Killers, providing a speculative framework for understanding not only what motivates and guides the different player types, but also how these dynamically interrelate in various ways.

While individual players may exhibit traits and qualities of all four types, Bartle argues that “many (if not most) players do have a primary style, and will only switch to other styles as a (deliberate or unconscious) means to advance

their main interest.”⁴ While Bartle is here concerned with examining and describing players as they behaviorally exist and manifest themselves *inside* the game, his suggestion of a main or primary interest does imply a kind of player essentialism. Himself a prominent game designer, the framework posited by Bartle is ultimately not intended to comment on or reveal fundamental truths about players as they may or may not exist beyond the virtual worlds of MUDs, but rather to guide other developers in creating a ‘state of equilibrium’ – one in which the “proportion of players for each style remains roughly constant, so that the balance between the various types remains the same.”⁵

However insightful and influential, the assumptions underlying Bartle’s taxonomy are speculative in nature.⁶ For those hoping to derive a scientifically demonstrable player typology, this becomes an issue then – an issue whose resolution has been attempted by, among others, Nick Yee. Conducting an experiment on player motivations in online play, Yee agrees that different players may play the same game for different reasons.⁷ The same is argued by Graham & Gosling.⁸ Unlike Bartle, however, Yee aims to establish a player typology that goes beyond MUDs or any other single game or genre. Generalizability becomes the name of the game, as he presents a revised framework, one that distinguishes between three main categories – Achievement, Social, and Immersion – and separates these into numerous subcomponents such as Mechanics, Teamwork, Discovery, and Immersion.⁹

This attempt to create a generalizable typology of players or player behavior has been ventured by several other scholars, including Demetrovics et al.¹⁰, Cowley et al.¹¹, and Mora et al.¹² While important differences exist between these, the typologies produced often include an emphasis on similarly generic categories such as Exploration, Achievement, Socializing, Fantasy, and so on. This uniformity may suggest that only so many different motivations of play exist. Alternatively, it may be, as Kartsanis & Murzyn have suggested, that the relative homogeneity of the games examined – oftentimes online role-playing games - has unduly skewed or biased the resulting categories.¹³

More importantly, however, these inquiries into player types, traits, motivations, or preferences do not generally make any claim about players as they exist outside of the game. They focus, in other words, on what players *do*, not what they *are*. The *implied player*, to draw on the world of literary criticism, remains unaccounted for.¹⁴ A player may be classified as a Killer or rate high on Achievement in one, several or every game, but that classification is tied to and meaningful in the world of games only. This limitation in the hitherto expounded theories is not necessarily a weakness, but rather owed to scientific differences in scope, focus, and objective. For the purposes of this investigation, however, this barrier is one we will have to move beyond.

...And games that suit typologies

Previously, we have seen how theorists have attempted to identify typologies and behavioral taxonomies *in* games. In other cases, researchers are specifically concerned with using data to derive information about the player *beyond* the game, hoping to assess what – if anything – a person’s style or preference of play says about them. “Games can be character revealing”¹⁵, suggest Yee et al., as they then go on to elaborate: “The unique affordances of virtual worlds offer an unparalleled platform for examining the intersections between personality and behaviors in virtual environments. On the other hand, unlike personality expression in physical settings, online games allow, or even

encourage, users to behave in a manner inconsistent with their everyday identities.”¹⁶ This conundrum lies at the heart of many investigations into the relation between player behavior and underlying personality.

Ultimately, Yee et al. argue that something about a person can in fact be derived or inferred from the way they play. Comparing highly detailed play data from a MMORPG with a questionnaire based on the five-factor model (also known as ‘OCEAN’ or ‘the Big Five’), the researchers argue for a correlation between, for example, scoring high on Extroversion (one of the five factors) and showing a preference for group-oriented activities.¹⁷ As such, Yee et al. argue that “our personalities are readily expressed even when we are Elves and Gnomes.”¹⁸ They do, however, stress the importance of players being familiar with whatever game they are asked to express themselves in or through – an important detail.¹⁹

This adherence to and use of the five-factor model as a preexisting framework for ‘capturing’ players is commonplace in this field of research, as seen in the cases of Bildtgård²⁰, Bean & Groth-Marnat²¹, and Lankveld et al.²² Briefly retold, the five-factor model uses a combination of factor analysis and word association to rank subjects on five dimensions: Openness to experience, Conscientiousness, Extroversion, Agreeableness, and Neuroticism (exact wording may vary). According to Batemen et al., the five-factor model enjoys the advantage of having been confirmed by numerous research groups, though criticism has been leveled at it as well, namely for its conflation of *type* with *trait*.²³ This conceptual distinction is explained by Butler & McManus thusly: “Type theories tend to emphasize the similarities between people whereas trait approaches stress the differences between individuals and their inherent uniqueness.”²⁴ According to them, most contemporary theories “suggest that both situational and individual factors contribute to those relatively enduring and stable characteristics that we call ‘personality’.”²⁵ While it is not within the scope nor ambition of this paper to resolve this conflict, the distinction between the two is of some importance, as will be shown later.

We see then, how in some research cases the typologies in question are *developed to fit* certain games or genres, such as Bartle’s quartet of player types in MUDs. In other cases, however, the relevant typology exists beforehand and is then *applied to* games to validate, expand, or complement its usage, as was seen with the five-factor model. Some researchers, for example McCord et al.²⁶, Haizel et al.²⁷, Zulkifly²⁸, and Navarro²⁹, have gone one step further and created bespoke games or game-like experiences in an attempt to ‘gamify’ the surveys and questionnaires that are usually involved in five-factor personality testing. As Navarro concludes: “Games can be studied as a media for personality assessment, providing an environment where players feel encouraged to act and behave as themselves. This would enable players to share things they otherwise would not in a traditional questionnaire, utilizing the power of a digital and entertainment environment.”³⁰ These tailor-made ‘testing games’, while relatively primitive and heavy-handed in their approach do nonetheless demonstrate the potential for games to ‘reveal the character’ of those playing them – even if the conundrum of actual versus ideal self-projection continues to lurk beneath the surface.

What is it like to be a player?

As we reach the end of the first part of this investigation, it is worth meditating on the subtle and important differences highlighted among both researchers and methodologies so far. Initially, we saw how theorists have attempted to

develop a taxonomy of player behavior in a select few games or genres. Others then have tried to expand on these categories, seeking to make them applicable to most or every type of game. Others yet have tried to apply preexisting personality typologies to games, arguing that certain aspects of the implied player's personality can in fact be gleaned from their in-game player behavior. Finally, some developers have designed games to act as profiling or testing tools in an attempt to gamify personality tests, positing that games hold a potential for 'revealing character'.

The differences are perhaps subtle, but important. Contrasting the development of typologies *in* games with their application *on* games, we might say that these researchers have started at opposite ends of the spectrum: some start with a game and then extract types, others start with types and apply them to games. Some are concerned with generalizability *between* games, whereas others are interested in the applicability of their findings *outside* of games. What all these approaches have in common, however, is that they are looking at players and player behavior from the *outside-in*. These are tool-oriented designers or clinical researchers employing their own terminologies to typologize player behavior – and by extension, player personalities. Such typologies may have been developed to fit a single game or many, but they did not *originate* from that or those games. A particularly bloodthirsty player may be categorized as a Killer, but that label exists only as an abstraction outside of the game – it tells us little or nothing about how, why, or in what terms that player reflects on their behavior as a possible projection of their personality.

To be clear, this is not a failing on behalf of the researchers presented so far. Their aims and methodologies are simply different from the ones of this investigation, but no less important for that. What is a failing, however, is the comparative lacking attempt to study players and their use of games as a tool for self-understanding from the *inside-out* – on their own volition, unprobed by curious scientists. In the following I will venture one such attempt – what might modestly be called descriptive research, “to provide a snapshot of the current state of affairs.”³¹ Analyzing a small subset of *Magic: The Gathering*'s community as it exists on the internet, I aim to show how the mechanics and aesthetics of the game have been reframed and repurposed by players to work as a tool for self-understanding and personal discovery – a typology originating *within* the game, yet readily used *outside* of it.

== ANALYSIS ==

Magic and mechanics

Magic: The Gathering (MTG) is a collectible card game, created by Richard Garfield, Ph.D. and Wizards of the Coast in 1993.³² In the game, players trade, collect, and assemble cards into decks that can be used to play against each other. Playing the game revolves around reducing opponents' life points to zero by casting powerful spells and summoning fearsome creatures to aid in combat. Almost every game action requires the expenditure of *mana*, a renewable energy resource drawn from 'land cards' – plains, islands, swamps, mountains, and forests. Each of the five primary land types produce their own *color* of mana: white, blue, black, red, green, respectively. Most cards in the game have one or more colors as part of their identity. So, for example, a blue-green card requires blue and green mana – typically drawn from an island and a forest, respectively – to be played.

The color(s) assigned to cards in *Magic: The Gathering* is anything but random. To help inform and govern its continued development, the designers of the game have devised what is known as the *color pie*. Printed on the back

of every card are the five colors of *Magic*, arranged in a pentagon – each color has two ‘neighboring’ angles as well as two opposite itself. Together, they form the conceptual design tool of the color pie (or wheel), its ‘slices’ being literal representations of the both aesthetic and mechanic design space assigned to each color.³³ Blue, for example, represents foresight and the pursuit of knowledge and those qualities are then mechanically translated into drawing lots of cards and nullifying enemy spells.³⁴ Black, in contrast, is associated with ambition and ruthlessness and so typically allows players to reanimate ‘dead cards’ from the ‘graveyard’ or making sacrifices to obtain power.³⁵

It is worth noting how well *Magic: The Gathering* fits within the mechanics-dynamics-aesthetics (MDA) framework put forward by Hunicke et al. The authors summarize their tripartite distinction thusly: “Mechanics describes the particular components of the game, at the level of data representation and algorithms. Dynamics describes the run-time behavior of the mechanics acting on player inputs and each other’s outputs over time. Aesthetics describes the desirable emotional responses evoked in the player, when she interacts with the game system.”³⁶ This succinctly encapsulates the way the mechanics of the game (drawing a card) creates a particular dynamic (drawing cards to find answers to a game situation), which in turn fuels a particular aesthetic experience or fantasy (feeling like a wizard leafing through tomes of knowledge to combat a particular threat).³⁷

This compatibility is further demonstrated by the fact that Wizards of the Coast have created their own set of *psychographic profiles* for the game. These are transparently explained by Mark Rosewater, head designer of the game: “A psychographic profile separates players into categories based on their psychological make-up. What motivates that player to play? What kind of cards do they like? What kind of things encourages that player to keep on playing?”³⁸ This psychographic gallery includes such profiles as Timmy, the power gamer, the competitive Spike, and the connoisseur of lore and flavor, Vorthos.

Despite its exotic naming convention, this taxonomy of players ultimately aligns itself rather closely with those already expounded in this paper. While more overtly commercial in nature, Wizards of the Coast’s research into *Magic: The Gathering*’s player base also concerns itself with questions of motivation and ‘psychological make-up’. More to the point, it, like the others, was created by researchers and designers from the *outside-in*: it describes how the makers of the game understand their players, not necessarily how those players understand themselves. Beyond this inventory of psychographic profiles, however, exists an entirely separate framework for understanding players – or people, rather – not *in* the game of *Magic: The Gathering*, but *through* it. Having originated in the infinitely diverse community of the game, this framework is arguably less rigorous and cohesive and thus more difficult accurately present and explain. Nonetheless, I will venture an attempt in the following.

A five-factor model of colors

In the rather boldly titled article “How the ‘Magic: The Gathering’ Color Wheel Explains Humanity”, Duncan Sabien argues that the color pie, regardless of its original function as a design tool, can be used as a philosophical framework *beyond* the game: “Personalities, organizations, goals, and means can all be thought of in terms of the Magic colors they typify, allowing you to draw interesting connections, make surprisingly useful predictions, identify deficits and growth areas, and increase empathy.”³⁹ Importantly, Sabien is not an authority: he is not a psychologist, nor a

researcher or a designer. He is, however, a player actively using the game to understand himself and others – the exact phenomenon this paper means to investigate.

Drawing on the elaborate aesthetic profiles of each color – as originally conceptualized by the designers – Sabien goes on to explain how each color represents different goals, attitudes, and attributes applicable, not only to game mechanics or characters, but people and even cultures as well. White, for example, “seeks *peace*, and it tries to achieve that peace through the imposition of *order*. White believes that the solution to all suffering and unhappiness is coordination and cooperation and rules and restraint.”⁴⁰ Detailing their relative qualities and failings, he even attempts to relate each color to the five-factor model, suggesting, for example, that the color green correlates positively with extraversion, agreeableness, and conscientiousness, but negatively with neuroticism and openness.⁴¹

With each color placed on an angle of the aforementioned pentagon, all five colors are said to agree with their adjacent colors on certain things, with a shared disagreement towards their opposite color: “Black and red are the enemies of white, which they see as invasive and tyrannical. Black and red both agree that *independence* is something to be fostered and defended – red in an attempt to avoid coercion or pressure, and black out of a desire for self-reliance and agency.”⁴² In comparing, contrasting, and *mixing* the five colors new typologies for describing and categorizing agents – people, organizations, cultures – are created.

While Sabien’s article presents an elaborate and compelling argument for using the color pie to understand personality, his views are neither absolute nor unchallenged. On the popular website reddit, a subcommunity dedicated to the philosophy of the color pie boasts more than 2500 subscribers.⁴³ Here, the many nuances, merits, and pitfalls of the five colors – and their associated interpretations – are vigorously discussed. In one particularly detailed post, user u/firemind criticizes Sabien’s conflation of philosophy with personality: “*Color is an ideology* [original emphasis]. Each color is a system of values and evaluations. [...] When your ideals change, your color changes. When you ask: what color am I? You want to know how your real-world beliefs compare to the ideas that get shuffled around in the game.”⁴⁴ It seems the type versus trait dichotomy, or at least some echo of it, exists in the world of colors as well.

This question – ‘What color am I?’ – is asked repeatedly by visitors to this small subcommunity and, in turn, answered in many ways. Numerous tests and trials have been devised by prodigious members of the community to determine a person’s color(s). One such survey asks participants to rate their opinion on such philosophical statements as ‘We should never be content with what we have now.’⁴⁵ and ‘The fruits of my labor belong to me first and foremost.’⁴⁶ Another example is an extensive word association game.⁴⁷ Notably, these tests are not dissimilar to those used by psychologists and researchers.

But perhaps most fascinating are the more qualitatively-oriented trials, in which trial-takers are given a set of open-ended questions or prompts (‘What do you desire in life?’ ‘What is the worst thing that can happen to you?’) and then asked to subject their answers for collective analysis, as other users then propose one or more appropriate colors based on the submission.⁴⁸ This case of ‘identification by committee’ underlines how the small subcommunity is ultimately reliant on the combined interpretive efforts of its members – rather than solitary self-reporting – to provide meaningful answers. This aspect, among many others, will be briefly discussed in following and final section of this paper.

== DISCUSSION ==

Identification and beyond

As shown, there exists a significant amount of literature on psychologically profiling players *in* and *with* games. Some of these studies have been carried out by academics, others by developers, and yet others by marketing specialists.⁴⁹ The latter, as Khaleghi & Lugmayr explain, follows the idea that “game producers can start making user profile[s] for different gamers based on their similar interests or need[s], then the content can be provided with more focus and accuracy.”⁵⁰ Knowledge is power and knowing what identities to offer and what fantasies to sell is powerful indeed.

In comparison, the phenomenon in which players use games to identify and describe themselves remains relatively unexamined. The communities and collective identities created by a game like *Magic: The Gathering* are well-attested. Lynch has described the ways in which the game might further personal, academic, and career development⁵¹, while Limbert has argued for its potential as positive instigator of growth and connectedness in small or neglected communities.⁵² The literary qualities of the game have been studied in-depth as well. Crutcher argues that the game in its entirety, can be thought of as a cohesive if complicated text: “*Magic* sustains a broad narrative mythos [...] one that itself is intertextual, built, supported, and extended through [...] promotional texts, online texts, comics, novels, cosplay, fan work, and more.”⁵³ Similarly, Dodge has argued for the multilateral qualities of the game.⁵⁴

This ‘literary turn’ is not a detour but presents a different venue for engaging with the game and understanding its players. Hoeken et al. explains how identification with a character is an important mechanism of narrative persuasion in literature.⁵⁵ Igartua has made a similar argument.⁵⁶ Certainly, the world(s) of *Magic: The Gathering* is filled with exotic and charismatic characters for players to engage and identify with – and as with everything else, these too are ‘color-coded’. It is telling that Sabien consistently invokes characters from pop culture to exemplify his typology⁵⁷ – as does the most popular version of the Myers-Briggs Type Indicator available on the internet.⁵⁸ Clearly, we use characters to understand not only story, but ourselves as well.

However, a purely story or character-focused analysis of player identification in *Magic: The Gathering* fails to consider the uniquely *ludic* properties of the game – the color pie and its associated mechanics, dynamics, and aesthetics – and how these together form the basis for a new framework for introspection, reflection, and self-understanding. And while Yee et al. have shown how ‘traces of personality’ are left behind in virtual worlds, they neglect to examine how the mechanical composition of a given game allowed for such traces to be left in the first place – or whether those indexical markers may prove to not merely be the *effect* of a personality at play but the *cause* of one beyond the game as well.⁵⁹

The color pie of *Magic: The Gathering* is a fruitful topic of study, being is at is, not only an intersection between mechanics and aesthetics, but developers and community as well. The color pie is used by designers to create new cards for the game – and by players to guide them through their own lives. This phenomenon can perhaps be thought of as a kind of *reverse gamification*, in which the mechanics, dynamics, and aesthetics of a game are reworked to describe life outside of the game.⁶⁰ As shown previously, there are plenty examples of personality profiling tests being turned into games, but less so of games being turned into psychological typologies.

== CONCLUSION ==

It has not been the objective of this investigation to argue the merits of the color pie as a serious tool for profiling all of humanity. As a community-driven framework, disagreements abound – many of which could serve as the basis for another investigation. Likewise, an attempt at empirical validation could be undertaken. This paper has merely sought to describe the phenomenon as it currently exists – while pointing out critical blind spots in existing research. My argument has not been that what I term *ludic personality typologies* are the profiling tools of the future, but that they already exist – created, more often than not, by players themselves – and that these need to be better understood.

The fields of psychology, philosophy, game studies, and ethnography could, among others, certainly contribute positively to this understanding. Regardless of its merits, the color pie aptly demonstrates a fascinating tendency to use the things we *have*, *know*, and *enjoy* to better understand ourselves. If great familiarity with a game enables to us to better project ourselves into – and out of – it, we should perhaps look, not to the cobbled-together survey-games of the academics, but to the armchair philosophers of *Magic: The Gathering* that they may help solve the riddle:

Who do you become when you play – *and what do you play to become?*

== REFERENCES ==**Books**

Butler, G., McManus, F. (2014). *Psychology: A Very Short Introduction*. Oxford University Press.

Stangor, C., Walinga, J. (2014). *Introduction to Psychology*. Victoria BCCampus.

<https://opentextbc.ca/introductiontopsychology/>

Dissertations

Hauser, H. (2020). *Cardstock and Containment: Exploring Therapeutic Affect in Magic: The Gathering for Adults*. The University of Edinburgh.

Limbirt, T. (2012). *The Magic of Community: Gathering of Card Players and Subcultural Expression*. Bowling Green University.

Lynch, B. (2016). *Higher Education Perspectives: The Role of Magic: The Gathering Plays in Whole-Person, Academic, and Career Development*. Lindenwood University.

Navarro, L. (2017). *Entia: Design of a Digital Game for Personality Assessment through the Five-Factor Model*. Keio University Graduate School of Media Design.

Zulkifly, A. (2019) *Personality Assessment Through the Use of Video Games*. University of Tasmania.

Games

Wizards of the Coast. *Magic: The Gathering*. Hasbro. 1993. Card game.

Journals

Bartle, R. (1996). Hearts, clubs, diamonds, spades: Players who suit MUDs.

https://www.researchgate.net/publication/247190693_Hearts_clubs_diamonds_spades_Players_who_suit_MUDs

Bateman, C., Lowenhaupt, R., Nacke, L. (2012). Player Typology in Theory and Practice. *DiGRA Conference*.

https://www.researchgate.net/publication/265450412_Player_Typology_in_Theory_and_Practice

Bean, A., Growth-Marnat, G. (2014) Video Gamers and Personality: A Five-Factor Model to Understand Game Playing Style. *Psychology of Popular Media Culture*. Advance online publication. <http://dx.doi.org/10.1037/ppm0000025>

Canossa, A., Drachen, A. (2009). Patterns of Play: Play-Personas in User-Centred Game Development. *DiGRA Conference*.

https://www.researchgate.net/publication/242532928_Patterns_of_Play_Play-Personas_in_User-Centred_Game_Development

Crutcher, P. (2017). Magic: The Gathering, A Literary Text. *The Journal of American Popular Culture*, 16.

https://americanpopularculture.com/journal/articles/spring_2017/crutcher.htm

Cowley, B., Charles, D., Black, M. et al. (2013). Real-time rule-based classification of player types in computer games. *User Modelling and User-Adapted Interaction*, 23, 489–526. <https://doi.org/10.1007/s11257-012-9126-z>

Demetrovics, Z., Urbán, R., Nagygyörgy, K. et al. (2011) Why do you play? The development of the motives for online gaming questionnaire (MOGQ). *Behavior Research Methods*, 43, 814–825. <https://doi.org/10.3758/s13428-011-0091-y>

Dodge, A. (2018) Literary Practices in Magic: The Gathering. *American Journal of Play*, 10, 168-191.

https://www.researchgate.net/publication/341980316_Dodge_A_M_with_Crutcher_P_A_2018_Examining_literacy_practices_in_the_game_Magic_The_Gathering_American_Journal_of_Play_102_168-191

Graham, L. & Gosling, S. (2013). Personality Profiles Associated with Different Motivations for Playing World of Warcraft.

Cyberpsychology, Behavior, and Social Networking, 16, 189-193. <http://dx.doi.org/10.1089/cyber.2012.0090>

- Haizel, P., Vernanda, G., Wawolangi, K. et al. (2021). Personality Assessment Video Game Based on the Five-Factor Model. *Procedia Computer Science*, 179, 566-573. <http://doi.org/10.1016/j.procs.2021.01.041>
- Hoeken, H., Kolthoff, M., Sanders, J. (2016). Story Perspective and Character Similarity as Drivers of Identification and Narrative Persuasion. *Human Communication Research*. <http://doi.org/10.1111/hcre.12076>
- Hunicke, R., LeBlanc, M., Zubek, R. (2004), MDA: A Formal Approach to Game Design and Game Research. https://www.researchgate.net/publication/228884866_MDA_A_Formal_Approach_to_Game_Design_and_Game_Research
- Igartua, J. (2010). *Communications*, 347-373. <http://doi.org/10.1515/comm.2010.019>
- Kartsanis, N., Murzyn, E. (2016). Me, My Game-Self, and Others: A Qualitative Exploration of the Game-Self. *International Conference on Interactive Technologies and Games (ITAG)*, 29-35. <http://doi.org/10.1109/iTAG.2016.12>
- Khaleghi, K., Lugmayr, A. (2012). Video game market segmentation based on user behavior. *International Academic MindTrek Conference*, 283-286. <http://doi.org/10.1145/2393132.2393194>
- Kocadere, S., Çağlar, S. Gamification from Player Type Perspective: A Case Study. *Educational Technology & Society*, 21, 12-22. <https://www.jstor.org/stable/10.2307/26458503>
- Lankveld, G., Spronck, P., Herik, J. et al. (2011). Games as personality profiling tools. *IEEE Conference on Computational Intelligence and Games*, 197-202. <http://doi.org/10.1109/cig.2011.6032007>
- McCord, J., Hartman, J., Purl, J. (2019). Game-like personality testing: An emerging mode of personality assessment. *Personality and Individual Difference*, 143, 95-102. <https://doi.org/10.1016/j.paid.2019.02.017>
- Mora, A., Tondello, G., Calvet, L. et al. (2019). The quest for a better tailoring of gameful design: An analysis of player type preferences. <https://doi.org/10.1145/3335595.3335625>
- Stefańska, M., Mazurkiewicz, B. (2011). Archetypes of Video Games Players – do Other Typologies Exist? *IBIMA*. https://www.researchgate.net/publication/352105769_Archetypes_of_Video_Game_Players_-_do_Other_Typologies_Exists
- Yee, N. (2007). Motivations of Play in Online Games. *Journal of CyberPsychology and Behavior*, 9, 772-775. [http://www.nickyee.com/pubs/Yee%20-%20Motivations%20\(2007\).pdf](http://www.nickyee.com/pubs/Yee%20-%20Motivations%20(2007).pdf)
- Yee, N., Ducheneaut, N., Nelsen, L. et al. (2011). Introverted Elves & Conscientious Gnomes: The Expression of Personality in World of Warcraft. *Conference on Human Factors in Computing Systems*, 753-762. <http://dx.doi.org/10.1145/1978942.1979052>

Web

Articles

- Rosewater, M. (2015). "In the Black Revisited". Accessed 02-06-22: <https://magic.wizards.com/en/articles/archive/making-magic/black-revisited-2015-07-27>
- Rosewater, M. (2013). "Timmy, Johnny, and Spike". Accessed 02-06-22: <https://magic.wizards.com/en/articles/archive/making-magic/timmy-johnny-and-spike-2013-12-03>
- Rosewater, M. (2015). "True Blue Revisited". Accessed 02-06-22: <https://magic.wizards.com/en/articles/archive/making-magic/true-blue-revisited-2015-07-20>
- Sabien, D. (2018). "How the 'Magic: The Gathering' Color Wheel Explains Humanity". Accessed 02-06-22: <https://humanparts.medium.com/the-mtg-color-wheel-c9700a7cf36d>

Reddit

- Reddit color pie community page. Accessed 02-06-22: <https://www.reddit.com/r/colorpie/>
- u/firemind. "You and Your Color: Guidance for Potential Trial-Takers". *Reddit*, Fri, Oct 02, 2020, Accessed 02-06-22: https://www.reddit.com/r/colorpie/comments/j3m52o/you_and_your_color_guidance_for_potential/

u/Mucus-Patty. "Color Trial and Test Masterpost". *Reddit*, Thu, Jul 01, 2021. Accessed 02-06-22:

https://www.reddit.com/r/colorpie/comments/obaxpm/color_trial_and_test_masterpost/

u/Windhorserider. "Why are fish and other non-sentient animals blue and not green simply because of where they live? Why are domesticated animals not in white more often?". *Reddit*, Wed, Dec 29, 2021. Accessed 02-06-22:

https://www.reddit.com/r/colorpie/comments/rr79u8/why_are_fish_and_other_nonsentient_animals_blue/hqfrsu4/?context=3

Other

Color questionnaire. Accessed 02-06-22: <https://dysbulic.github.io/5-color-radar/#/test>

Word association. Accessed 02-06-22: <https://still-anchorage-15218.herokuapp.com/>

Psychology definition. Accessed 02-06-22: <https://www.etymonline.com/word/psychology>

Myers-Briggs Type Indicator Personality test. Accessed 02-06-22: <https://www.16personalities.com/>

¹ u/WindhorseRider:

https://www.reddit.com/r/colorpie/comments/rr79u8/why_are_fish_and_other_nonsentient_animals_blue/hqfrsu4/?context=3

² <https://www.etymonline.com/word/psychology>

³ Bartle.

⁴ Ibidem.

⁵ Ibidem.

⁶ Yee, 2007.

⁷ Ibidem.

⁸ Graham.

⁹ Yee, 2007.

¹⁰ Demetrovics.

¹¹ Cowley.

¹² Mora.

¹³ Kartsanis.

¹⁴ Canossa.

¹⁵ Yee, 2011: 753.

¹⁶ Ibidem.

¹⁷ Yee, 2011.

¹⁸ Yee, 2011: 761.

¹⁹ Yee, 2011.

²⁰ Bildtgård.

²¹ Bean.

²² Lankveld.

²³ Bateman.

²⁴ Butler.

²⁵ Butler.

²⁶ McCord.

²⁷ Haizel.

²⁸ Zulkifly.

²⁹ Navarro.

³⁰ Navarro: 60-61.

³¹ Stangor: 101.

³² Wizards of the Coast.

³³ Hauser: 56-58.

³⁴ Rosewater: <https://magic.wizards.com/en/articles/archive/making-magic/true-blue-revisited-2015-07-20>

³⁵ Rosewater: <https://magic.wizards.com/en/articles/archive/making-magic/black-revisited-2015-07-27>

³⁶ Hunicke.

³⁷ Hauser.

³⁸ Rosewater: <https://magic.wizards.com/en/articles/archive/making-magic/timmy-johnny-and-spike-2013-12-03>

³⁹ Sabien: <https://humanparts.medium.com/the-mtg-color-wheel-c9700a7cf36d>

⁴⁰ Ibidem.

⁴¹ Ibidem.

⁴² Ibidem.

⁴³ <https://www.reddit.com/r/colorpie/>

⁴⁴ u/firemind: https://www.reddit.com/r/colorpie/comments/j3m52o/you_and_your_color_guidance_for_potential/

⁴⁵ <https://dysbulic.github.io/5-color-radar/#/test>

⁴⁶ Ibidem.

⁴⁷ <https://still-anchorage-15218.herokuapp.com/>

⁴⁸ u/Mucus-Patty: https://www.reddit.com/r/colorpie/comments/obaxpm/color_trial_and_test_masterpost/

⁴⁹ Stefańska.

⁵⁰ Khaleghi: 285.

⁵¹ Lynch.

⁵² Limbert.

⁵³ Crutcher.

⁵⁴ Dodge: 189.

⁵⁵ Hoeken.

⁵⁶ Igartua.

⁵⁷ Sabien: <https://humanparts.medium.com/the-mtg-color-wheel-c9700a7cf36d>

⁵⁸ <https://www.16personalities.com/>

⁵⁹ Yee, 2011.

⁶⁰ Kocadere.