The rebelliousness of the colors: a research on the chromatic palette of the game Persona 5

A rebeldia das cores: uma pesquisa sobre a paleta cromática do jogo Persona 5

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ABSTRACT

The digital gaming market is constantly rising. Thanks to the advance of technology, various possibilities of interaction emerged; the gameplay is not only limited to pushing buttons in a joystick. The games'visual design has become more diverse: avatars created through the use of cameras; ultrarealistic character and scenery design; and a design inspired by cartoons and Pixel Art – a reference from 80s and 90s media. Such as audio-visual creations, the diversity of styles, graphics, and sounds contribute to a level of immersion, aspired by game developers. In this paper, we focused on that immersive dimension, exploring the interdisciplinary fields of Communication, Psychology, and Design. We propose the analysis of the chromatic aspects on the PlayStation game Persona 5, through a framework that was developed by Russell (1980), later adapted by Geslin et al (2016). The purpose of this paper is to use such framework to evaluate the sensations caused by colors, and apply it in the analysis of visual and immersive aspects in digital games, using as corpus the aforementioned game, as well exploring how the idea of rebelliousness is approached.
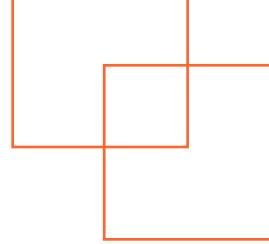
KEYWORDS

RESUMO

O mercado de jogos digitais está em constante crescimento. Graças ao avanço da tecnologia, várias possibilidades de interação surgiram; a jogabilidade não se limita apenas a apertar botões em um joystick. O design visual dos jogos tornou-se mais diversificado: avatares criados com o uso de câmeras; caráter ultrarrealista e design de cenário; e um design inspirado em desenhos animados e Pixel Art - uma referência da mídia dos anos 80 e 90. Tais como criações audiovisuais, a diversidade de estilos, gráficos e sons contribuem para um nível de imersão, almejado por desenvolvedores de jogos. Neste artigo, focamos nessa dimensão imersiva, explorando os campos interdisciplinares da Comunicação, Psicologia e Design. Propomos a análise dos aspectos cromáticos do jogo Persona 5 para PlayStation, por meio de um framework desenvolvido por Russell (1980), posteriormente adaptado por Geslin et al (2016). O objetivo deste artigo é utilizar esse framework para avaliar as sensações causadas pelas cores, e aplicá-lo na análise de aspectos visuais e imersivos em jogos digitais, utilizando como corpus o referido jogo, bem como explorar como a ideia de rebeldia é abordada.

PALAVRAS-CHAVE

INTRODUCTION

2 - Role Playing Game, also known as RPG, is a genre focused on character development whilst the story is developed along with it. (LEE et al, 2014).

3 - Spin-off games are derived from the original game and it contains one or more characters and their archetypes, which are present in the main work. (LEE et al, 2014).
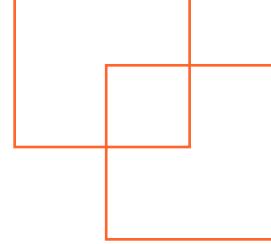
4 - Supernatural entities that, somehow, interfere with human life.

Games and electronic consoles passed through a wide technical and conceptual evolution throughout their history. From the 40s pinball machines to the augmented reality of the present day, several experiments were tested (KENT, 2001). In 1958, we had Tennis for Two, considered by many researchers the first electronic game created; in the 70s was when animation and special effects started being experimented (VELLOSO, 2017); the success of Pong in the 70s was essential for its adaptation to other devices; arcades had their golden age during the late 70s and part of the 80s, since they provided an ambient where the act of playing became part of our lives and economy (ibidem).

Not only did games become part of arcades, but also of the players' houses - this process was leveraged because the television had already been diffused decades ago (ibidem); the popularization of the internet has brought the possibility of playing online with players from all over the world; joysticks were adapted due to specific conditions of a game, thus transforming into cockpits, dance pads, guitars, and sensors that capture motion. Smartphone games emerged in the early 2000s, and soon became popular, once they were not physically limited to a space and offered several free applications. Thus, it is not surprising that the digital gaming market has become vast, given the extensive number possibilities for players[1].

Thanks to this increase, adapting the audiovisual languages to games has become possible. Whilst Pixel Art was the main type of design in the 90s, currently there are games that aspire to design ultrarealistic 3D characters and scenery, and it is frequently seen at racing, first-person shooter, and military fighting games. However, many developers decide to keep the pixelated design style. The motives vary: aesthetic, strong relation to the plot, focus on a specific public (children's games, for example), personal taste, tribute to classic works, and many other reasons. We highlight the cartoon-like design, similar to several animated movies and TV shows.

An example of a game with cartoon-like design is the Shin Megami Tensei series (SMT), a well-known Japanese RPG[2] franchise. With dozens of games already released, it is divided in the original series and several spin-offs[3]. All of them have a common characteristic: the characters summon devils[4] to defeat other devils in order to save humanity from some catastrophe.

The main spin-off series is the Persona franchise, which has become more popular than the original (8,5 millions of sold copies versus 7,2 millions copies of the Shin Megami Tensei - SMT franchise[5]). The first three games from Persona[6] and the SMT franchise have similar gameplay; the main difference is that – instead of devils – the main characters of Persona summon personas in order to defeat shadows, which attack the protagonists. The main characters have to face their own shadow, and only after accepting them as part of their true selves, the shadows transform into personas that fight alongside the protagonists against adversary shadows. We consider there is relation of the personas and shadows in the game with Jung's (apud Frosi & Steffen, 2015) concepts, given that Katsura Hashino, director of the past three games, has confirmed Jung's theory has been studied for the game's script[7].

Starting from Persona 3, the entire game is changed. Now, there is focus on the main character's interpersonal relationships. It is possible to create and strengthen bonds with other characters - and, the stronger the bond is, the more impact it will have in combat. They are called "social links" (in Persona 5, "confidants"). Moreover, the protagonist might need to increase a few characteristics in order to be able to complete a few of these links. These characteristics are named stats. For example, the act of "studying" in game[8] increases the knowledge stat, and, in order to start a conversation with the smartest person in class, the level of knowledge has to be high enough.

It is also from Persona 3 that each story revolves around a specific theme, and all elements of the game - script, gameplay, sound, and design - are also revolved around each theme. In this game (Persona 3), it revolves around "death"; in Persona 4, identity; and in Persona 5, rebelliousness.

In Persona 5, the main characters are a group of teenagers who call themselves the Phantom Thieves, and they fight so that they can "change the heart of distorted minds". They are able to enter an alternative universe called Metaverse. In the Metaverse, there are places named palaces, originated from extremely distorted minds. A palace is destroyed when its treasure is stolen. This treasure represents all the desires of a palace owner, and its theft causes an abrupt change in the behaviour whose had the treasure stolen. The Phantom Thieves look for criminals and people with problematic behaviour; they invade their palaces, steal their treasures in order to make the owners change their behaviour and confess their crimes. It is called a "change of heart".

9 - The valence indicates the level of positivity of an object, element or feeling. A feeling has positive valence when it brings pleasure or any positive sensation for the individual; meanwhile, the one with negative valence brings a negative sensation for the individual. The concept of valence was applied in our process of analysis of the game.
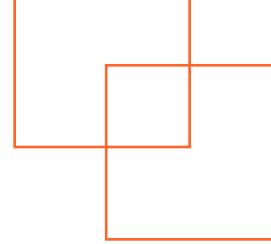
This paper aims to analyse how the idea of rebelliousness is reinforced through the chromatic characteristics in the game Persona 5. First, we defined the rebel in the archetypical concept and exemplified how it is applied in the object of study, supported by Jung (2000), Mark & Pearson (2001), and Aguiar (2018). Furthermore, the studies on the Japanese society are based on the work of Hamai & Ellis (2006), and Johnson (2007). Subsequently, we evidenced concepts related to color theory, with the perspectives of Bornstein (2007), Guimarães (2001), and Pedrosa (1977), besides its application in games, based on Geslin et al (2016), Joosten (2010), Solarski (2017), and Rogers (2010). Finally, taking the methodology of Russell (1980), later adapted by Geslin et al (2016), a case study was applied, aiming at understand the most used colors to create the idea of rebelliousness, which moments had the biggest chromatic highlight, and the valences[9] inherent to the rebelliousness inspired by the colors of the game.

2 THEORY

2.1. The rebel

In this paper, the rebel is analyzed from the archetypic concepts (JUNG, 2000). The archetype is defined as a possibility of representing a creature or object, based on previous experiences. For example, the mentor archetype is imagined to someone older (most likely a wise elder), given previous experiences with characters and people that fit in this archetype. In other words, it is a common demonstration of the depiction of a mentor in cultural manifestations (literature, cinema, visual arts, etc.). Jung (ibid) complements that the archetype is defined by the form, not the content. That means the opinions, characteristics and actions of an individual are not the most important point; in fact, it is the way these are transmitted or executed.

The use of archetypes is a common strategy in storytelling, as pre-established ideas are used to easily identify a moment or a person (HORAK, 2011). According to Mark and Pearson (2001), the archetypes to be highlighted are the hero, the outlaw, and the magician, because they all had an objective in common: to position themselves against a reality with negative impact. Whilst the hero is known for saving the world, the outlaw defies rules, norms and habits due to several reasons, and the magical is the catalyst of the transformations. The main difference between the hero and the outlaw is that "whereas Heroes identify with their community, outlaws feel deeply estranged from it" (MARK & PEAR-

SON, 2001, p. 124).

A closer archetype for the rebel is the "outlaw", wich, according to Mark and Pearson (2001), is not the same as rebel, because

> if the rebel is merely operating in an individualistic way, we are seeing the Explorer at work. But if the rebel is ready to break convention or the law, then it is carrying the archetype of the Outlaw." (MARK & PEARSON, 2001, p. 128-129).

The outlaw can be seen as a villain, a revolutionary, an enemy, a misfit, an iconoclast or a rebel. The impact of the outlaw depends on how the character is constructed. Mark and Pearson (ibid) give three examples: Robin Hood (from the homonymous book) is the outlaw with positive figure because he helps the peasants; Thelma and Louise (from the homonymous movie) are neutral figures as they need to rebel to survive; Darth Vader (Star Wars) is the negative figure that corrupted himself when he achieved power, and started to oppress whoever opposed his ideals. The authors define Vader as the "shadow of the archetype". Shadow, in this case, refers to Jung's definition (2000), of being one's repressed part that is avoided to being exposed.

2.2. The chromatic universe

Colors are formed and perceived due to physical phenomenon. The light is made of waves with different lengths. The colors are the result of the absorption or reflection of varied wavelengths when they interact with objects that emit or reflect light (HEWITT, 2002). In the field of communication, Guimarães (2001, pp. 15-16) define color as one of the elements of the visual syntax language, and the visual language as one of the diverse codes of human communication.

It is no surprise that the color is part of the lexicon of a language - for example, idioms like "to feel blue" to express that one is sad (STEINVAL in BORNSTEIN, 2007) –, and many times the colors are distinctly categorized based on a language or culture (BORNSTEIN, 2007). In Brazil, there is the expression "tudo azul", which means that everything is great. It is the opposite interpretation compared to the USA, where the musical genre "blues" has that name due to the inspiration in sad and melancholic lyrics and melodies.

According to Pedrosa (1977), every color has characteristics to differ

from one another. The most important ones (for this paper) are hue, saturation and lightness. Hue corresponds to the dominant wavelength. The wavelength of a red light is distinct from the one of a green light, therefore, both hues are distinct. The saturation determines the purity and the amount of white light mixed to the hue. The more vibrant the color is, the more saturated it is – it is what differ the vibrant tones from pastel tones. Lightness defines the brightness of a color. The higher the value, the brighter the color, whilst the lower value means a color is darker. It is what differs the "light green" from "dark green" (see Figure 1).

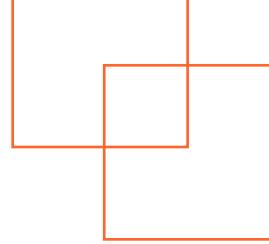Figure 1 - Colors with distinct hue, saturation and lightness, respectively

Source: Personal archive.

The color, as an element of ambience, has, along with the narrative, the objective of generate feelings in its spectator (GESLIN et al, 2016). In electronic games, it is better observed when the work is focused on storytelling. Solarski (2017) affirms that these games

> are essentially an accumulation of traditional artistic disciplines (visual art, scriptwriting, cinematography, music, animation and physical performance) orchestrated through game design. (SOLARSKI, 2017, p. xxiii).

Games are capable of stimulate feelings in the players, through narrative elements (story, character development) or audiovisual ones (graphics and sound). There is no defined rule on how to trigger a specific emotion, as the same moment in a game can prompt different emotions

on different people (ROGERS, 2010). In general, the most stimulated emotions are fear, anger, relaxing, pleasure, happiness and depression (JOOSTEN et al, 2010). Furthermore, there is the understanding that alter the saturation, brightness, contrast or temperature of a color in a game, it is triggered a change of the player's feelings (NASR et al, 2006, apud JOOSTEN et al, 2010).

Not only does the use of colors in a game evoke emotions, it is also used to highlight an element via contrast. For example, if there is a colored object amidst a black & white environment, the player will be more alert, because it is an indication that such object is important in the journey. It can also be applied to scenery. If there is a contrast between a vibrant, colorful city and a pastel, desaturated city, it is expected that the function of both cities is distinct (SOLARSKI, 2017). Sometimes, the scenery change happens in the lighting. It is not surprising that horror games have a darker color palette; an ambience with less saturation and less brightness evoke the feeling of fear, mystery, and suspense (GESLIN et al, 2016).
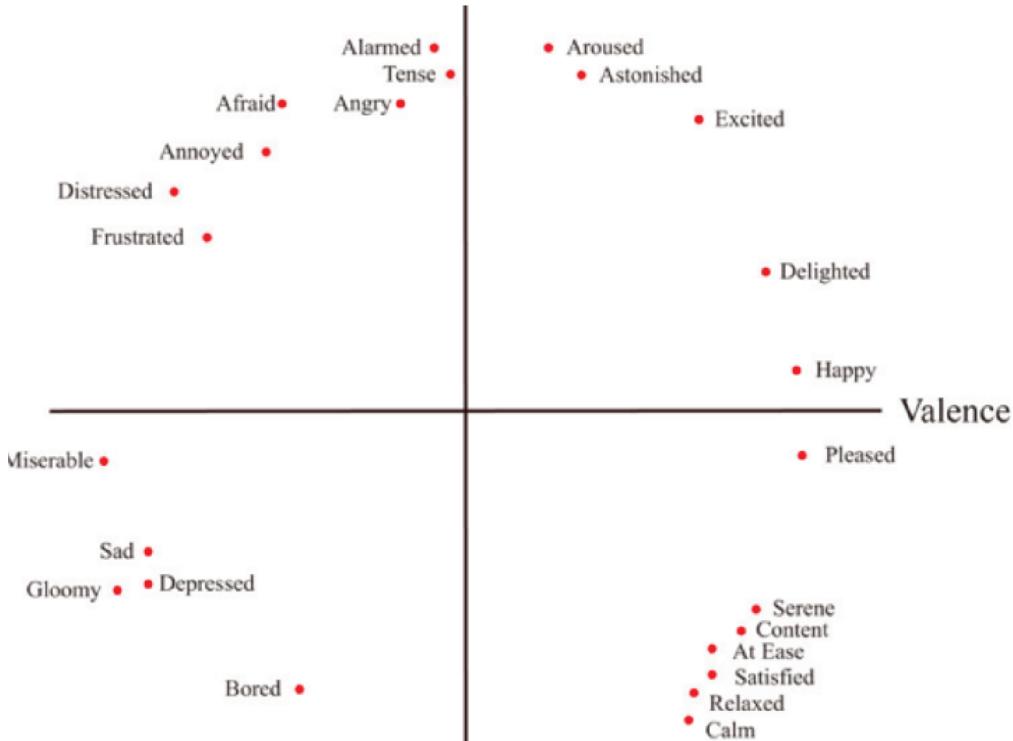
The interpretation of colors in games might not necessarily be the same to all players. However, it will not hinder the work to transmit the desired message:

> "Many studies have shown that the influence of colors can be affected by age and sex, as well as nationality and cultural backgrounds. However, studies also showed that, regardless of ethnic and geographical origin, humans experience some common emotions when faced with the same colors" (GESLIN et al, 2016, p. 7).

4 METHODOLOGY

In this paper, we are based on a case study of the game Persona 5 (available on the platforms PlayStation 3 and PlayStation 4), and on the adoption of the framework "A Circumplex Model of Affect", from Russell (1980) (Figure 2). We used the adapted version of aforementioned framework, adapted by Geslin et al (2016) (Figure 3) in order to better evaluate the stimulation in video games.

Figure 2 – Circumplex Model of Affect

100

Source: RUSSELL, 1980.

Russell's framework aims at categorizing emotions of the observer facing determined situation or object. His hypothesis is that emotional states can be divided in a two-dimensional space, and every feeling has a specific place inside the so called circumplex. The model is used by professionals and researchers in order to map emotions, conduce self-assessments, and compare the positions between the reactions one has.

In Figure 2, the author divide 28 emotions into four quadrants according to the following axes: on the horizontal axis, it is evaluated the valence, whilst the vertical axis is destined to arousal. The aroused measures the intensity of a feeling (is it something that affects or causes a lot of impact on an individual?); the valence finds out if the feeling is pleasant (does it make the individual feel good or bad?) (YOON & WISE, 2014). For example, someone angered has high arousal, as it is an intense feeling, but the valence is at the negative quadrant.
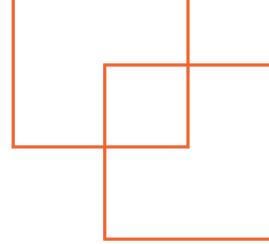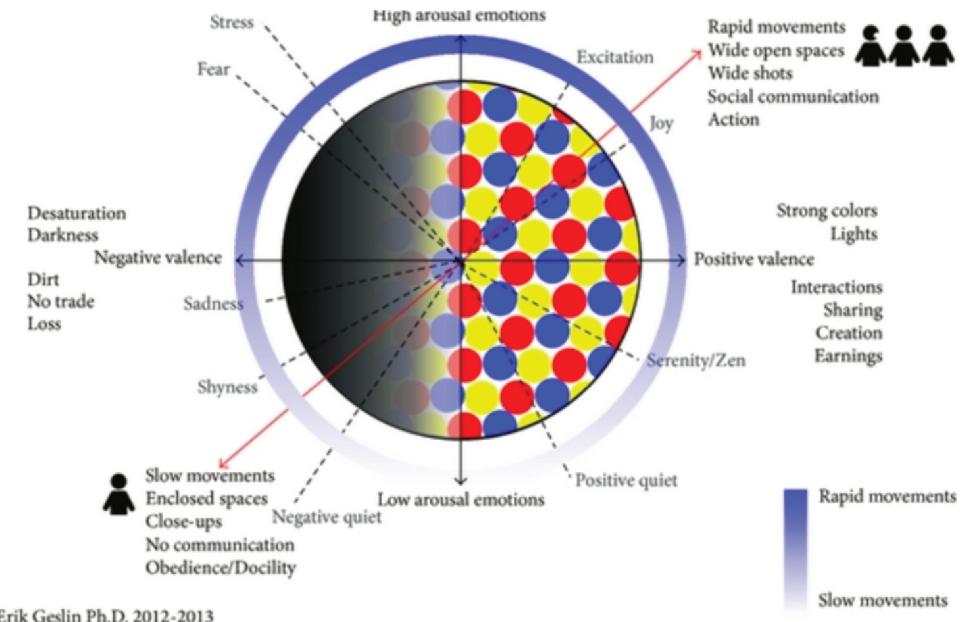
Figure 3 - Model of Geslin et al.
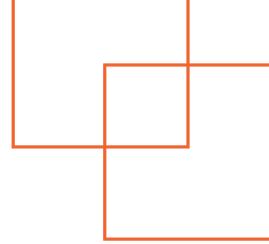

Source: GESLIN et al, 2016

In our paper, we evaluate the chromatic composition of frames extracted from the game Persona 5, in consonance with the informations generated by the resource "Histogram", on Adobe Photoshop CC 2020, after being opened on the software (see following Figures – 9 to 12, and 14 to 23).

4. CASE STUDY

4.1. The rebelliousness in Persona 5

In Persona 5, such as in Persona 3 and 4, it is perceived the use of archetypes, which are also part of Jungian's studies (JUNG, 2000). Such archetypes were investigated by Aguiar (2018), especially the "Outlaw". The presence of the "Outlaw" archetype can be identified in several moments of the game in study, in various ways - composition of characters, scenery, etc. We focus on two of the following main examples:

4.1.1. The rebel Outlaw, when taking off the mask

When summoning a persona for the first time, all the members of the Phantom Thieves have to rebel against some imposition against them. Then, after the rebellion, they feel pain; a mask appears in their faces, and it must be taken off so that the persona can finally awaken.

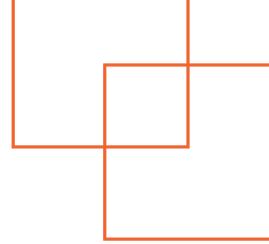Figures 4 and 5 - Character taking off his mask

Source: Frame taken from a walkthrough[10]

The mask, in this case, is a literal representation of the persona: when taken off (figures 4 and 5), it disrupts any relation previously had with the collective psique, in other words, the collective values of a place (JUNG, 2008). The struggle of taking off the mask and blood that shed hereafter represent the resistance of distancing themselves of such psique and the values imposed to them. It is also as a "reaction" to the values of such collective psique they disagree with. For example, a person can feel isolated in a community for being considered different, strange, which leads to not being accepted by anyone. We understand the blood as the representation of the pain they had when judged and humiliated by other members in the collective psique. Arsene just appears after the mask is taken off, because he becomes "free"[11].

4.1.2. The rebel outlaw, when the protagonist is arrested

The story of Persona 5 is told through the perspective of the protagonist (whose name is chosen by the player), and it starts in the middle of a mission. The reasons are rather unknown; all it is needed to do at that point is to escape from where they are. The character is arrested, taken to a prison, where he converses with a prosecutor about what has happening until that moment. At first, the game is narrated with the use of a resource called in media res (ABBOTT, 2008), in which the story starts from the middle, and the context of the previous facts to such start is told via flashbacks or via the perspective of other characters. It is important to highlight that, in the beginning of the game, it is already known that the main character (a Japanese teenager student) has a criminal record and, when he is arrested, this detail is remembered several times.

The young man is unfairly arrested (figure 6) for trying to save a woman from a drunk man. The wrongdoer is an extremely influential, and not only is he exempt of his accusations, he also pins the blame on the teenager, which ended up being found guilty. However, the innocence of the protagonist is not defended by the ones around him. As he is someone with a "criminal record", even if it is an unfair one, he is judged as delinquent, no matter the facts, evidence, arguments, or any other information that refutes the accusation.
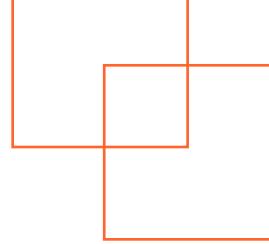
Figure 6 – Prison in Persona 5

Source: Youtube[12]

On probation, the protagonist moves to Tokyo. If he doesn't break any rules for a year, his sentence will be served. During this period, a friend of his family, Sojiro Sakura, becomes his guardian. The next day after his arrival, Sojiro enrolls the student in an acclaimed school, named Shujin Academy. The tutor perceives the hostility and intolerance the protagonist is treated.

It is possible to draw analogies between the behavior of the game's characters and the one of Japanese people. Even though Japan is one of the safest countries in the world[13], the constant mediatic coverage of violent cases brought, to the Japanese, insecurity and lack of trust about the authorities (HAMAI & ELLIS, 2006). The reaction of the school's faculty by treating the protagonist badly is a reflex of their fears and insecurities, for not being comfortable around a "criminal". Moreover, the Japanese Law became stricter to the youth by virtue of the rise of homicide´s cases done by people between ten and fifteen years-old (JOHNSON, 2007). Although the crime of aggression is not considered one of the most se-

15 - In the histogram, done at Photoshop CC 2020, the left side represent the dark tones; and on the right side, there is more luminosity. In the figures presented along with the histogram's graphics, the luminosity (or lack thereof) is grasped, as the peaks represented by the RGB channels (Red, Green, Blue) are closer to the left side (less light) or the right side (more light).

rious offenses (homicide, hold-ups, rape and arson) (JOHNSON, 2007), the Japanese society is extremely punitive when it comes to criminals, and, according to the 2000's ICVS[14], 48% of the population believes that prison is the best solution in order to reduce criminality rates among the youth (HAMAI & ELLIS, 2006), instead of the probation the main character is facing.
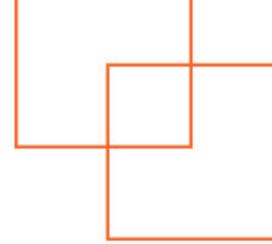
As the story develops, other characters stop seeing the protagonist as a criminal (AGUIAR, 2018), because is not seen committing any wrongdoings over the course of the game. In reality, his classmates start questioning if he really is a delinquent.

4.2. Analysis of the object

The main places of Persona 5 are the city of Tokyo and the alternative universe – the Metaverse. The first picture (figure 7) was taken from the protagonist's bedroom, at the attic of Sojiro's curry shop. It is a dark space, with not much lighting and not many colors, and it stays the same throughout the game. In the best case, it is possible to decorate the place with a few items acquired during the game. Nevertheless, the tones stay mostly yellowy and desaturated, which sets the frame on the quadrant of negative valence and arousal.
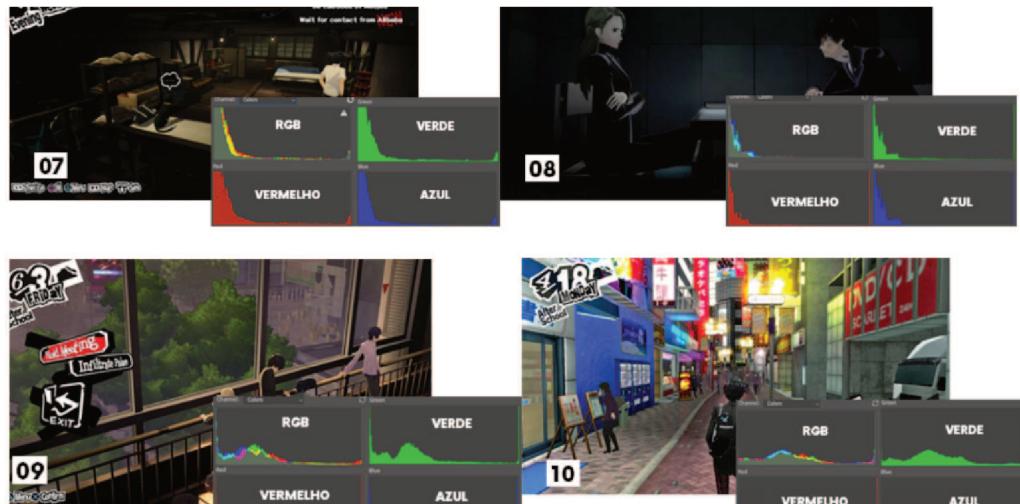
In the second picture (figure 8), the main character is talking with the prosecutor, Sae Niijima, in the prison - a reoccurring transition scene throughout the story. As figure 7, the ambience is made of low luminosity and desaturated tones. However, it differs from the former because the scenery is "colder", due to the blueness that is predominant (in contrast with the yellow in figure 7). Furthermore, the latter is darker, as the colors are more concentrated on the left side in the histogram[15]. The valence is still negative, but the arousal increases.

The third and fourth pictures (figures 9 and 10) were taken in different points of the city. Both have significantly more lighting than the previous examples, and also a more varied color scheme. That being said, the yellowy tones in the third picture (where the protagonist meet his friends) give a calmer impression than the fourth picture (where the protagonist walks through Shibuya's shops). The latter is inevitably more chromatically chaotic, since it is a place with several shops with distinct fronts and signs. In Figure 10, there are way fewer dark tones, especially when it is compared to Figures 7 and 8. Both Figures 9 and 10 have posi-

tive valence, but the latter has the biggest arousal of all pictures shown until now.

Figures 7 to 10 – Tokyo's Scenery

Source: Personal Archive. Pictures and their histograms.

The palaces (figures 12 to 19) come from disparate minds, so their ambience differ from one another, with varied scenery in each one of them. In all of them, there is strong presence of red tones. Part of these comes from the menu, on the top right corner. The first and the three last pictures (figures 12, 17, 18, and 19) are the ones with the most red in them.

Joosten (2010) affirms that the emotions with the highest level of arousal are surprise, fear, happiness and anger. Therefore, they appear frequently in games. Plutchik (2001, apud Joosten, 2010) created a table relating colors to emotions, in which the red represented anger.

Figure 11 - Plutchik's table

Emotion	Color
Surprise	*Light blue*
Fear	*Dark green*
Acceptance	Light green
Joy	*Yellow*
Anticipation	Orange
Anger	*Red*
Disgust	Purple
Sadness	Dark blue

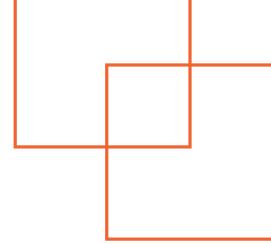Source: JOOSTEN, et al. Colors and Emotions in Video Games. 2010.

According to Joosten (2010), when comparing the colors writhed in italic (Figure 11), the author concluded that the red was the one with the highest arousal among all colors, but its valence was significantly lower than the others. Thus, the pictures would be distributed in both quadrants of high arousal.
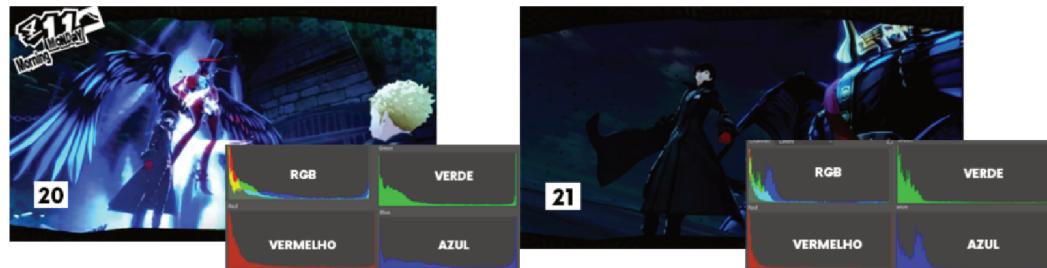
Figures 12 to 19 - Metaverse's scenery

Source: Personal Archive. Using the Histogram tool on Adobe Photoshop to obtain the maps.

Now, we are going to focus on two moments in the game: the awakening of the main character's personas[16]. Throughout the game, the main

character awakens two personas: at the beginning, Arsene (figure 20); and Satanael, at the end (figure 21).

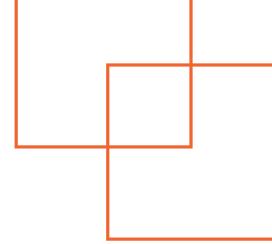Figures 20 and 21 - The protagonist's awakenings

Source: Personal Archive. Using the Histogram tool on Adobe Photoshop to obtain the maps.

In both cases, there is predominance of blue tones, which represents the summoning of Arsene and Satanael, and it can be better seen in figure 20, with the blue fire behind the main character. Still, it is possible to notice details in red, for example in the protagonist's gloves or in the personas: Arsene's boots (winged persona) and Satanael's sash.

Red is a color that can evoke opposite meanings to distinct objects. It is believed that it is a color that is highlighted and can be seen as more aggressive when compared to others, as it is at the limit of visible colors to the human eye (GUIMARÃES, 2001). The same author considers that red can represent violence, death and war, but also love and passion; it even gives the read the meaning of imposition, which is exemplified by Guimarães as the red carpet in celebrity events (such as Oscar) and in the red card of soccer referees. Both display power: whether it's the celebrity's (who is privileged enough to walk through the carpet), or the referees' (who determine the limits of legal actions on the field, imposed by the rules).

In Persona 5, imposition is a vital subject: the character can only awaken their personas when they impose against adults and orders, they believe to be unjust or inadequate. The Phantom Thieves impose against society, because they judge that they don't seem to fight for change. This way, they feel obliged to start the change themselves. The confidants - friends whom the protagonist establish strong bonds, only maximize when the secondary characters also impose against some obstacle in their lives. We conclude that the strong predominance of the red color
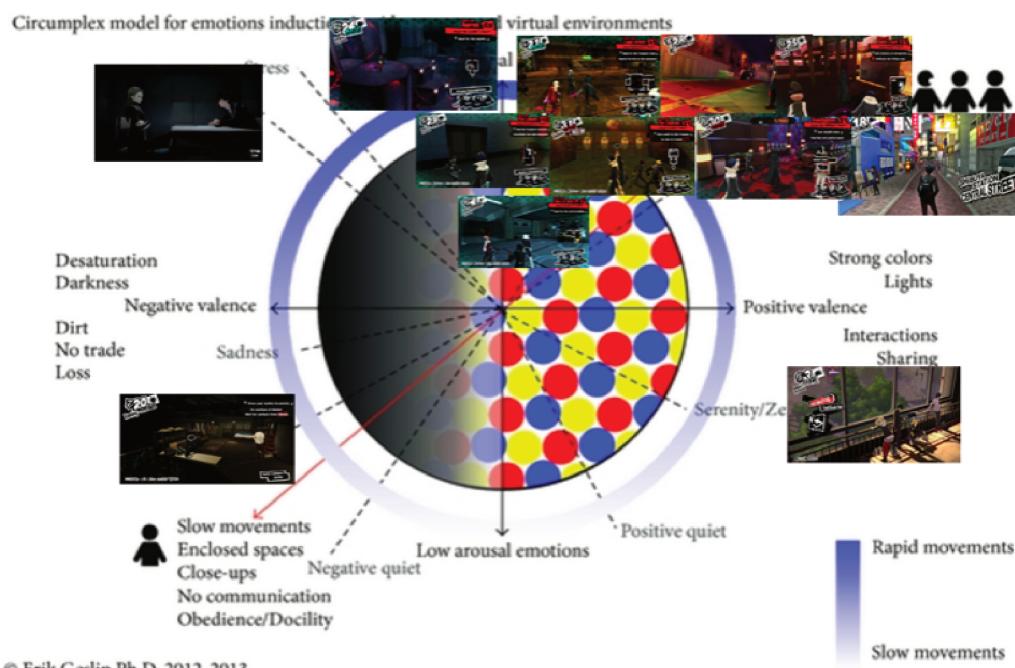
in the game intends to reinforce the idea of opposition and necessity of cultural transformation.

5 CONCLUSION

After comparing the pictures, it is noticed that all of them have strong presence of read, but in different levels. Most of the sceneries have more vibrant scenes, but some presented low luminosity. Thus, the valence is, in general, variable. However, the level of arousal is, most of the times, positive. After distributing them in the framework of Russell (1980) - adapted by Geslin et al (2016), we divided them among the following emotions: annoyed, afraid, angry, tense, alarmed, aroused, astonished, and excited.

Figure 22 - Sceneries of Persona 5 distributed in the model of Geslin et al

Source: Personal Archive. Using the Histogram tool on Adobe Photoshop to obtain the maps.

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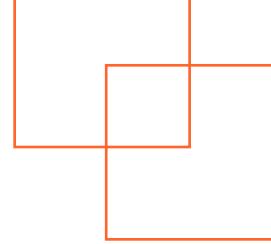
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