Pay to Play: Understanding Gamer's Motivation through Semantic Analysis

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ABSTRACT

Understanding what motivates a gamer to pay to play a game could enhance the gaming industry. One of the ways to understand game players experiences is through exploration via their text communication. This study explores text communication posted on the Steam digital distribution platform on paid-play games. A total of 7255 gamer text communicated were collected and analysed. Reviews from the past pinpointed that elements such as social influence, entertaining features, graphic design, music, and soundtrack used in the game could influence the game playing experience. To study those, we use mix-method (qualitative and quantitative) methods to analyse the data. We invite three human coders to categorise statements associating with its elements and aspects. Next, with the aid of Wmatrix, a semantic analysis system, we tabulate and elaborate the emotion words associating with the gameplay elements. The result shows that the positive feeling of love and joy highly encourages the gamer's overall game playing experience. Elements such as the storyline, design of the Avatar and the entertaining features are the primary motivation of the gameplay.

CCS CONCEPTS

• **Information systems**; • **Information systems applications**; • **Collaborative and social computing systems and tools**; • **Social networking sites**;

KEYWORDS

Text analysis, semantic analysis, motivation, game playing

1 INTRODUCTION

The gaming industry is growing over the years, and it is considered an important asset for the economy in some countries [1]. Games

have become the fastest growing and most significant form in human creation and the world's largest entertainment medium across a variety of demographic groups, particularly youths [2]. Gaming sector is growing enormously as gamers have been willing to pay real money for objects within the games since the late 1990s [3]. Available evidence shows that game players tend to stay monetised and to pay willingly for In-App purchases. Not only with the reason to continue their gameplay but also to access additional game content, expedited in-game progress, customisation options, obtaining rare items, and purchasing gifts for other users [4].

Primarily, video games came with a pay-to-play concept in which customers were required to pay a one-time amount to play the game at the game arcade [5]. Eventually, micro-transaction becomes a payment method for subsequent video games as it is easier to charge the customer smaller amounts several times than a significant amount at one time [6]. Micro-transactions denote payments for purchasing applications for mobile phones or costs for purchasing the additional content for video games [6]. Other content for a game can be extra gear for the warriors, more powerful guys, unique avatars, etc. One of the reason gamers pay for micro-transactions: to power-ups and receive unique in-game items in different virtual currency to get ahead of other players [7].

Game industries develop games with the primary intention to encompasses the following factors: fun to play, entertaining, providing surprises, challenging, providing aesthetically pleasing experiences, supporting social connectedness, and allowing the player to identify with the game [10]. The essential feature of video games is interactivity, in which 'video games are designed for players to engage with their systems actively and for these systems too, in turn, react to players' agentive behaviours' [11]. These video game companies invested a significant amount of time and money in user experience design. They worked with end-users to maximise the gameplay experience, which affects the entire game experience [12].

We investigate factors that influence gamers to keep paying for games. We collected the text communicated for video games such as Ni No Kuni 2, Doom, Monster Hunter World, Subnautica, Dead cells, and Celeste were collected for sample analysis. There are top 6 paid games at that time of this study. From the past literature, factors such as social influence, entertaining features, graphic design, music selection, price and the storyline were study and associate semantically throughout the content of the text. Additionally, the continent-wise comparison was also performed to see if any differentiation in the influences within the countries. By exploring the fine-grained text [13] and the value of emotional expression [14], this study offers a different way of understanding gamer's experiences. Hence, the present qualitative study, with the aid of

semantic analytical tools, aims to discover through text, "What are the elements that motivate gamers to pay to play?" And "If there is any different emotions expressed among the gamers for different game play."

2 LITERATURE REVIEW

From the past studies, the common reasons for paying for gameplay include increasing an individual's enjoyment, sustaining a particular offer, getting ahead in the game, an impulse decision to continue game level or purchasing gifts for friends [4]. Study [9] also shows that virtual items commonly purchased include exclusive items, extra functions to achieve higher social appeal or game collectability. Study [7] also claimed that free games impacted paid gaming, impacting player self-recognition, player perspectives regarding game consumption, player attitudes toward game communities, and the relationship between access and inequality.

2.1 Pay to Play

In the study of [15] from 606 respondents, gamers responded that game factors such as the challenge, diversion, fun, level of fantasy, and social interaction involvement make them play the game. The intention to play has a high degree of influence on the intention to pay. Thus, it should be emphasised that the current freemium strategy, a combination of "free" and "premium", is an efficient offer to stimulate pay-to-play intention. As video game expands, some people have created new ways to earn money by selling virtual goods to players to enhance their gameplay. However, this method is not considered a microtransaction as the game companies are not involved and only occurs between the players via "black markets" [7]. Hence, earning money can be another way of pay to play intention.

2.2 Entertainment and Price

Will game designers intentionally make a game less fun to play to those who play the free version? Leveraging within the entertaining level can be a primary strategy in the game industry. Compared to those who pay to get ahead in the game and those who share the same content as the other players, will a gamer pay if they know that they will be winning and, hence, more entertaining if they pay for a specific feature that a free player does not have? Study [16] have pinpointed that social factors have positively impacted the flow experience of the gamers. In other words, this could be one of the reasons that could increase the purchase intention. This analysis proves that there is an associate relationship between the entertainment level and the price perception.

2.3 Social Interaction and Storyline

The social aspect is also one of the reasons to pay. Social interaction positively impacts people's continuing to play and pay [17]. This idea is reasonable because through playing games, especially live online, interaction occurs between the players, and players could interact through online communication/text conversation. It also allows players to obtain more information and interact with other players. And for those that sell the item to earn money through game playing, social interaction comes as the first criterion. Hence, the chat room has become a primary element for the game designer.

The study [18] also stated that one of the important factors when making pre-purchase considerations is the interest of the storyline and the main character. Hence, the storyline can also be one of the reasons in paying to play a game.

2.4 Emotions

Playing a game can trigger different levels of the emotional stage. It includes emotional context such as power and dominance, aggression, nurturance, anxiety, pain, loss, growth, and joy [19]. Studies [20], [11],[21] have shown a causal relation between playing video games and improving mood or increased positive emotion. Players can feel positive emotions such as excitement, happiness, pleasure, relaxation, peace and calm. And play can also feel negative emotions such as annoy, angry, nervous, sad, bored and sleepy [22]. These emotional changes are expressed through their voice conversation or the expression in the text. Able to observing this dynamic stage could lead us to study which emotion has dominant in paid games.

According to several studies [7], [9], [23], the longer the amount of time spent playing video games, the more the player is emotionally and psychologically invested in the game. And this has also supported the idea in [10] that the video game industry promotes emotional communication via improving the interaction between players and video games. Video games do not only produce positive emotions; they also cause a range of negative emotions such as frustration, anger, anxiety, and sadness [11]. Video games players can become emotionally attached to a game character, the world of Avatar and the virtual items [9]. Gamers' emotional attachment to an avatar increased. The likelihood of spending real money on virtual items will also increase. This shows that emotional attachment can influence and be influenced by spending' on video games. From the discussion above, it is evident that there is a dynamic element in the gaming process.

To better understand the association between the gamers emotion and the elements played, a designer needs to understand what could trigger a better experience [24]. Reports stated that a higher percentage of positive emotions such as fun, happiness, and laughter leads to the team, friend, or mates during the gameplay [25]. Gamers tend to experience higher emotional investment in video games than real-life experience [26]. Moral disengagement of a parent can play a partial mediating role between video games' exposure and adolescent aggression; anger and hostility played a partial mediating role between violent video games' exposure and physical attack [27]. Likewise, even though there is a negative effect in playing the violent game, they were still gamers willing to invite themselves into such a gaming environment [26]. In this case, to encourage a positive community, data scientist and game designer should play a vital role in understating those scenarios in improving a better gaming experience.

3 METHODOLOGY

To understand the elements that motivate gamers to pay to play; and to find out if there are any different emotions expressed among the gamers for different gameplay, we have performed the following steps.

Table 1: Positive and Negative emotional tags

Positive	Negative
General (E1+)	General (E1-)
Liking (E2+)	Dislike (E2-)
Calm (E3+)	Angry (E3-)
Happy (E4+)	Sad (E4-)
Brave (E5+)	Shock (E5-)
Confident (E6+)	Concern (E6-)

3.1 Data Collection

A total of 7255 game reviews were collected from six top paid video games, including Ni No Kuni 2, Doom, Monster Hunter World, Sub Nautica, Dead cells and Celeste. All the reviews are analysed. Those games were top paid video games at the moment of the data collection. There are 3153 of these reviews that has a geographical location from the poster. We organised our statement based on grouping these geographical locations into each with each group's total number of reviews to a respective continent. They are those groups from Africa (84), Antarctica (6), Asia (280), Europe (973), North America (1498), Oceania (237), South America (75), and a group without location (4102).

3.2 Human Coder/Analysis

Six elements such as social interaction, entertainment features, design features, music element, price of the game and the game storyline [1], [7], [16], [28]- [29] were used as our guideline to explore the player discussion. Using the qualitative method, 3 different human coders with at least 5 years of game playing experience were invited to help in the labelling process. They task was to label each of the conversations regarding the aspect of the area of the conversation. One frequency will be added to each bracket manually each time they associate a statement with the elements.

3.3 Emotion Analysis

As for the emotional expressions, Wmatrix [30], a semantic analysis tool, extracted the emotional words. Table 1 shows all the 12 categories of the positive and negative emotions tags.

Each emotion has its tag to show the six levels of different intensities (1+ to 6+ and 1- to 6-) of a represented emotional word used in the text conversation. For example, Angry (E3-), come with the intensity of negative emotion, and in stage -3, it contains words such as hot-headed, brutal, tough, violence, etc. The grouping of the emotional word is discussed in [28].

4 RESULTS

This section presents the analysis of factors on what motivates gamers to pay to play and focuses on the elements that were discussed categorised in different seven continents and those without country origin.

4.1 Payment Factors' Analysis

Table 2 presents the number of frequencies labelled by a human for each statement. It is grouped based on the country of the statement poster. All statements except group Antarctica are consistently labelled with entertainment and design as the two most emphasised elements. However, the lack of communication text for anlaysis from Antarctica and the rest of the continent could also be due to the lack of reviews poster from that country.

For the rest of the elements such as music, story, social and price, some continents emphasised certain elements more than the others. For example, the music element is the third most emphasised element for most continents except for reviews from Antarctica, Africa and Oceania. In contrast, the story element is the fourth most prioritised element for most continents except for reviews from Oceania, Asia and Antarctica. The difference in the number of times the storyline element was emphasised over the music element in Oceania is very little at a frequency of 36. There is only a slight preference over the others. The same can be said with the reviews from Asia, which emphasised the social element a little bit more than the storyline element, with a frequency of 30. However, this might not be the case for Africa, as the music element is the fifth most influential element instead of the third. However, this could also be since the number of reviews can also be insufficient compared to the others. The results might be different if there were more reviews. Nevertheless, that can be due to a difference in the opinion of the people from different continents when deciding to pay for a video game. From that, it can be seen that to ensure a video game is sold well globally, video game companies should take advantage of the two main elements: the entertainment and design elements as they are consistent in being the most influential throughout for the most of the continents.

4.2 Elements Analysis

Table 2 also shows that the entertainment categorisation of statements is the most emphasised among all the elements. In the reviews 2241 categorised in the entertaining element, the "like challenging games" statement is the most common phrase used in conjunction with the statement "challenging difficult". Many of these gamers have urged others to play this game if they are into challenging games. They also compared these games to other challenging games and mentioned that the challenging factor makes it satisfying to play. The statement "like the gameplay" is the most common phrase associated with this element at the frequency of 1771. Most of the reviews from this statement have associated liking the gameplay with a paid games' mechanics and combat. If a game has a good combat system and mechanics the players can use, they show like in the gameplay. Whereas for the "didn't like the gameplay" statement, there are no common phrases in this statement. However, gamers mentioned that the combat is way too simple and wished it would get more content. Additionally, they noted that these paid games are fun at first, but the gameplay gets repetitive. A few recommended adding more content and making it more complicated.

The common use phrase for *design* element is the statement associated with the "Graphics", including the environment and the creature designed. There has been 163 statement associate with the liking of weapon/armour, 379 associate the art is amazing, 1015 likes the graphic, 33 thinks the graphics are bad ,163 thinks the environment is beautiful and 78 relate their statement with creature designs/variation. The reviewers have mentioned that they like the

Table 2: number of frequencies labelled by a human for each statement Group by country

Elements	Relevant Statements	No Country	Africa	Antarctica	Asia	Europe	North America	Oceania	South America	Total
Entertainment	Like challenging games	221	5	0	14	65	67	16	6	394
	Like the gameplay	1001	22	0	66	250	365	50	17	1771
	Didn't like gameplay	40	0	0	5	10	18	3	0	76
Design	Likesthe weapon/armour	93	4	0	6	19	37	3	1	163
	Art is amazing	217	3	1	9	49	79	17	4	379
	Graphicsare good/beautiful	572	11	1	32	148	214	28	9	1015
	Graphics are bad	18	1	0	4	2	5	1	2	33
	Beautiful environment	87	1	0	5	17	44	6	3	163
	Likes the creature designs/variation	45	0	0	1	5	20	5	2	78
Music	Music is amazing	224	4	0	13	50	83	13	6	393
	Great Soundtrack	315	5	2	18	81	96	13	5	535
	Audio is good	89	1	1	9	22	33	10	2	167
Storyline	Like the story	508	10	1	30	119	179	36	6	889
	Story is boring	58	1	0	5	10	24	4	3	105
Price	Worth the price	266	11	0	19	51	110	8	4	469
	Not worth it	49	3	0	7	8	22	3	2	94
Social	Can't play together with people	210	1	0	16	48	80	18	2	375
	Play with friend	89	1	0	1	19	22	3	1	156
Total:		4102	84	6	280	973	1498	237	75	7255

variety of weapon designs in these games. They further explained that the weapons look nice, and each weapon offers a different playstyle, which makes changing them up is very fun when fighting with enemies. As for the reviews in "Art is amazing", the most common phrase in this statement Is "beautiful art". Many reviewers have responded that they liked the artwork of these games as they boost the other aspects of the game such as the story, atmosphere, soundtrack and gameplay. Some have also mentioned that they have liked the art style from a certain studio. As for the reviews in "Graphics are good/beautiful", the most common phrase in this statement is "beautiful graphics". Similarly, most reviews have said that the graphics help boost the game's atmosphere and story. As for the reviews in "Graphics are bad", the number of reviews is the lowest.

Three hundred ninety-three statements associate that the *music* is amazing, 535 thinks the soundtrack is great and 167 thinks the audio is good. In the reviews categorised in the "Music is amazing". The reviewers who used this phrase have mentioned that the music in a game is great as it matches the portrayed art. They have also said that the music helps to calm them down when the players are frustrated because of losing while playing the game. The statement also emphasises that they have bought the game solely for the soundtrack but decided to stay for other aspects later on. They have also recommended the game to others who want a good soundtrack.

Some reviews stated that the soundtrack also boosts the gameplay and graphical styles of the game.

The *storyline* element is also one of the aspects of the chosen paid games, with 994 reviews talking about the story. The most common phrase used for the statement "likes the story" is "interesting story". For the Celeste game, the gamers mentioned that stories are sometimes relatable to them. That makes them feel emotional. For other games, reviews showed that the story and the atmosphere make the game good. Also, some mentioned that the story is the reason they keep coming back to play the game. As for the reviews in "decent story" stated that the story is not good but not bad enough to be boring. Others said that the story is not the central part of the game, and they only paid the game for its gameplay. Moreover, other reasons could be that the story is nothing special and pretty standard. For "story is boring", there are no common phrases found. However, the reviews from that statement mentioned that gamers do not like the story because they are less challenging, not exciting and not meaningful. A lot have noted that these stories are very cliché, and they are the worst part of the game.

Following the *price* element with a frequency of 563 reviews. In the category of "worth the price", the most common phrase that agrees whether a paid game is worth the price, which frequently appears in this statement, is "worth the money" with a frequency of 469. Most of them agreed that it is worth paying if the gameplay is good and challenging when commenting about the price. As for
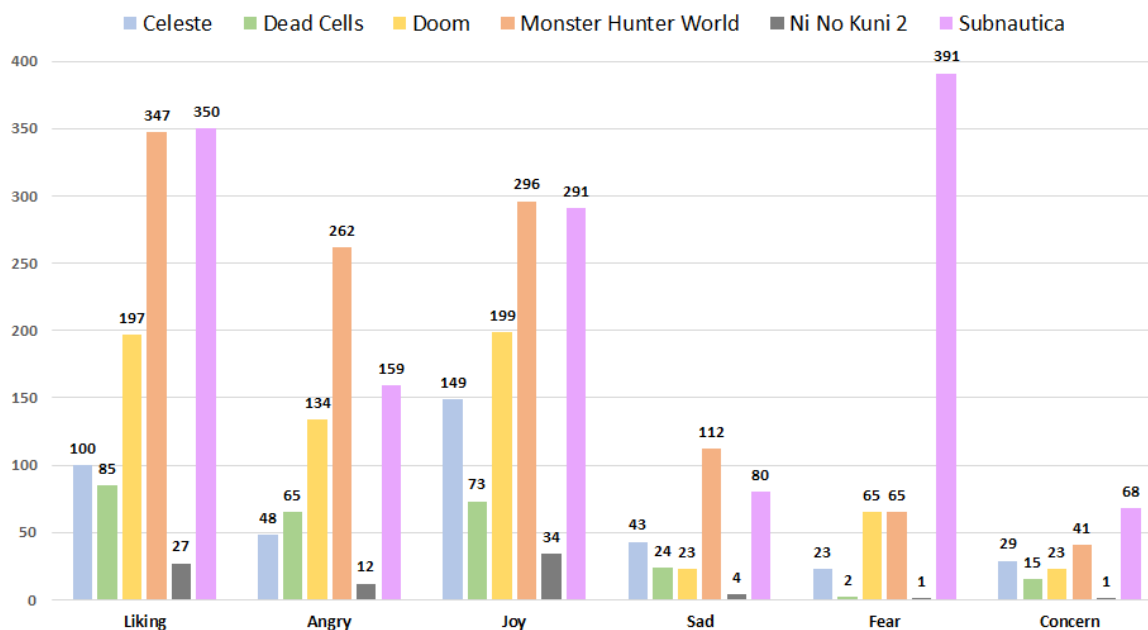
Figure 1: Emotion Analysis for the Games

"not worth it", there is no common phrase found. However, after going through the reviews, most of the statements agreed that these paid games are not worth it unless the bugs are fixed or buy the game if it's on sale. On the other hand, many of them mentioned that there is not enough content, and it gets boring quickly.

The least emphasised element is the social element which comes close to the price at a frequency of 531. Three hundred seventy-five people complained that they couldn't play the game with other people, and 156 people said that it was nice to play with their friends. For the reviews in the "can't play together with people" statement, the phrase that most frequently appeared reflects this statement is "no multiplayer" with a frequency of 19 in group Europe. Most of these gamers mentioned that this could be the only downside to the games. Also, the gamers said that they would play these games more if there were a multiplayer feature to explore the game with their friends and not be too scared as sometimes there are scary monsters. As for the reviews in the "play with friends" statement, the most common phrase frequently associated with this statement is "to play with friends". Most of these gamers mentioned that it would be a lot more fun to play with friends. However, the difficulty level would increase, but the gamers say they do not mind.

4.3 Elements Analysis

Two games that stand out the most are Monster Hunter World and Subnautica (refer Figure 1), which come with the highest number of emotional words in liking (E2+) and joy (E4+). Monster Hunter World is also the highest in angry (E3-) and sad (E4). In comparison, Subnautica is the highest in fear (E5-) and concern (E6-). Many of the players find the story and gameplay enjoyable with words such as fun, satisfying, joy, happy and satisfied (according to ascending order). Doom and Monster Hunter World were Liking (E2+), Angry

(E3-) and Joy (E4+). Dead Cell is a 2D platformer that requires the player to find new and better equipment to beat stronger bosses. However, the game is very punishing because, with a tiny mistake, it can reset the players' progress back to the last checkpoint. This game's difficulty is where players described the games using words like, fun, love, satisfying and Words in Anger's emotion (E3) to express certain aggressive moments, especially when combating with monsters.

Doom is a game about player-killing demons on Mars that was released by an experiment. It is a first-person shooter game with extreme violence, where the player can brutally mutilate demons with certain actions. High frequency of Joy (E4+) and Liking (E2+) were expressed in the game's design, gameplay, and story, using words in other games such as fun and like. However, angry (E3-) was used to express the game's violence, such as brutal, violence and rage. Subnautica has a different result compared to the other five games' statements. The top three most frequently expressed emotions were Fear (E5-), Liking (E2+) and Joy (E4+) in ascending order. Unlike the other games, fear was always one of the lowest emotions in the chart. Subnautica is an open-world survival, horror theme game that allows the player to act as a survivor on an alien planet underwater to survive and uncover a mystery. Under Fear (E5-), it is evident that many people express their fear with words such as scary, terrifying, horror and afraid.

Monster Hunter World is a role-playing game where players hunt monsters and craft new weapons and armours to hunt stronger monsters. Similarly, many gamers pointed to the enjoyment of hunting large monsters in a fantasy world. All the monsters have unique design and identity that makes the experience to hunt them distinctive. Besides, the unique weapons and maps from the game do enhance the gameplay experience. All this can be seen from the

Table 3: Games with Highest Frequency of Emotion and associated Emotional Words

Emotion	Word	Subnautica	Monster Hunter World	Emotion	Word	Subnautica	Monster Hunter World
Liking (E2+)	Love	88	76	Joy (E4+)	Collection	x	3
	Like	62	75		Story	x	4
	Enjoy	42	62		Gameplay	47	x
	Loved	20	15		Design	12	x
	Fan	19	12	Sad (E4-)	Frustrating	x	22
	Experience	52	66		Gameplay	x	19
	Gameplay	41	24		Connectivity	x	16
	Design	28	17		Multiplayer issues	x	10
	Co-op	1	6		Game optimisation	x	7
	Genre	13	x		Disappointed	x	12
	Story	9	x		Sad	x	11
Angry (E3-)	Annoying	x	55		Regret	x	11
	Attack	x	37		Sadly	x	9
	Hit	x	31	Fear (E5-)	Fear	74	x
	Attacks	x	26		Factors	28	x
	Kick	x	10		Trauma	56	x
	Gameplay	x	84		Feeling	25	x
	Connection	x	17		Enviroment	20	x
	Multiplayer	x	3		Scary	56	x
	Game optimization	x	19		Terrifying	51	x
Joy (E4+)	Fun	158	182		Horror	46	x
	Enjoyable	13	22		Afraid	19	x
	Satisfying	x	12	Concern (E6-)	Care	15	x
	Rewarding	9	8		Atmosphere	12	x
	Content	x	7		Gameplay	10	x
	Happy	19	x		Developers	12	x
	Glad	7	x		Worry	10	x
	Experience	58	75		Tension	6	x
	Co-op	12	16		Worried	4	x
	Challenge	x	9		Suspence	4	x
	Combat	x	27				

expression of Liking (E2+) and joy (E4+) with words such as like and love. On the other hand, Angry (E3-) is used to express the combat, similar to Dead Cells with an attack, hit, and kick words. Ni No Kuni 2, which is the least emotionally expressed game. The game is about an outcast prince trying to create a kingdom where many people can live peacefully based on the reviews. Its frequency is much lower because based on the reviews compared to the Monster Hunter World, Ni No Kuni 2 were not relatable, and the story was not very optimistic. The top three emotional words used by gamers are fun, love and enjoyed.

Furthermore, Monster Hunter World and Subnautica have the highest number of emotional words used. For instance, both games have the highest in liking (E2+) and joy (E4+). Monster Hunter World is also the highest in expressing both angry (E3-) and sad (E4-), while Subnautica is the highest in expressing Fear (E5-) and Concern (E6-). Due to that, further analysis is narrowed down to those two games. In summary, Table 3 describes the most used words in expressing a particular emotion for Monster Hunter World and Subnautica; since these two games showed higher frequencies of emotions compared to other games. Hence they are used as an explanation.

Looking at what was constant throughout the positive emotions, the experience is the most expressed of all the other factors and was present in positive emotions. People express joy and love in comparison to other elements such as gameplay, design, challenge, combat, story and collecting items acts as the supporting factor. For the negative aspect, gameplay, connectivity, multiplayer, and the optimisation was seen the most for negative emotions. Both positive and negative emotions were caused by game design and its appeal to the video game players. For example, Monster Hunter World is a

fantasy world for gamers to experience a monster hunter's life, with the adrenaline of the hunt and the satisfaction of killing a strong monster (refer Table 3). This explains why games with the highest frequency of positive expressions like joy (E4+) and liking (E2+) are related to experience, while negative expressions were towards gameplay or technical issues. The experience is one of the main factors that affect gamers' emotions when playing video games.

Similarly, to Monster Hunter World, for Subnautica, the experience was the most expressed factor for both liking (E2+) and joy (E4+) where gamers expressed the joy of the experience presented for Subnautica. In this case, deep-sea exploration in an alien planet. However, unlike Monster Hunter World, the negative factors are part of what gamers enjoy. Fear (E5-) and Concern (E6-) were expressed for factors that bring immersive experience. Those can be the feeling of being underwater with only the echo sound and may be lurking in the depth of the alien ocean. The frequency of fear emotion can be the highest due to the sudden monster's appearance in the darkness. The reviews from Subnautica have one thing in common among all the games' reviews, that the reason fear (E5-) and concern (E6-) were highly expressed show the real atmosphere felt by the gamers. Hence, it can be summarised that Subnautica is a game that emphasizes immersion.

5 CONCLUSION

This study provides and identifies the essential elements that motivate gamers to pay to play and elaborate the different emotions expressed among the gamers towards their game play. Both qualitative and quantitative analysis were used in assisting in the analysis process. Results revealed that elements such as entertainment features, design, music, storyline, price perception, and social interaction are among the discussed elements.

Two games such as Monster Hunter World and Subnautica showed the highest expression of liking, joy, and fear. Therefore, those two games were exemplified in this study, and the result indicates that both games trigger strong emotions of joy toward the overall experience of the game. Negative expressions from Monster Hunter World were mainly expressed toward the game's design. Subnautica triggers fear expression that has emphasised immersion. When analysing the elements that influenced payment intentions, it can be seen the emotions evoked could also be a factor that motivates gameplay, where people choose to purchase a video game for the sake of feeling happy, sad and so on. All of the presented results from this study can be served as premilary guidelines in video games research and industries to improve the gamer's experience. Moreover, results showed that the entertainment and design factors are constantly the most influential factors across all the continents, which cause gamers to pay for a game.

The limitation of this study is that the determination of emotion is only through the usage of emotional words within the reviews. Studies pinpointed that emoticon within the text can also reverse the polarity of sentiment [31] and contain sarcastic elements [32]. Future research could include emoticons in their analysis for motivation study within the conversation to verify if it could also change the emotional expression and contribute to the gamer's experience.

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