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CONCEPTUALIZING VIDEO GAME UPDATES

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Videopelien kasvava suosio on tuonut mukanaan erinäisiä muutoksia peliteollisuuteen. Pelejä kehitetään, ostetaan, ja pelataan yhä useammalla tavalla kuin ennen. Pelien elinkaarien lyhentyminen ja pelinkehityksen kallistuminen ovat saaneet pelinkehittäjät kokeilemaan palvelupohjaista mallia, jossa pelejä päivitetään pitkiä aikoja vuosien ajan. Tällainen palvelupohjainen malli voi auttaa useassa osa-alueessa, kuten pelin julkaisuvaiheen riskienhallinnassa, pelaajien sitoutumisessa pitkällä aikavälillä, vaihtoehtoisten ansaintamallien hyödyntämisessä, ja ylipäätään kilpailuedun saavuttamisessa. Tämä tutkielma pyrkii käsitteellistämään päivityspohjaisten pelien keskeisen osan, pelipäivityksen. Tämän aiheen tutkimiseksi suoritettiin viisi teemahaastattelua laadullisena tutkimuksena. Pelaajilta pyrittiin selvittämään mitä asenteita ja mielipiteitä heillä on pelipäivityksiin liittyviin aiheisiin. Vastauksia hyödyntämällä pystyttiin löytämään pelipäivitysten kolme pääkategoriaa, joihin ne voidaan lajitella ja joista jokaisella on omat erityiset piirteensä. Vastauksista koottiin myös muut keskeiset löydökset kuuden kategorian alle: sisältö, hinnoittelu, sosiaalinen, fasilitointi, pitkäaikainen, ja strategia. Yksi esimerkki näistä löydöksistä on kuinka pelaajat saattavat arvioida pelipäivityksen hyödyllisyyttä sen mukaan miten se vastaa tiettyihin perustavanlaatuisiin laatuvaatimuksiin pelin eri osa-alueissa, kuten suorituskyvyssä tai pelattavassa sisällössä.

Asiasanat: videopelipäivitykset, pelien palveluistuminen, päivitysstrategia

ABSTRACT

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The rising popularity of video games has introduced changes in the game industry. Games are developed, purchased, and played in a wider variety of ways than they used to. Some game developers have responded to the shortened lifespan of games and increased development costs by adopting a service-oriented model where games are updated over long periods of time. Doing so benefits them in a number of ways, such as avoiding the risks of a failed launch, gaining player trust and engagement over time, adopting alternative revenue models, and ultimately gaining competitive advantage. This paper attempts to conceptualize the central piece of service-oriented games, the game update. Insight on this topic is formed by conducting a qualitative study with five semi-structured interviews. Players are asked about their attitudes and opinions on various topics that could explain how game updates are perceived and received in the gaming community. The answers are used to identify three main categories of game updates and their respective unique properties. Then, the main findings and observations are placed under six separate categories: content, pricing, social, facilitation, long-term, and strategy. An example on one of the findings is that players might evaluate game updates based on how well they address certain baseline expectations on various aspects of the game, such as technical performance or playable content.

Keywords: video game updates, games-as-a-service, update strategy

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1 INTRODUCTION

Playing video games is a popular pastime nowadays, especially among young people. In the United States, 91% of children between the ages of 2 and 17 are engaged in playing video games (Granic, Lobel & Engels, 2014). Video games have become a such a popular source of entertainment for people that other media companies are starting to get worried that they might lose their customers. The famous media service provider company Netflix has even commented that "We compete with (and lose to) Fortnite more than HBO" (Netflix, 2018). It has become clear that games are now just one form of entertainment among others for many people.

Technological advancements and cultural changes in video game industry have transformed the way games are developed, purchased and played. Games from major publishers have become massive projects that take considerable resources to develop. Online games are often pushed to the digital marketplace as soon as possible in order to gain valuable feedback from early adopters and to gain a loyal playerbase along the way while developing it further. A good portion of popular online games are now free to play but contain small add-ons that can be purchased. When it comes to gaming devices, personal computers and gaming consoles are still quite popular, but smartphones and other handheld devices have taken a clear lead over them (Statista.com, 2021). People have more options than ever when deciding which game to play and game companies struggle to keep their customers engaged in their products.

As a result, many game companies release fewer new game titles and sequels, and instead support their existing games longer than ever before. This change has shifted the focus in development more towards a maintenance model rather than finishing a product completely before release. Ilkka Paananen, CEO of Supercell has said that "most companies think of their games now as services, which are played for years or even decades" (Yle.fi, 2022). A central part of maintaining a game is the game update, which acts as the intermediator between developer efforts and player expectations. With more game companies opting to a similar model, the players are constantly barraged by updates that all hope to lure the player in with novel features. Players might cycle

between games quickly, only consuming what an update has added and leaving until the next one comes out.

This change in how many popular games are consumed has placed a great emphasis on the game update. While certain games have implemented a maintenance model a long time ago, it has only become mainstream in recent times. For this reason, research on game updates has become a topical subject. Due to the relatively novel nature of this topic, previous research surrounding it is still scarce. This paper attempts to construct a basic conceptual understanding on the various properties of game updates and the culture around service-type games. For this purpose, two research questions are formed:

1. How could the properties of game updates be conceptualized?
2. What do players' attitudes reveal about the properties of updates?

To gain insight on these questions, a qualitative study was performed. The data was gathered by interviewing five players with varying experience on video games. The interview questions were formed based on existing theories and previous studies related to the topic (Appendix 1). As a result, a number of observations related to game update properties are gathered and a fundamental classification of basic update types is formed.

The structure of the rest of this paper is as follows. First, the background and core concepts surrounding game updates and why they have become important are explained in chapter two. Then, chapter three provides a view on existing theories and frameworks regarding technology usage, continuation intention and migration. The fourth chapter describes the methodology behind how the research was conducted and how the interview questions were formed. The fifth chapter is then completely dedicated to presenting the answers from the interviews. These findings are analyzed in the sixth chapter and then used to form the final conclusions. Finally, the seventh chapter summarizes the paper so far and presents views on future research and limitations of this study.

2 UPDATE-BASED GAMES

This chapter provides views on what has led to the emergence of game updates and update-based game services. First, the phenomenon known as servitization is defined. Then, this is applied to a video game context through concepts of live service game and games-as-a-service. Finally, game updates are given a more detailed description and additional factors that have made the lifecycles of games shorter are considered.

2.1 Servitization

Servitization has been a reoccurring theme when developing and reorganizing businesses and organizations in recent years. In addition to providing customers their physical, tangible products, companies have also begun to offer services related to it (Kowalkowski, Gebauer & Oliva, 2017). Servitization is a term that covers a number of similar concepts used in related literature and research, such as 'service addition', product-service offerings' and 'after-sales service' (Rabetino, Harmsen, Kohtamäki & Sihvonen, 2018). What is common with all these terms is the idea of extending the customer relationship and offering new ways to create value and gain competitive advantage over rivaling companies (Baines et al., 2017).

Servitization has become popular in IT and software as well, with many companies replacing their traditional monetization structure to support a subscription-based model or a variance of it. These monetization models allow the users to only pay for the amount they have used, while companies gain revenue over time rather than as a large sum. This has also led to the emergence of software as a service (SaaS) as a novel way for software companies to do business. Software companies offer processing power and ease of use by simply providing an interface for their software over the internet, increasing the utility and efficiency of working with the program (Ma, 2007). Even video game companies have made efforts to create cloud-based gaming services, but it doesn't seem to

have reached a mainstream status as of yet. Cloud gaming services are an attractive model for gaming companies to extend towards, as it would allow for additional business models and solutions to issues such as piracy and ever-increasing requirements for processing power and game size (Cai, Chen & Leung, 2014). While companies should still be interested in ways to attract new customers, servitization has also given an incentive to bring more focus on how to keep these customers. Maintaining extended customer relationships are key to gaining value and revenue when customers have the possibility to change services effortlessly.

In the context of video games, the effect of servitization can be seen in various ways. The trend seems to be that game companies are releasing new games less often than they used to, while developing their existing games over many years after the initial release. Monetization models have also shifted towards free-to-play with optional downloadable content that players can purchase (Davidovici-Nora, 2013). As video games become more and more complex, expensive, and time-consuming to develop, game companies might become discouraged to begin developing a new product right after they've finished the previous one. Large, complex, and long software development projects have far more risks associated with them than short and simple ones (Jiang & Klein, 2001). Developers might consider the following benefits when choosing to create smaller projects. First, releasing small games often helps provide a steadier income stream compared to larger games. Second, if a small game ends up being unpopular, the financial risks are far more manageable. Lastly, since game companies can't receive feedback from players during the development of their game, large games are at an increased risk of wasting time and resources developing something the players don't enjoy.

2.2 Towards live service games

Many game developers have realized the lack of player feedback during the development phase and choose to release their game before it is completely finished. This so called 'early access' way of developing has similarities from servitization and agile software development, such as an iterative way of creating new features and receiving feedback (Abrahamsson, Salo, Ronkainen & Warsta, 2017). Customers are attracted by a steady stream of new content added to the game, while the developers benefit from iterative customer feedback and a steadier income. The concept of game updates is central to early access games as updates ultimately determine whether players remain interested enough to remain for the game to reach its final form.

Games as a Service (GaaS) is a term generally used to describe either cloud gaming services (Cai et al., 2014) or the servitization of games, also known as service games (Dubois & Weststar, 2021) or live service games. However, this paper isn't interested in the cloud gaming side of things, but rather the latter one. According to Dubois and Weststar (2021), Kerr (2017) describes GaaS as a model

that places the focus on post-launch activities, rather than pre-launch operations. They explain how the initial development process is followed by a launch, which then leads to a state where the company maintains post-launch operations (support, patches and debugging) while developing downloadable content in cycles. This follows the idea of servitization in games where post-launch operations are becoming a large part of the product or service. One of the main differences between a Game as a Product (GaaP) and a GaaS viewpoint is that the release is considered to be either the end or the beginning.

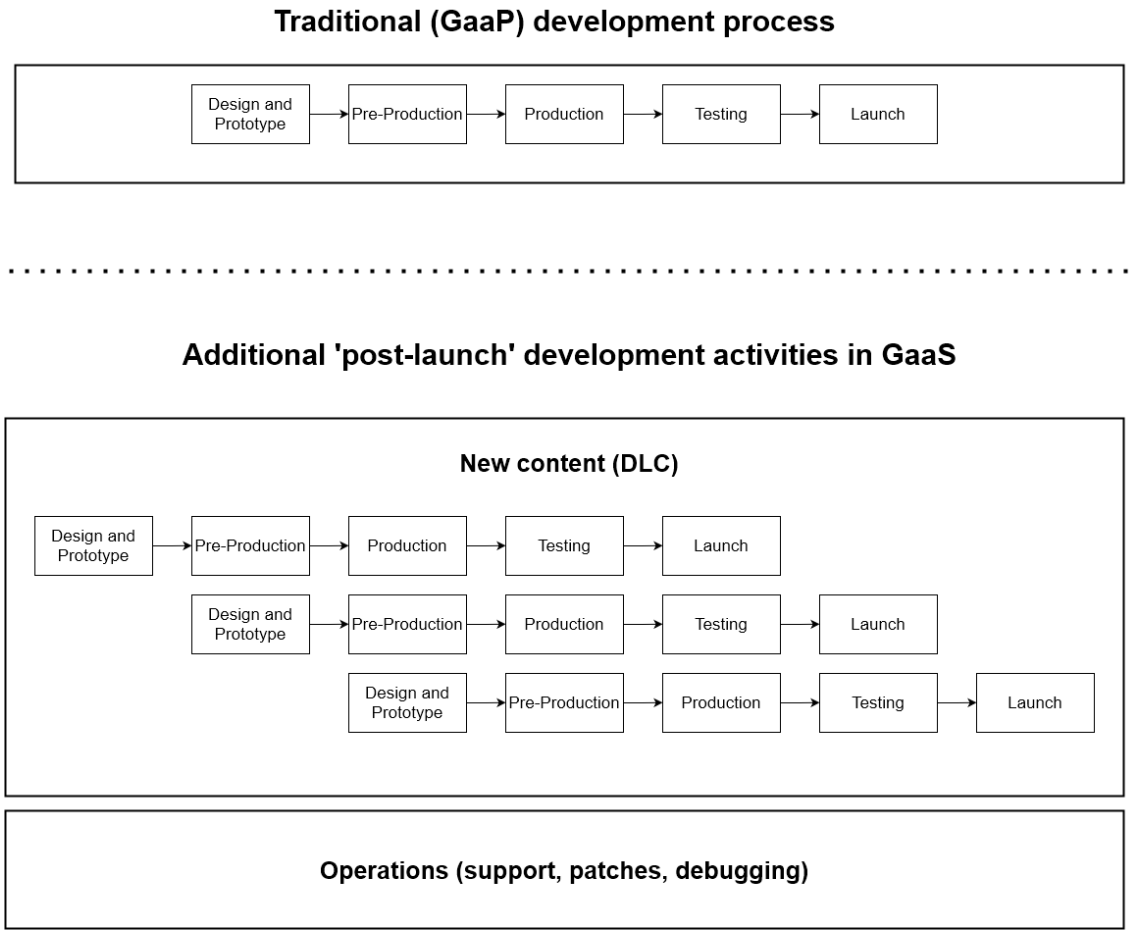

FIGURE 1 GaaP vs GaaS development process as interpreted by Dubois and Weststar (2021) based on the work of Kerr (2006, 2017).

If the trend of continuous game development continues, game developers are met with new requirements and expectations when it comes to their skills as developers. Not only do developers have to understand the fundamentals of game design, but also how to keep players engaged and interested during the development lifecycle. This requires knowledge of the playerbase and what improvements they consider as valuable in game updates. The source for requirements on game features changes from inside-out to outside-in with player feedback as the driving force, while the cycle of development changes into a steady maintenance rather than bursts of development (Kowalkowski et al., 2017). Developers

also require more interpersonal skills as they're expected to engage in communication of ideas and feedback with the customers and other developers (Baines & Lightfoot, 2014).

Davidovici-Nora (2013) came up with various economic motivators for game companies to change their games towards a free-to-play model. First, it helps manage the end life cycle of a game more effectively. Once a game is released, it's not unusual for players to disappear rapidly after they have beaten it once. Adding small downloadable content occasionally helps the company retain players that are already familiar with it and are more easily brought back. Second, free-to-play can save a game that was considered a failure at launch. As companies have little to lose after delivering an inadequate product, they could try attracting new players by making the game free. This can help in gaining a better reputation among customers, paying or not. Third, free-to-play might attract players that are not considered to be a part of its core audience. Even players that don't consider themselves a fan of certain game genres might give them a try when there's no cost attached to it. Last, companies might find new business opportunities by turning already successful franchises into free-to-play. Since these games already have massive playerbases, they might be loyal enough to accept novel monetization ways more easily (Davidovici-Nora, 2013). Considering these ideas, it appears that extending a game's lifecycle helps mitigate various risks associated with large game projects and assist in attracting new customers.

2.3 Game updates

A game update is a subcategory of a software update, where the developers change and improve their existing software in some way. Developments in internet connection speeds and computer processing power has allowed software developers to deploy updates for their software long after the initial purchase. The ever-increasing pace of technological advancements also forces developers to quickly adapt their software to the requirements of new platforms and environments where it might be used. Previous research on software updates in the context of video games is scarce as the concept is still very new (Lin, Bezemer & Hassan, 2017). Even user retention is still a relatively novel subject for researchers, as most of the studies tend to focus on the initial adaptation of technology. However, there are a few important studies from the recent years that have taken the initiative to provide a basis for further studies on game updates. These will be presented next.

Lin et al. (2017) studied updates known as 'urgent updates' or 'hotfixes' in popular games on the Steam platform. They divided game updates into two categories based on whether they were issued on a regular schedule (planned beforehand) or as a quick reaction to an unintended interaction in their game (urgent). However, their study found that there are actually two types of urgent updates: self-admitted hotfixes that are critical for the regular functioning of the game, and off-cycle updates that are issued outside of the regular schedule. It

was found that almost half (46%) of all the popular games on steam have issued self-admitted hotfixes at least once, but some games had to rely on them far more often than others. The most common reasons for issuing hotfixes were functionality (64%), game crashes (46%), visuals (35%) and fixing unintended loopholes in the rules of the game (27%). As for off-cycle updates, most of the most popular games have issued 10 to 30 updates since the day they were released. The most notable reasons given for these were functionality (71%), user interactions (49%), visuals (37%) and changing the rules of the game (34%). Additionally, content (20%) was listed as a minor reason in both types of urgent updates. The authors calculated that 36% of all urgent updates were issued to make changes to the rules of the game, either in the form of fixing unintended interactions and loopholes or creating a different game experience by tweaking varying parameters (Lin et al., 2017).

The concept of an update strategy was also brought up, where game companies plan their update cycle long ahead to support their goals (Lin et al., 2017). The authors divided update strategies into two styles: frequent update strategy and candidate update strategy. A frequent update strategy was defined as a regularly scheduled cycle of issuing game updates, no matter how small or large their impact were. Meanwhile, a candidate update strategy is defined as a strategy to release updates that are much larger but less frequent. There were multiple noteworthy findings related to update frequency in the study. First, it was common that games had periods where they released updates far more frequently than they otherwise would. The authors suggest that this might be related to the rich interaction between game companies and players through various social media and streaming platforms. A second finding was that most games don't implement a regular update cycle, but instead choose to release updates as new features are finished or when a critical issue has to be fixed. Finally, 68% of chosen games implemented a build-up candidate update strategy. It was also found that games from the same companies tend to have the same update strategy across all their games (Lin et al., 2017).

In the context of this paper, all types of game update should be taken into account. However, updates related to technical performance might be the least interesting since it is quite obvious what their impact on player attitudes is. No game company wants to have their game perform worse than it should, and no player wants the game have technical issues. Still, there is the question of how many technical issues a player is ready to accept before their attitudes are changed permanently. The most interesting updates are related to properties that are specific to video games in particular. User interactions, game rules, visuals and content rise as factors that have more depth and nuance to them. Of course functionality is one of them as well, but it is a more general term that refers to multiple factors. These should be applied in the empirical part of this paper.

Why do game companies tend to use the same update strategy for all their games? One explanation could be that it's a matter of company culture and how their processes and software development life cycles are designed. Having different strategies for different games could require plenty of resources without

necessarily providing much in return. A second reason could be that game companies are still not quite aware of the possibilities that game updates can have. As mentioned before, having a game update strategy is still such a novel concept that it might take some time for companies and players to realize how it changes the way games are played. It should be interesting to discover what attitudes players have towards different update strategies and the games-as-a-service model overall.

A second important study regarding game updates was recently conducted by Yu, Nguyen, Yu and Huynh (2021). The authors studied players' reactions to various gameplay updates in the popular multiplayer battle royale game PlayerUnknown's Battlegrounds (PUBG). Gameplay in PUBG revolves entirely around player vs player (PVP) action and it has achieved a firm position in the esports scene. The study was carried out by analyzing certain keywords in steam reviews following an update and associating them with themes. A total of 14 themes were created from the keywords: character, gameplay, server, optimization, matchmaking, teamwork, cheating, price, community, graphics, skill, learning curve, maps and region. The authors counted the number of comments with these themes and whether they were positive and negative. The study found three themes that came up far more often than others: server, optimization and cheating. The comments associated with these themes were mostly negative, which implies that players might comment on these themes only if there are issues with them. Character, gameplay, matchmaking, community, graphics and maps were themes that were relatively often commented with an overall neutral stance. Teamwork and learning curve were themes with a clear positive attitude towards them (Yu et al., 2021).

When making conclusions from this study, it's important to note that different games attract certain types of players. While PUBG players clearly care about technical issues and cheating problems, the same might not apply in other player populations. It should also be noted that different games face different issues during their lifecycle. In the case of PUBG, the developers might have found challenges in the technical aspects while succeeding in game balance and creating additional content. This of course doesn't mean that players don't care about balance and content as much as technical aspects. After all, what good is a game that runs well on a machine but fails to entertain? Still, some of the themes that were presented in this study can be used when interviewing players later on.

2.4 Shortened lifespan of games

As gaming has become a more popular pastime, new and existing game companies attempt to supply the ever-growing demand. As a result, the market is saturated with a large variety of games that all have a common goal in mind: catching the attention of players. However, games appear to become ‘solved’ faster than they used to, and the content that developers release is quickly obsolete. Here, a few factors might provide insight on why that is.

2.4.1 Social media

Social media allows players to share their experiences with the game faster than ever. As long as a player is somehow connected to a social network where people talk about a particular game, they become exposed to the culture around it and take a step towards sating their need with that game. These shared experiences makes it so that a single player doesn't progress only on their own pace, but on everyone else's as well. What makes this sharing process particularly intense is the fact that well-known gaming influencers and personalities have an incentive to be the first ones to create content about the subject and go viral. For example, when a new fighting game is released, experienced players and influencers discover and share what combos are possible for each character. What this creates is a race where the goal is to solve and figure everything out as rapidly as possible. Of course, different personalities and organizations have varying degrees of interest in being the lead.

This flow of information sharing quite heavily resembles the theory of Diffusion of innovations by Rogers (1962). As described in the theory, innovators and early adopters are the first to partake in diffusing innovations and therefore have the greatest influence regarding opinion leadership. In the same manner gaming influencers and experienced players are early adopters that have an interest in reinforcing their lead user status and spreading knowledge about the game. The rest of the adopter categories on the other hand are mostly interested in sharing and gaining knowledge or entertainment without a similar priority for quick timing.

2.4.2 Player skill

Competitive gaming can also increase the speed at which games are solved and exhausted of their novelty. As mentioned in the previous example, professional players are specialized in solving what is the strongest tactic to win in any particular version of the game. They might share some of their knowledge in social media, but primarily the way their tactics become known for the general playerbase is when competitive games are streamed live. This is the moment where information diffusion takes place, spreading into the portion of the general gaming population that is interested in watching matches on a competitive level. If a particular game has a strong esports scene, there are more people watching the games and therefore more variety in their player typologies. Having casual players watch professional games helps diffusing the game-solving information to the largest portion of the playerbase. Game companies might be pleased by the fact that their game has a popular competitive scene, but it also presents the challenge of their game growing stale more rapidly than it otherwise would.

One could also argue that games nowadays are more sophisticated and difficult to play due to the increased resources placed into game development. If this were generally true, then the greater overall skill level of players today might balance this out and the net effect could be approximately zero. But are games more difficult today? An argument could be made that it's in fact the opposite.

As game companies attempt to reach a larger audience, it's not in their interest to alienate customers that are simply not interested in committing their time and effort into an extensive learning process. A common solution for this issue is to present an option to select a difficulty level at the start of a game. However, this is only possible for games that focus on PvE (player versus environment). In PvP-focused games (player versus player), the game difficulty is more nuanced and complex to determine since the opponents are humans.

When you're playing a game against another human, your victory is largely dependent on how good your opponent is at the game. Game mechanics can be designed in a way that makes guessing or luck a significant factor in the victory condition, which increases the odds that a worse player could win against a better one. However, even if luck is part of a game, better players are usually better because they can manage the odds to be in their favor. For example, the game Teamfight Tactics by Riot Games and poker are similar in the sense that skill in both of those games is largely expressed in the form of making decisions with the best likelihood for success. But what if luck is something that the game designers have purposefully removed from the game? In most popular competitive games, luck doesn't appear to be a factor that is inherently integrated into the game mechanics. As mentioned before, decreasing luck increases the contrast in player skill level. This provides professional and regular players an incentive to practice and become a more skillful player, since they understand that solving the game faster and better than others is what matters the most. However, the degree of luck involved has some additional properties as well: too much luck can downplay player agency, and too little luck might make the end result too predictable after a small lead has been achieved in the game.

3 THEORETICAL FRAMEWORKS

This chapter presents the theoretical background that is used as a basis for explaining information system and information technology usage continuation and adaptation. The more general-use frameworks can be modified for to the context of video games and player retention that follows when games are updated. The goal is to formulate interview questions for the study that consider what is already known about the subject and what has already been researched. Even though video games and generally not perhaps seen as a subject that is based on theory as much, this should help further reinforce the idea that they can be researched in the same way as other information technology related systems.

The structure of this chapter is as follows. First, an extensive literature review regarding continuance intention is explained. Then, the most popular theoretical frameworks and models that fit the context of this paper are presented. Finally, a summary will be created from the core concepts that were discovered.

3.1 Continuance intention

IT and IS continuance intention is a topic that researchers are becoming more interested in every year. A literature review carried out by Yan, Filieri and Gorton (2021) counted the number of research papers that have focused on further examining this behavior. Out of a total of 876 articles, 147 were chosen to be included after screening and checking their eligibility. They found that there has been a steady rise ever since the year 2001 and a significant boost after 2015 in the number of papers interested in continuance intention. The literature chosen for this review has shifted from considering continuance intention in the case of websites to other contexts as well in the recent years. For example, continuance intention has been studied in mobile applications (Cao, Yu, Liu, Gong & Adeel, 2018; Kim, Kim, Lee & Kim, 2019), online games (Hsiao & Chiou, 2012; Huang, Cheng, Huang, Teng, 2018) and social media (Chang & Zhu, 2012; Zhou, Cai, Liu & Fan, 2019).

Their review compiled the most used theories, frameworks and models used to explain this continuance intention. Out of all of them, the ones used in most papers were Expectation Confirmation Theory (ECT), Expectation confirmation theory of IS continuance, Technology Acceptance Model (TAM), The unified theory of acceptance and use of technology (UTAUT) and Uses and Gratifications Theory (UGT). Some less utilized, but still relatively popular theories were IS Success Model, Flow Theory and Social capital theory. However, these three won't be considered in this paper as they have overlapping qualities and aren't necessarily as well suited for this context. As continuance intention theories are still not as established and researched as initial acceptance and use theories are, these pre-existing models must be transformed into the context of continuance. Using the previously listed theories should provide us with an adequate theoretical framework to work with. However, there may be some additional properties that should be included when considering continuance and retention behavior in the context of video games. These additions and changes will be discussed in the later sections of this paper.

Yan et al. (2021) also summarized the most central factors that occur in multiple continuance intention theories, models and frameworks. These were given the term 'antecedents' and they were divided into psychological, technology, behavioral and social factors. Some of these antecedents will be more thoroughly explained alongside their respective theoretical frameworks in the following chapters.

Psychological factors are here used to refer to all the personal qualities that can't be explained by behavioral or social factors. The most commonly found factors were satisfaction, perceived enjoyment, trust, attitude and perceived value. Additionally, there are terms such as engagement, perceived value, utilitarian value and self-efficacy.

Behavioral factors revolve around past behavior and how they affect a user's behavior at the present moment. There are essentially three notable factors: habit, frequency and past use. Even 'past use' can be included into habit and frequency, as they alone are enough to answer the question 'how did this become a habit?'.

Technological factors are the properties of the technology at hand. They're mostly concerned with perceived usefulness, perceived ease of use and perceived performance expectancy. Usefulness and ease of use seem to be the primary factors that affect what technology gets used.

Social factors are concerned with the relationships between people and how they affect a person's behavior. There are a few notable factors that arise from the summary: subjective norms and perceived critical mass. Subjective norms is a term used on the Theory of Reasoned action by Fishbein and Ajzen (1975) to describe the effect of peer pressure, while perceived critical mass refers to the effect where a person is more likely to use something they know is popular among their peers (Lou, Luo & Strong, 2000). There are also terms such as social influence, social interaction, social presence and sense of belonging (Yan et al., 2021). It might be useful to consider these as well in the context of video games,

as subjective norms and perceived critical mass might not be enough to fully encapsulate all social behavior. These antecedents provide a great base on continuance intention factors moving on. Eventually, they will be utilized when forming the questions for the interviews. They should be kept in mind as the most related theories, frameworks and models are explained next.

3.2 Technology Acceptance Model

Alongside the Expectation Confirmation Theory, Technology acceptance model was found to be the most commonly used model for explaining the motivations and reasoning behind information system use and continuation (Yan et al., 2021). TAM proposes two core concepts that affect a person's system use: perceived ease of use and perceived usefulness. Venkatesh (2000) explains that perceived ease of use refers to the perceived easiness of use and how little effort has to be made to actualize a system's benefits. The second factor, perceived usefulness is composed of what benefits the user perceives to be a direct result of the system use. There is also a one directional relationship between the two factors where perceived ease of use influences perceived usefulness. Venkatesh (2000) explains that this is due to the fact that users consider easy-to-use system to be more beneficial for them, meaning that ease of use is a useful part of the system in itself. In both perceived ease of use and usefulness, it's important to note that the word 'perceived' is key. For example, a person might hold beliefs that aren't reflective of how a system is actually utilized. Negative attitudes could stem from multiple reasons, such as inadequate technical skills that led to a bad experience at first contact with the system.

Some later versions of the TAM model also introduce two additional elements: external variables and attitude towards use. External variables can be interpreted quite loosely, including social factors that weren't present in the first two factors. Attitude towards use addresses to lack of attitude factors that were discussed before.

TAM is a model that attempts to extend the Theory of Reasoned Action as proposed by Davis (1989). However, it doesn't exactly capture the same properties of IT acceptance as TRA, most notably the social factors. TAM eventually evolved due to inadequate variables and TAM 2 was created to address what was lacking in the original version (Chuttur, 2009). A number of novel variables were introduced. Subjective norm explains the portion of acceptance that results from how a user perceives the acceptance of a system by their close peers. In other words, A user is more likely to accept if users similar to them accept it as well. Voluntariness explains how the necessity of use affects acceptance. Typically use that stems from voluntary behavior leads to more accepting attitudes. Image refers to the increase in social status that is a result from system use. Experience makes system use less difficult for the user and thus they encounter fewer issues, making acceptance more likely. Job relevance raises acceptance as users might feel that system use has relevance to their job performance and therefore isn't

considered a waste of time. Output quality refers to the degree in which the output of the system is of good quality and has a use that is considered important. Result demonstrability leads to acceptance in the form of having a system that can be easily proven to be of use.

While TAM 2 has added useful properties, it still remains as a model that primarily focuses on information technology as a utility. Even though TAM has been used in the context of hedonic information systems (Van Der Heijden, 2004), it has its limitations and might be better if alternative models be used for mainly non-utilitarian purposes.

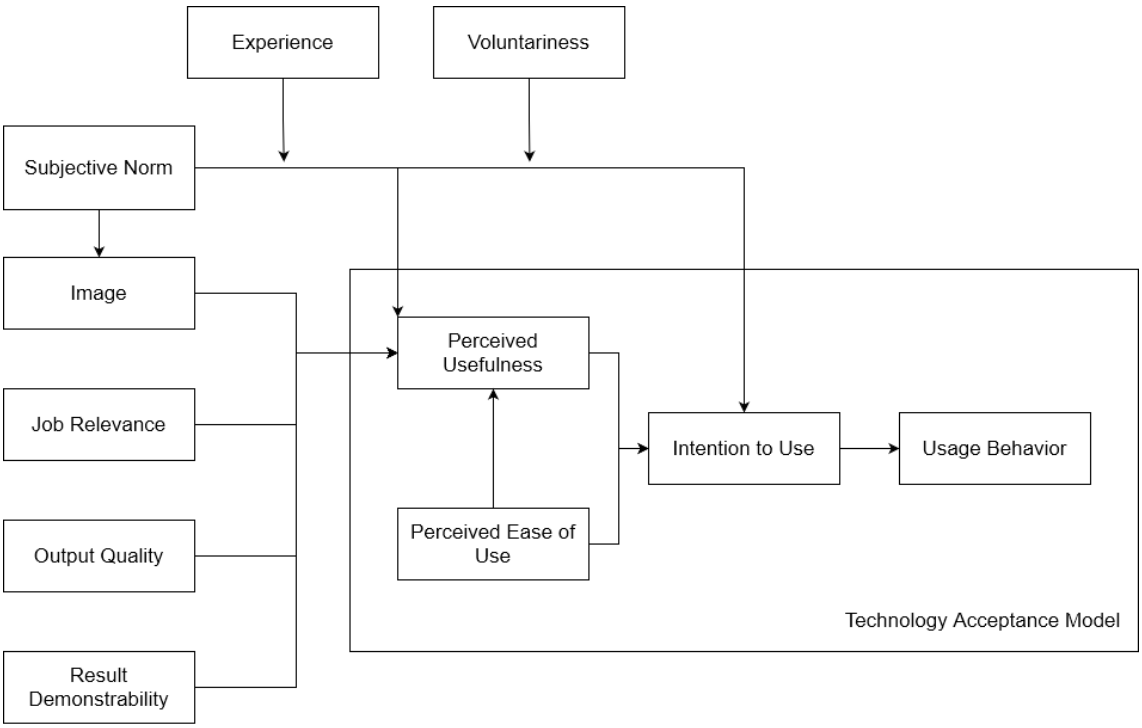

FIGURE 2 TAM 2 model (Venkatesh, 2000).

3.3 Expectation Confirmation Theory of IS Continuance

Expectation confirmation theory (ECT) of IS continuance by Bhattacherjee (2001) is based on the ECT model by Oliver (1980). As mentioned before, ECT-based models were the most utilized in IS and IT continuance related papers (Yan et al., 2021). ECT is a commonly used framework in marketing and consumer behavior research to explain customer service and behavior before and after a service has been delivered. According to the description of the model by Bhattacherjee (2001), expectation is one of the two main components in the model alongside perceived performance. When a user is about to consumer a service or a product, they have expectations regarding its features and quality. These expectations could be a

result of having knowledge about the general standard for similar services or by direct experience with the same service in the past. As the service is consumed, a user evaluates how they perceived its performance in relation to what they were expecting prior to it. This evaluation leads to a confirmation of whether their beliefs were true or not. Depending on the result, the user might be satisfied or dissatisfied and change their repurchase intentions based on it.

Bhattacherjee (2001) extended the ECT model for the purpose of explaining IS continuance. This model focuses only on post-consumption variables as pre-consumption is not of interest in continuance. Perceived usefulness and confirmation are the two primary variables that lead to satisfaction and ultimately IS continuance intention. Additionally, perceived usefulness has a direct relationship to continuance intention, as users might be in an environment where IS use is expected regardless of their satisfaction with it. Bhattacherjee (2001) explains that the IS continuance model is influenced by TAM in some regards, such as that it utilizes the same causal connection from beliefs and affects to use intention. However, the main difference is that TAM is not suited for explaining post-acceptance behavior in the same manner. Since IS continuance model is based on ECT, it inherits the continuance aspect of it.

3.4 The unified theory of acceptance and use of technology

Unified theory of acceptance and use of technology (UTAUT) is a model that combines elements from multiple theories of IT acceptance, such as TAM and DIT. Venkatesh, Morris, Davis, and Davis (2003) attempted to create a model that could further explain the numerous variables surrounding IT acceptance. The factors included in the model were based on findings in a study where new technology was introduced in four different organizations. Once the findings were analyzed, four central variables were found to explain most of the IT acceptance: performance expectancy, effort expectancy, social influence and facilitating conditions. In addition, there are four moderators that affect each of these: gender, age, experience and voluntariness of use. However, voluntariness of use is not present in the final version of the UTAUT model (UTAUT 2) and therefore won't be considered in the following segment. Venkatesh et al. (2003) provide the following descriptions for each of the four main variables.

Performance expectancy is similar to perceived usefulness in TAM and also the variable that explains IT acceptance the most. Gender is said to be a factor in that males might be more task-oriented (Minton & Schneider, 1980) and value features that increase productivity more than women, but this could also be explained by prevalent gender roles in society (Lynott & McCandless, 2000). Age is suggested to be closely linked with gender (Levy, 1988) where the societal roles of men and women change as they age. Young men are seen as the most appreciative of performance-related attributes in technology acceptance.

Effort expectancy is similar to perceived ease of use in TAM. It was found that when a user first initiates contact with new technology, effort expectancy is rated

highly. As they use the technology more over time, this becomes less and less important to the point of near insignificance. There is evidence that women might appreciate technology that requires less effort (Venkatesh & Morris, 2000), but as previously mentioned, this also could be partially explained by what gender roles are imposed on people. Old age is suggested to be positively correlated with preference for less effort (Morris & Venkatesh, 2000) as well as users with little experience.

Social influence is partially based on the subjective norm and image variables in TAM 2. It was found that voluntariness of IT adoption has a significant effect on the importance of social influence, namely in that social influence is rated highly in mandatory settings. The voluntariness aspect of IT use mostly present in utility and work-related environments, but social pressure can be a large factor in the future when considering entertainment purposes. Kelman (1958) identified three components of social influence: compliance, internalization and identification. Compliance is related to the previous case of voluntary behavior. Identification refers to the phenomenon where a person attempts to modify and copy their behavior and beliefs after a certain person they hold in high regard. Internalization happens when a person accepts an attempt from another person to adopt or modify their current behaviors and beliefs. When it comes to the moderating factors, it is suggested that social influence is at its strongest for old women with little experience. This was based on studies that found women and older people are more likely to adapt new technology use as a result of social influence (Venkatesh, Morris & Ackerman, 2000; Rhodes, 1983). However, experience seems to reduce these effects (Morris & Venkatesh, 2000).

Facilitating conditions is a term yet unseen on previous models of IT acceptance presented in this paper. It refers to the extent at which IT system use is supported by the surrounding infrastructure. For example, when a new system is implemented into an organization, are the users trained to use it or are they simply left to figure it out by themselves. As mentioned with effort expectancy, users are especially sensitive to IT acceptance in the initial contact phase where they determine whether the system is worth the effort or not. Facilitating conditions are designed to support this critical phase by easing user adoption and lessening the burden for users by providing a guided introduction into how a system is used. This effect is suggested to be most influential for older people with much experience as their cognitive abilities deteriorate with age (Morris & Venkatesh, 2000).

In the original UTAUT model, these are the variables that lead to behavioral intention and ultimately use behavior. However, for the purpose of this paper, the extended model UTAUT 2 includes crucial components that are well-suited for non-utility contexts, such as video games. Venkatesh, Thong, and Xu (2012) introduced these three additions to the model: hedonic motivation, price value and habit. Additionally, voluntariness of use was removed from the moderating factors.

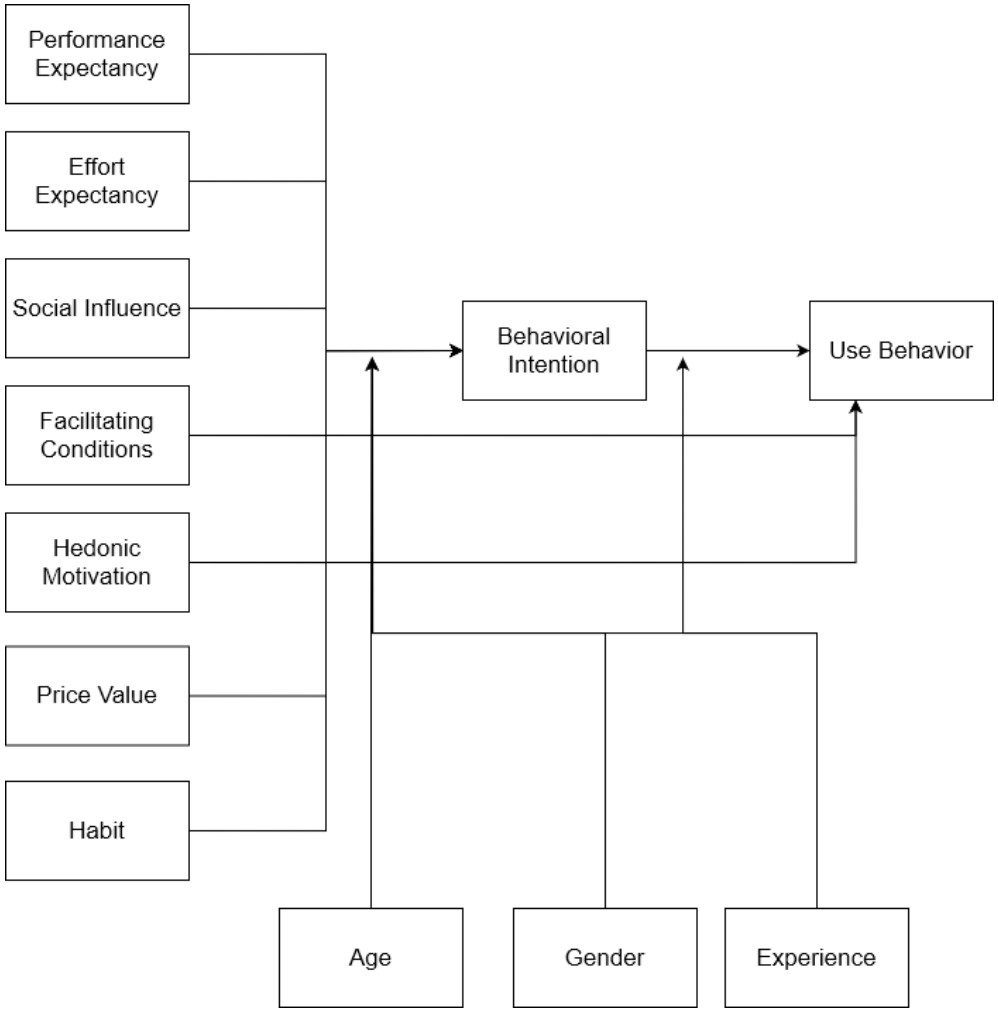

FIGURE 3 Unified theory of acceptance and use of technology (UTAUT2) Model (Venkatesh et al., 2012).

Hedonic motivation introduces an element of fun and enjoyment into IT adoption that wasn't present in the previous models. This provides a way to examine user behavior as motivated by mostly intrinsic rather than extrinsic factors (Tamilmani, Rana, Prakasam & Dwivedi, 2019). Hedonic factors are found to be a significant factor in information technology adoption for consumers (Hamari & Koivisto, 2015; Baabdullah, Alalwan, Rana, Kizgin & Patil, 2019). Venkatesh et al. (2012) propose that hedonic motivations are most present in young men that are at the beginning of their technology adoption phase.

Price value is yet another variable that indicates a shift of focus from organizational, work-centered environments towards more hedonistic consumer behavior. This is because typically workplaces provide new technology for free, but consumers purchase them themselves. As a result, price becomes a relevant factor in technology acceptance. Venkatesh et al. (2012) predict that older women place the most importance for price value in their technology adoption, while young men place the least.

Habit refers to the degree in which technology use and adaptation can be explained by the tendency to repeat learned actions. Habits are behaviors that are reinforced through learning that certain actions lead to certain consequences (Hull, 1943). Behaviors associated with habits are activated by certain context cues and a defining part is a lack of interest in short-term goal changes (Wood & Rünger, 2016). In other words, people tend to perform certain actions automatically in certain environments and contexts, even though they know that the action might not support their goals. Habit in particular could be one of the most significant factors in explaining hedonistic technology usage, since the context in which games are designed to be played is leisure time. Venkatesh et al. (2012) predict that habit affects highly experienced older men the most, while inexperienced young women are the least affected.

3.5 Push-pull-mooring framework

In order to examine the factors which encourage players to both stay and leave, push-pull-mooring framework (PPM) can be utilized as well. The first version of the PPM model was presented in Ravenstein's 'Laws of Migration' in 1885 (Listyarini, Haryanto, & Siahaan, 2009). This framework is heavily used in the context of migration literature (Cohen, 1996) to explain what are the factors that encourage an individual to leave their place of origin and to migrate into another place entirely.

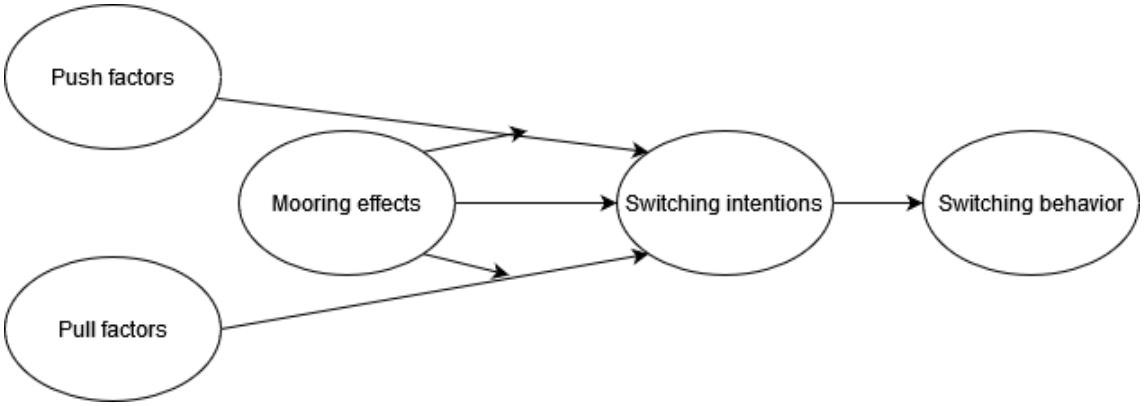

FIGURE 4 Push-pull-mooring (PPM) framework (Ravenstein, 1885).

The drawback of this framework is that it is commonly used to only consider the negative factors of staying and the positive factors of leaving, but in reality, both pull and push aspects have both negative and positive factors influencing them. Since migration decisions were found to be more complicated than that, an additional third factor was introduced into the model, known as the mooring factor (Boyle, Halfacree & Robinson, 1998). Mooring factors are more personal than the others, making it so that even if the migration decision would be

objectively beneficial for the person otherwise, they would most likely still refuse it due to these reasons. These consists of social and personal factors and commitments as well as varying intervening obstacles (Lee, 1966; Bansal, Taylor & St. James, 2005).

The PPM model can be utilized to not only explain physical migration behavior, but other types of switching behavior as well. After all, when a customer switches from an old service into a new alternative one, they make their decision by considering the total sum of pros and cons (push, pull and mooring factors). This applies to online services and ultimately video games as well. Indeed, this model has been used in the past research to examine customer switching behavior in the case of web browsers (Ye & Potter, 2011), email services (Kim, Shin & Lee, 2006), blog platform services (Zhang, Cheung, Lee & Chen, 2008) and even online video games (Hou, Shang, Huang & Wu, 2011).

4 METHODOLOGY

This chapter describes the methodology behind how the empirical portion of this paper was conducted. First, a detailed description of the theoretical basis for the qualitative study is provided. Then, the proceedings of the interviews are written out. Lastly, what the interview questions are based on is explained in full detail.

4.1 Interviews

The empirical section of this paper was conducted as a qualitative research. Seeing how novel and unexplored the topic of game updates and service games is at this time, it is deemed necessary to choose a method that allows for new ideas and concepts to emerge in the results. According to Schultze and Avital (2011), qualitative methods are appropriate when attempting to understand motivations and attitudes behind certain actions. While the theories and frameworks previously presented in this paper can be used as a baseline for understanding this topic, they're not expected to fully explain how these attitudes are formed. To further support this goal, the research approach and analysis of results is based on a directed content analysis (Hsieh & Shannon, 2005). The authors describe how this approach is appropriate when existing theory and research is scarce around the subject with a need for further examination. The results can be used to provide a conceptual framework for further research with more targeted and restricted topics (Hsieh & Shannon, 2005). In a directed content analysis, the interview results can be evaluated based on the extent that they support the existing theory and frameworks (Hsieh & Shannon, 2005). In the case of this research, the answers are assessed by how they align with the presumptions given for game updates based on the existing concepts. Additionally, non-supporting answers extend and supplement what is missing from these presumptions.

A semi-structured interview was chosen as the research method for this study. Interviews based on a directed content analysis might be preferably done in a less structured manner to allow further descriptions about the subject topic

to emerge (Hsieh & Shannon, 2005). Semi-structured interviews also provide the flexibility to allow the interviewer to probe further into open-ended questions (Adams, 2015). This lack of rigidity most likely helps the interviewees express their thoughts without having to consider whether it's appropriate to speak about a particular topic at the current time.

Five semi-structured interviews were conducted in total for this research. The people chosen for this study are previously known by the researcher and have a verified history of gaming experience. Having a friendly and trustworthy connection between the interviewer and the interviewee might have assisted in gathering responses that are more reliable and honest than they otherwise would. All of the participants are young adult males in varying phases of life. The interviews were carried out through various remote meeting applications on a personal computer. The interviewees were asked to dedicate an hour at maximum for the meetings. In the end, most of the interviews took around 45 minutes in total. There were little to no technical difficulties present during the remote calls. All of the interviews were performed during a four-day period in April 2022.

The interviews proceeded as follows. First, a brief small talk and introduction to the topic was done. A link to the questions was provided to give a brief overview of what sorts of questions they can expect. The interviewees could present questions to help their understanding. It was also mentioned that the interviews will be recorded, but only for the use of the interviewer. None of the answers would be linked to them personally. Second, they were asked to provide a brief narration about their gaming history. Third, the main body of the interview was carried out by going through each of the ten sections. The questions were read out loud for the interviewees, but they also could read the questions themselves. Finally, the interviewees were asked whether any additional topics came up that they felt were not present in the provided sections.

4.2 Forming interview questions

This section describes the reasoning behind which questions are chosen for the interview. The general idea is to transform properties of the UTAUT 2 model into a game update context, while inserting additional themes from other sections previously presented in this paper. Many of the questions are not necessarily restricted to the theme they're listed under, as they're quite broad and cover multiple themes. As expected, the transformation isn't as obvious in some cases and requires creativity in coming up with relevant questions. Explaining the thought process behind these decisions should help understand the study better.

4.2.1 UTAUT 2

Starting from UTAUT 2, the performance expectancy variable has a different role in non-utilitarian contexts. As gaming isn't inherently a productive task, performance could be thought of as the variable explaining technical performance. As a game update property, performance expectancy is therefore the degree to which an update addresses issues related to optimization, lag, game crashes and other performance related factors. It should be expected that players don't want technical issues to emerge, so the question is about how important they consider these issues to be in relation to other updates.

Effort expectancy in the context of game updates doesn't initially make sense as updating generally doesn't require effort. However, since game updates tend to change game rules, add new content or modify the game in some other way, players are required to adapt to these changes. The amount of effort required to reach a comfortable knowledge level after one or multiple updates is one of the points of interest. Additionally, players are asked about their attitudes towards this learning process to gain insight on if re-learning is mostly a burden or a refreshing challenge.

Social influence variable doesn't require much transforming as the context is quite obvious. However, game updates presumably aren't something many players care about much in comparison to the strength of social influence. The point of interest is in researching how flexible players are with their update preferences if they're asked to play a bad update together. Social influence can also be studied in the form of social media and how various media channels (streams, articles, videos) can affect players' opinions and attitudes towards a new update. Even if players haven't cared about an update previously, exposure to their favorite media sources can alter their attitudes.

Facilitating conditions are used to help players adapt to new changes an update provides. The amount of facilitating required depends largely on the nature of the update. For example, a new season in League of Legends introduces far more complex changes than a new gun release in Counter Strike: Global Offensive. Game companies have allocated various amounts of resources into facilitating players to new updates. In some cases, they have formed a symbiosis with social media influencers and third-party websites and rely on them to facilitate. But how would players prefer this facilitating to occur? Do they perhaps want to figure everything out by themselves or with the help of a guide video? Asking these questions should provide valuable insight into the matter.

Hedonic motivations is quite self-explanatory, yet seemingly unnecessary. After all, playing games is a hedonic action in itself. But what could an update introduce that reduces this pleasurable state of flow? Players tend to find their own playstyle within the limitations of the game to reflect what they find most fun. Interrupting and changing their playstyle by changing the difficulty or removing parts of it completely could result in significant attitude changes. As explained in the flow model by Csikszentmihalhi (2020), lowering the skill ceiling bores high-skill players, while raising the skill floor makes low-skill players

anxious. Additionally, low and high-ranked players were found to engage in a game more after an update, while middle-ranked players prefer a more established meta (Hyeong, Choi, Lee & Pyo, 2020). The focus of questions in hedonic motivations is therefore based on this context.

Price value is a straightforward, yet important topic. Game companies release updates frequently that are required to play the game and therefore don't cost players anything. The questions have to be formed in the context of optional downloadable content for price to be relevant. Researching player attitudes in the form of how much they are willing to pay for what amount of content is the primary focus for this topic. Additionally, attitudes related to pay-to-win mechanics should be studied as well. The topic of purchasing a full-price game versus free-to-play game with paid updates is related to price as well, but perhaps even more so to update strategy. This will be explained in a later section.

Habit is a variable that should produce interesting results in the interviews. Habit here is viewed as playing a game that isn't perhaps the most fun anymore for the player, but they're just used to playing it often. While one might think that having a strong habit of playing a certain game would lead to positive attitudes towards updates, there is the possibility that an update might break that habit. In that sense, habit and a state of flow are closely related. The questions are formed by assuming that the player doesn't like an update and asking about how much they can endure before the habit isn't enough to sustain a positive or neutral image.

4.2.2 Additional themes

These seven categories from UTAUT 2 make up the majority of the question for the interviews. However, three additional categories are introduced to further explain update attitudes in this context. These are called history, update strategy and update type.

History consists of questions related to a player's past memories and actions within a certain game. Seeing how the focal point of this paper is about post-acceptance behavior and retention, the history between a player and a game and the length of a hiatus are both of great importance. According to Hennig-Thurau and Klee (1997), overall quality perception leads to both commitment and trust. Additionally, trust in itself can also lead to commitment, even when the quality perception hasn't been met. If a player has experienced a history of great updates from a game company, they should be more sympathetic towards updates they don't necessarily agree with. On the other hand, a game that had a bad launch or a series of low-quality updates might never be able to recover even with significantly improved updates.

A player's past behavior includes their committed resources towards a game as well. While similar to habit, here the interest lies in the sunk cost fallacy. According to the theory, a person is more likely to continue participating in behaviors that they have invested money, effort and time in (Arkes & Blumer, 1985).

Players might attempt to justify their historical commitment to a game by being more accepting of updates that transform the game into a new direction, whether good or bad. It might be difficult in questions such as this to receive answers that reflect the reality accurately, but perhaps some players are able to see things differently in retrospect.

The last question for history is concerned with how long it has been since a player played a particular game or considered themselves committed for a period of time. A long hiatus could result in a loss of habit and accumulation of burdensome learning debt, but it can also arouse feelings of nostalgia (Wulf, Bowman, Velez & Breuer, 2020) and excitement for new, unexplored content. There could also be multiple variables that can't be researched and are quite situational for every player, such as whether an update addresses the issues which made the player leave in the first place.

Update strategy questions are concerned with how a player's attitudes towards certain update strategies affect their attitudes towards updates in general. The goal is to gain insight on their reasoning behind what they think is the preferred strategy for issuing updates. Players are also asked about their opinion on the GaaP versus GaaS way of releasing games and what content or changes game updates should generally deliver. Additionally, a question emerges about how long the same base game can keep players interested with regular updates. What is required for a long-lasting giant such as League of Legends to give up on their strategy of regular updates and finally develop League of Legends 2?

Finally, the last category of update type is about what types of updates does a player value over others. Here, five categories of update types are introduced: technical performance, cosmetics and sound, gameplay changes, social features and playable content. These are largely based on the update types used by Lin et al. (2017) gathered under more distinct and tight terms. Players are asked to rank these features based on their importance and to provide reasoning behind these choices. To discover even more details about this subject, players are also asked about how the size of an update could affect their attitude. For example, players might not care about any updates unless they're large enough to provide enough of a change in the gameplay experience.

Ultimately, these ten categories are formed for the purpose of the empirical study in this paper. The moderators presented in UTAUT 2 were not included as their effect would be extremely challenging to determine in the research setting chosen for this study. It is to be expected that these categories are not able to fully cover all the variables related to game update attitudes, but it should be adequate for such a novel topic such as this one.

5 RESULTS

This section will cover the results found from the interviews. First, descriptions of the interviewees' backgrounds related to the research topic are written out. Then, each of the ten topics presented in the interviews are split into separate sections. These answers are then analyzed in the following chapter and a conclusion is formed based on that.

Starting off with Person A, he has played games for about 25 years. There has been a lot of variation in the intensity of gaming in different phases of life. When it comes to game genres, there has been a lot of variation as well, ranging from sports games to hardcore RPG-style games. He considers himself to take gaming more seriously than your average gamer, as can be noticed from the large variance and long history of playing. He also notes that he has invested a notable amount of money to the hobby, but nothing serious and not related to purchasing pay-to-win mechanics. When the case area was described to him, he talked about the importance of player retention. He thought that losing a player to a different game can have long-lasting consequences and effects over long periods of time for game companies, as players tend to only have time and energy for a certain number of games at a time.

Person B has spent a lot of time with games in his childhood but has found himself becoming less interested and having less time for them as he grows older. Focus has always been on single player games, mainly on Nintendo consoles. When thinking about the following answers, he was going to think about them in the context of games such as Forza Motorsport, Halo and Super Mario.

For Person C, his gaming background is highly centered around small single player games, such as mobile games, browser games and demo cd's. He wasn't interested in playing games as a regular thing, but rather as an occasional pastime with friends. Only recently in his life he has become more interested in good quality games that he plays regularly to relax after work. He considers the answers in the context of games such as Cities Skylines, F1 and Geoguessr.

Person D used to play mostly single player games on consoles when he was little, but as a teenager he switched to playing mainly World of Warcraft and Heroes of Newerth. Still, he has managed to gain experience from a large variety

of game genres, such as shooters, RPGs and puzzle games. Nowadays he finds himself having less time for games.

Lastly, person E has a very long history with games, starting with early MS-DOS games such as Carmageddon. He broadened his game genres during school years by playing FPS games, strategy games and MMORPG's. Lately he has found his game taste changing as his interest has shifted back to the games of old times. Additionally, instead of being mainly interested in playing online multi-players, he has found that single player campaigns have become his main focus.

The interviewees initially appeared to have varying degrees of understanding about the topic at hand, despite a brief introduction to the subject. However, as the interviews went on and more concrete examples and past memories emerged in their minds, everyone seemed to grasp a decent idea behind what is being researched.

5.1 Update type

When thinking about the answers to this question, person A said he would consider these priorities in the case of the game Dark Souls. Playable content was told to be the absolute number one priority, as from his view, nothing else really matters if there's no content to be played. Second priority is gameplay changes, where he described it as something that can both attract players in and push them out just as easily. At its best, changing the game up can act as sort of pseudo-content, where the game feels new even though nothing new was actually added. The third priority, technical performance, was described as something that could range from the most important to the least important aspect of an update, depending on how bad the performance is at the game's current state. However, he thought that most games have performance adequate enough to not place that much importance to it anymore. Social features takes the fourth place in importance due to general lack of interest in such features. However, he mentioned that removing certain existing social features, like "all chat" in League of Legends could be quite significant, which implies that certain standard social features are important even to those who have less interest in them. As for the last priority, cosmetics and sound, he found that they were of very little importance to him, acting just as something that is "nice to have", but would never make him retain. When asked about the size of an update, he said that the required amount of changes for retention scales with the amount of time not spent in the game ecosystem. In other words, even small updates can inspire retention when the game has been on pause only for a short time, but longer hiatus requires larger updates. In all cases, the updates of course have to be considered good or they're just a hindrance for retention.

Person B found himself gravitating towards playable content as the first priority in game updates, with technical performance as the second. He placed cosmetics and sound in the third place but said that it could have been the first priority back when he played games more. Nowadays, he finds himself appreciating

new content as his time is more limited. Both gameplay changes and social features were something he doesn't appear to appreciate much, as he thinks they're mostly associated with online multiplayer experiences. When asked about the importance of update size, he told that he had recently returned to Forza due to a new area being released. As for smaller updates, he doesn't appear to care about them enough to make a difference.

In the case of Cities Skylines, person C found that playable content in the form of DLC packs is the most significant factor in his retention intention. He places technical performance as the second priority, as the same game appears to have performance issues when cities become too large. Gameplay changes are something he tends to read before starting a new session but doesn't mind them as much. As for the last two update types, they seem to be almost completely irrelevant in his case. Game update size by itself doesn't matter as much as the contents of it in his opinion, but large updates of course add more to the game. He brought up an example of a large update which wasn't that interesting to him apart from one, small change. However, to him it was significant enough to justify buying the whole DLC.

Person D doesn't necessarily have a strict order when it comes to prioritizing update types. Instead, he finds that a game should identify what features it lacks the most and base their update plan on that. Playable content, gameplay changes, social features, cosmetics and sound and technical performance is how he would generally rank the updates in his opinion. He brings up the case of Cyberpunk 2077 where technical performance was so lacking that even he would want performance updates before anything else, showing how flexible the priorities are. As for update size, he seems to think that larger updates are more interesting in general, especially DLC's.

Person E has a particularly strong preference for technical performance updates. He finds that perhaps the worst thing a game developer can do is focus on creating content updates while performance is clearly lacking. Since nothing else matters if the game doesn't run well, he places it as first priority. Second priority is playable content, because having more of what you're already enjoying is definitely nice to have. The three last update types are something he can't place in a particular order. Gameplay changes are something he initially seems as a negative thing that merely breaks a perfectly well working game. As for cosmetics and sound and social features, he's not the type of a player to care about those things. As long as the game has a chat feature, that's usually all that is required. Game update size doesn't by itself matter as much as the contents of it. He gives an example of his behavior where he might return to a game only for a week at a time after a small new event is released.

5.2 Performance expectancy

For a more detailed description about the role of performance updates, person A mentioned that he would be currently playing Street Fighter 5 a lot more often if

it weren't for the lackluster online experience due to improperly implemented rollback netcode. However, he also mentioned he wouldn't play it either it the game just wasn't fun to play. No amount of performance updates would be of significance if the core gameplay was lacking. It appears that he puts more value in gameplay, perhaps because performance updates can be carried out more easily and require less effort and expertise.

Person B is of the opinion that technical performance updates have little to no effect on his retention behavior if he finds the performance tolerable as it is. However, if a game is released with poor technical performance, performance updates can have a significant effect on his retention intention.

Person C wasn't that picky about technical performance, but even he thinks that a game should meet the minimum standard for performance for it to be even considered playable. Once a sufficient level of performance has been achieved, the developers should quickly shift their focus on creating content instead.

Person D has never had a PC that can run games particularly well. In addition to what he already told about technical performance, he also expresses his annoyance with graphical settings on low end PC's. Rather than certain visual features being completely turned off on low graphical settings, he would prefer that they're simply adjusted down. In the context of updates, he would like to see performance updates that allow players on low end PC's to see the same objects as others, even if they're far less detailed. Technical performance also seems to depend on whether the game is single player or a competitive online multiplayer. He considers it completely unacceptable if a competitive multiplayer has performance issues, but not so much in single players.

Person E describes his performance appreciation by saying how he used to turn down graphics and resolution just to reach the maximum performance in his games. Performance is especially important in competitive multiplayer games where reaction time usually matters the most. He does recognize that as performance is improved, it becomes less and less valuable with each update.

5.3 Effort expectancy

Regarding the required effort for adapting to new updates, person A thought that as long as the changes are good, he considers having to learn something new as a positive thing. On the other hand, if the change is bad and you're also required to put effort into adapting to it, it makes the change feel that that much worse.

Person B seems to have a very negative attitude towards updates that change his preferred playstyle. He is of the opinion that new updates should focus on adding new content, not altering existing mechanics and playstyles. Learning should not be forced upon the player, but rather offered as an alternative way of enjoying and experiencing the game. However, he is open to the idea of altering his preferred style of play just a little bit since it could enhance his gaming experience in the long run.

Person C admits his annoyance towards games and websites changing the way their usual functions work. However, since he tends to look at the change rationally and finds himself agreeing with the change after a while, he has become more accepting of these types of alterations. He brings up how the facilitating conditions surrounding these changes are key in how he decides to react. For example, old mobile games that he wants to play after a long time can have a long list of changes that were made since he previously played. As a result, he finds learning all that too overwhelming and deletes the app. Learning new things in games is something he would prefer to do as a part of the regular game, not something you have to pay special attention to or go through a tutorial.

Person D challenges game developers to release updates that make learning new features not feel like work. The updates shouldn't be small enough to not have anything to learn about either. He would prefer the best of both worlds: a large update that feels fun and rewarding to learn. The basic concept of what the update is about should be easily understood, but mastering the content should take much longer. His view is that this mastering phase is all about problem solving, and the problem should be interesting enough or he can't be bothered with it.

Person E isn't opposed to learning parts of a game over again, as long as the changes support his view of what should be done. In fact, he finds learning refreshing. It appears that the effort required for learning a new update wouldn't prove to be much of a challenge or an obstacle to him. He thinks there's no such update that would take more than a day or two for him to understand well. Overall, he seems to be of the opinion that games would generally be better off remaining the way they are, rather than forcing change for the sake of change.

5.4 Social influence

As for the influence of friends, person A said that he wouldn't start playing a game just because a friend wants them to, but he does place value in what kind of an image a game has on social media and in society overall. He mentioned that streamers and social media influencers definitely have an effect on what people play and think about, himself included. When he sees that lots of people are playing a game after a new update, he considers that as the greatest proof that the update was successful. In a sense, he thinks that this type of attention has somewhat replaced traditional game reviews. However, he doesn't seem to return to a game just because of the social influence aspect of it but thinks that many other players probably do. According to him, content quality comes first. For last words on the subject, he noted how information about games and their updates spreads through internet memes, particularly in the case of League of Legends.

Person B feels that he could be swayed by his friends to test out a common game with them. However, if doing so requires too much effort in the form of purchasing a new gaming console or an expensive game, then it becomes very unlikely. He told of an experience where his friend had actually wanted him to

test out a game, but it didn't result in any sort of sticking power. When it comes to social media influence, he said that he used to read a lot of gaming magazines and reviews when he was younger. As streamers and influencers have partially taken their role, he finds himself repelling against the games they're promoting. He finds joy in discovering things by himself, not through the influence of someone else. There seems to be an exception to this however, since he has been keenly following the updates for Cyberpunk 2077 even though he hasn't purchased it himself. When he thinks the game has reached an acceptable state, he expressed his willingness to purchase it at that point. Following a video series about these updates allows him to keep up with the latest version.

Person C thinks that as long as the game interests him even a little bit, he could imagine himself playing it with a friend just for the social aspect of it. He doesn't follow any game related streamers or content creators but has joined a Facebook group related to a game. The opinions of his fellow peers are something that he does value and influences his thoughts regarding new updates. He brings up an example of a DLC pack that he might purchase due to the high appraisal by this group, even though the new content doesn't interest him that much.

Person D describes how almost all the games he has played are the result of some friend recommending it to him and playing together. This is especially true nowadays since he plays games mostly to socialize with his friends. Returning to a game due to a friend's recommendation is particularly likely in his case. Even though he doesn't play his classic games nowadays, he does keep up with the latest news and updates by watching popular streamers and videos for those games. For example, if he decided to play World of Warcraft again, he would already be up-to-date on the patch notes.

Person E doesn't recognize a strong effect from any social media influencers regarding his game choices. There was a single instance where he became interested in Diablo 3 thanks to a certain content creator, but it wasn't enough to keep him engaged. His friends, however, have a huge influence on his choices. He expressed how the effect of having a close friend to play with is 'update times thousand'. If a friend of his is interested in an update and asks him to join, he would almost always do so.

5.5 Facilitating conditions

Person A was of the opinion that games shouldn't be 'holding hands' with the player when it comes to discovering ways to utilize mechanics and characters. He considers it annoying when games and game companies assume the players are too dumb to understand and find out stuff by themselves. Learning things by himself and observing what other players and the surrounding community come up with is essential in enjoying the new content. Games should have little to no role in facilitating players about the contents of an update aside from some very basic information.

Person B thinks that facilitating efforts should largely depend on the contents of an update. For example, when he sees a list of technical performance additions in the intro screen of a game, he simply closes the popup. If the update changes or adds mechanics to the game, he would prefer to see a video or an example of it. He notes that this demonstration should only show the possibilities of the update on a surface level, allowing the players to discover more advanced ways to utilize it by themselves. As long as the update doesn't prove to be too difficult to utilize, he doesn't want much assistance by the developers.

Person C does find facilitating conditions important in a game and its updates, but they should be properly implemented. He brings up the example of popup hints which he finds quite frustrating after a while. Instead of forcing facilitation to the player, they should instead be told where to find more information regarding new changes if they're interested in doing so. Learning ways to use a new update is something he would prefer to together with a friend or by himself. Eventually when he gets stuck and has no idea how to proceed with the changes, he goes to YouTube and searches related videos for more information. The role of a game's community is mostly present when he wants to change up the regular game with community-created mods.

Person D would prefer to see the changelog after an update, but not much else regarding facilitation. How to use the new content should be left for the players to discover. If he doesn't have the energy to read the whole patch notes, then he might look up a stream or a video where a pro player describes the changes and its implications on the meta. If a new hero is released on a MOBA, he'd like if a few quick tips were given in the hero description. After that, the player should be left by themselves to discover what you can do with the hero. Looking up external sources for information should be left for the player to decide. Additionally, he expressed how he wants to feel like he has figured out everything by himself in the end, not because of the game's help.

Person E has no clear preference on how an update should be facilitated. He thinks it's fine if an update clearly describes all the invisible numbers and interactions in the patch notes, but also finds it exciting if everything is left for the players to discover. If he has enough time and energy to go about learning all this stuff by himself, then he probably would. However, in cases where time is of essence, he goes straight to YouTube videos to learn about the most efficient farming routes in a new Diablo 2 ladder. It appears that competitive nature of a game increases his intention to rely on external facilitation sources for best practices.

5.6 Hedonic motivation

Person A thought that having existing mechanics change radically would make the entire learning process nearly pointless, as the mechanics would change soon anyways. However, adding new mechanics on top of already existing ones is not an issue. When adding new content and changing what already exists, he thinks

the game designers should always keep in mind to reward those who have sticked around for a long time and have mastered certain aspects of the game. As for changing game difficulty, he thinks that especially single player DLC should be harder than the main game. If the DLC was easier, he thinks that would be assuming less of the players. Even when he imagined himself as a new, unskilled player in a new game, he didn't think changing existing mechanics to be easier would feel satisfying.

Person B had an experience in Forza where certain challenges were made easier with an update that allows players to rewind back to a previous position after they've made a mistake. He thought that this update broke the game in a way, since it undermines the effort players had to put in prior to this change. It appears that he doesn't have much of an opinion regarding the difficulty of new content, but the existing game should not be made easier at least. Changing difficulty should also be targeted towards game modes that are not considered to be the core content. He finds to issue in making extra game modes even harder than they were before, since they're usually supposed to be extra challenging anyways. Turning the difficulty down in these modes would frustrate him more.

Person C thinks that having more experience and a longer history with a game would make it more trivial to adapt to new changes. If he were a new player or even on intermediate level, he would imagine himself being too overwhelmed by having to learn both the existing mechanics and the new ones. He also notes that technical performance updates are the exception, as they have no relation to player skill or history. When asked about whether he would experience disdain towards changing a game he has a long history with, he does admit these feelings could arise. When it comes to changing difficulty, he thinks adding more difficult variations of the existing game modes is always welcome. On the other hand, forcing all players to adapt to harder gameplay or increasing difficulty by making usability worse are something that should definitely be avoided. Changing up his favorite way to play is also something he doesn't prefer, as expected.

Person D considers the effect of skill in the context of Heroes of Newerth. As a new player, changing the existing heroes while you're still learning them for the first time would make the update feel confusing and annoying. Meanwhile, the veteran player has enough knowledge about the game to put the changes into perspective. They would also be welcoming towards the changes as they keep the game fresh and exciting. As for game difficulty, he has experienced in Diablo 3 how frustrating it is when a game is suddenly made much easier due to player complaints. He described how it made his efforts feel worthless and the overall game experience unrewarding after the update. On the other hand, he felt that quality of life changes that might indirectly lower the difficulty are usually welcome. Adjusting the game to be more difficult or adding difficult game modes could appeal to the veteran audience but might drive newer players away. If his favorite playstyle would get drastically changed or removed completely, he would react very negatively and most likely quit the game for good. He doesn't think it's a good idea to make radical changes to certain playstyles that have existed for a long time in the game's history.

Person E has trouble answering how his skill in a game would affect his opinion towards updates. He could imagine himself in a position where if his livelihood depended on being the best a game, then he would most likely be opposed to gameplay changes that threaten his position. However, he does have a strong opinion on changing a game's difficulty. He used to be very engaged in Diablo 3 when it was first launched, since it proved to be a difficult game that required creative thinking to clear mobs and proceed forward. Complaints from more casual players led to a much easier game that made him lose interest completely. His opinion is that generally speaking, a more difficult game requires more engagement and creative thinking from the player. Therefore, he approves when games are made more challenging. He wouldn't approve of developers changing his favorite playstyle but understands that balance updates have to be issued to keep everything in line.

5.7 Price value

Person A thought that good quality updates are always worth the money, small or large, but under certain sensible constraints. If the main game is thought highly of him, then the decision is made all that easier since the expectations are already high. As for pay-to-win mechanics, he saw that implementing it could easily make him drop that game for good. Certain small benefits can still be acceptable, such as skins that make abilities slightly harder to detect, but direct advantages such as damage buffs result in an instantaneous quit.

Person B is not keen on purchasing additional content and has perhaps never done so but wouldn't turn down free content. He thinks that the core content is and should be included in the main game when it's released. As for adding pay-to-win mechanics, he has a generally negative attitude towards them.

Person C doesn't find DLC prices to be much of an issue, but he does express his issue with certain important updates being included only in larger packs. He postpones purchasing DLC packs for a long time since he doesn't care about a large portion of the content included in them. Pay-to-win mechanics have never been present in the games he plays, but he does find them unfair. If the gained advantage can be countered by playing a bit differently or better, then it doesn't bother him as much.

Person D considers himself to be stingy when it comes to paying for additional content. He used to be extremely opposed to pay-to-win mechanics, but as he has less time for games nowadays, he has become more accepting towards saving time with money. For example, he wouldn't start leveling a new account from start in World of Warcraft anymore due to time shortage. He makes a clear distinction in that paying should not give you a direct competitive advantage that wouldn't be otherwise achievable. Purchasable content also shouldn't be the best of its type, but rather something that is mainly bought for cosmetics or time saving at early levels.

Person E approves when game updates are proportionally priced based on the amount of content. For example, a DLC should never be near the price of the main game when there's far less content. Pay-to-win mechanics aren't necessarily the worst thing to happen to game in his opinion. Ideally, strength in a game should be the result of time and effort put into a game, not something you can purchase. If you have to buy something, then he prefers trading between players.

5.8 Habit

Even though League of Legends has had a series of what he considers to be bad updates, person A finds himself still remaining in that game. These changes have changed his playstyle however, as he doesn't bother with serious ranked matches anymore due to slow deterioration of game quality. He finds himself being less and less hooked on the game with every patch, which results in a more casual playstyle and changing to casual modes. He also mentions that he finds himself having trouble breaking his habits that easily and changing the game he's accustomed to playing.

Player B had experienced an update in Super Smash where the developers added an RNG (random number generation) element to a certain movement, making it possible that the character may randomly slip on the floor. This update and certain other issues he had with the game made him quit the game nearly for good, almost completely due to a single bad update.

Person C has noticed a decrease in his gametime with a game after a bad update, but it would require a long period of similar updates for him to drop the game for good. The game would have to change drastically for the worse for this to occur.

Person D seems very loyal to the games he plays and doesn't easily break his habits. It would take a long series of bad updates before he would start re-evaluating his loyalty towards it. He does point out that it all depends on the history he has with the game. On one hand, a bad update on a classic game doesn't mean much due to the long history. On the other hand, a bad update on a new game doesn't mean much either since he hasn't developed a deep connection with the game yet.

Person E provided an example in the case of Diablo 2: Resurrection. He had formed a habit of grinding up to eight hours a day in the remastered version of a classic game. However, players started to complain about Blizzard not having enough server capacity. This didn't bother him that much, but Blizzard's solution made him quit the game for good in a single update. The update in question puts the player on a one-minute cooldown if they aren't able to join a server. Additionally, they added a queue in the game launcher that can make you have to wait up to thirty minutes before you're able to play.

5.9 History

Person A finds himself having biases towards new updates based on how the recent updates have been. It takes quite the effort to convince him that the direction of updates has changed for good for that bias to change directions. On the other hand, if a game has built up goodwill in the form of a successful update history, then a few bad updates won't affect his opinion that much. Being highly committed to a game makes him be more aware and critical of the contents of new updates. He also thought that merely reading the patch notes is a sign of being far more committed than your usual player. He doesn't seem to have a default bias towards updates in games he's committed to, but instead evaluates every update on a case-by-case basis. As for how the hiatus length affects retention, he said that large updates on a game he hasn't played in a while would most likely make returning even more difficult and unlikely.

Person B told of his experiences with Cyberpunk 2077 where many updates would only be targeted to fix issues for the lower end consoles. This made it so that the more expensive version of the game didn't receive almost any significant patches for a while, causing him to have a pessimistic attitude for new updates before they were even released. As for how his commitment to a game affects him, he admits to being more reserved towards updates for games he's invested in. The changes could pose a threat for the way he enjoys the game. When a game released a huge update after he has been on hiatus for a long time, he thought it could be exciting to change up the game quite radically.

Person C has a positive predisposition towards new DLC packs in Cities Skylines, even though he hasn't been interested in the content of many previous packs. He thought that they were well made, but not something he was looking for. As he has spent more time and resources within a game, he finds himself attempting to be more accepting towards updates that initially seem like a change for the worse. In other words, commitment leads to him giving bad updates the benefit of the doubt more often than he otherwise would. If he were to have longer hiatus from playing a game, the main reason for his return would be because he simply wanted to play the same game again, not because new content has been added. The new content would be a positive addition, but also something he would postpone learning about until he remembers the basics once again.

Person D continues the topic of history from the previous section. He mentions how having a long history with a game makes him read patch notes with a mindset of 'what did my character or playstyle get?'. It seems he has developed an identity withing the game that utilizes only a certain proportion of the whole game. Continuously releasing uninteresting updates makes him grow numb towards new updates that would be related to his game identity. He makes an interesting observation about a sort of 'Stockholm syndrome' when it comes to games with lots of commitment. His impression is that when faced with new updates, players are likely to embrace the hardships they went through back when

the game was still new and harder to play and use. Players are only able to see the benefits of certain changes after a year or so has passed when they look back on how the game was before. He doesn't see the length of a hiatus having much effect on his retention but returning right after a big update would be his preferred time. His reasoning is that he wouldn't stick out as badly since everyone else is a bit confused as well.

Person E finds that the answer depends on perhaps too many things. For example, his opinion would change depending on who were making the old updates and who are making the new updates. He also found it hard to answer how his commitment to a game would affect his opinion towards new updates. As for hiatus length, he finds it intimidating to return to a game that could have up to ten new heroes since he previously played.

5.10 Update strategy

In the context of League of Legends, person A found himself preferring updates that are released once in a month or two. Smaller updates were his preferred choice, as large updates tend to make the game almost unplayable for a week or two due to the prevalent power unbalance between champions. He expressed his unwillingness to spend his time figuring out what is overpowered this time around, making him leave the game for a short while. In the case of single player games such as Dark Souls, he thought that all updates regardless of size and timing were welcome. As long as the content works as intended and is enjoyable, balance doesn't seem to matter that much. As for early access games, he understands why game companies would want to make that decision but doesn't prefer that style of release for the vast majority of games due to lack of quality in their first versions. He said that the lifecycle of a live service game would optimally be around ten years, or the lifecycle of a gaming console. His view is that this might be the future of games, where game companies release only one live service game per console.

Person B differentiates between technical performance updates and other content updates. Performance updates should be issued as soon as possible, while other updates he had no strong opinion towards. He was pleased with the update cycle of Forza where four semi-large updates are released every year. He thought that steady updates prove the developers have passion and interest in the game. For early access games, he doesn't necessarily have anything against it as long as the game is correctly marketed as such. He brings up Cyberpunk 2077 again as an example of a game that was marketed as being complete but turned out to be close to an early access game. He doesn't have much experience with live service games but was content with playing Super Smash for over ten years without any gameplay updates. Nowadays since he plays less, the games don't get stale as fast. He could imagine himself playing his current games for years and years.

Person C considers yearly paid update packs a schedule he's pleased with. Releasing paid updates more often than twice a year would be quite annoying in his opinion. However, as long as the DLC is properly priced based on the amount of content, then the schedule doesn't matter as much. Updates that change the rules of the game could be released more often at the early phases of a game's lifecycle but should decrease as the game matures and reaches a commonly agreed state. As for early access games, he generally thinks that the more complete a game is when it's released, the better. Playing the same live service game for many years is something he is not opposed to at all. When a live service game would release a new version of the same game, he expressed both excitement and fear towards what changes it might bring. The new version could change the formula so radically that it wouldn't feel the same, which is why some players might prefer an endless live service. However, in the case of Cities Skylines, players have been hoping for a better game engine, which is only possible by making a sequel.

Person D has taken a liking in the way World of Warcraft issues their updates. A very large update every two or three years, a meta shift every year or half a year, and smaller gameplay change updates every few months. Performance updates are welcome at any time, but the file sizes have to be kept small. If the whole game has to be redownloaded with every performance hotfix, then even those would have to be delayed to not be frustrating. As for early access games, he feels very strongly that games should be complete when they're released. He brings up examples from Halo Infinite, No Man's Sky and Cyberpunk 2077 as games that could've prevented all the negative publicity if they had developed the game more. He would prefer that companies return to beta testing their games instead of trying to greed more money with an inadequate product in early access. Not only could they avoid the negative press, but they also receive free feedback from the testers. Finally, for the length of a live service game, he thinks that the lifespan could last somewhere from five to seven years before it gets old.

Person E recognizes that game developers can implement an update strategy from a large variety of different options and be successful with it. Some may focus on an update style that changes the game rapidly, while others focus on adding large updates every year. However, critical performance updates should always be released as fast as possible. He also sees many possibilities in how a game is launched, where it's an early access or a complete package style. There doesn't seem to be much of a preference one way or the other since his priorities lie in the quality of the content and how it performs in a technical sense. As he has told before, he enjoys returning to old games that were made with more passion than modern ones. The idea of a game remaining nearly the same for potentially forever is something he's embracing. He finds truth in the suggestion that game sequels can often lose something essential to the spirit of the game when compared to the previous version.

6 DISCUSSION

This section attempts to analyze and make conclusions based on the answers given in the previous section. Closely related topics are placed under the same header and any notable findings are written out. These are then used to form two tables that provide a summary of the most essential results.

6.1 Player expectations

Regarding the prioritization of varying update types, there seemed to appear a common theme among the interviewees. Technical performance updates and playable content were clearly the two candidates with the most impact in players' minds. However, what was interesting is that technical performance was often regarded as something that is either the most important or the least important type of update. The interview from person D might give a hint for why that is, since even he found that technical updates can be first priority in certain cases despite not normally caring about them. This suggests that there might be a certain threshold for each player regarding how well they expect a game to work from a technical viewpoint. Once the requirements of this baseline expectation are met, they might consider the issue taken care of and shift their focus on other aspects of the game. What might prove difficult from a game developer's standpoint is determining where this threshold lies for the majority of your playerbase. It would also require extensive knowledge about the capabilities of the hardware your players are using.

Still, players don't play a game just because it runs well. Assuming technical issues have been tackled and the game runs fine, playable content appears to be perhaps the most preferred update type. Gameplay changes was also relatively popular, but not quite to the level of these two. Aside from person B, social features and cosmetics and sound were perceived as the least impactful update types among the interviewees. Then, what conclusions could be drawn from this finding? One way to interpret this is to simply conclude that update preference

correlates with how much new content an update adds to the game. The answers show that playable content is often regarded as a larger DLC pack with clear value, while other updates don't necessarily add as much to the core gameplay experience. Social features and cosmetics and sound are often released in small packs and also typically require less effort from the developers in comparison. As for gameplay changes, the impact on how the game is changed can be quite strong. What's interesting is that by simply adjusting the existing parameters in a game, the players can perceive it as new content. Lastly, technical performance is the outlier that appears to behave differently to the other update types. The purpose of these updates is to allow other content to be available in their intended form, not add anything new itself.

The interviews also revealed an interesting property regarding certain update types. This came up perhaps most notably in the context of technical performance updates where a certain baseline capability has to be met. After that, any additional efforts to improve this aspect of the game would result in diminishing returns. Person A also mentioned a similar quality in the context of social features in games, where the lack of a basic chat feature would be quite disappointing even for those who don't care much for more advanced social features such as guilds and other cooperative tasks. This brought up the idea that perhaps all aspects of a game can suffer from not meeting baseline expectations, not just those mentioned before. For example, a fighting game with a singular terribly overpowered character breaks the players' baseline expectations of what is fair and balanced. A game might also be so lacking in cosmetics that even a few additional skin choices could have quite an impact for all players. However, it's worth noting that as person D mentioned, losing to a human player online due to a bug or other performance issue feels much worse than losing to a computer-controlled enemy. Even though an update would be required to address such an issue, the severity of failing to do so could range quite wildly depending on where the issue lies and what the player has to suffer as a result. For example, a Sims game might have unacceptable loading times, yet players might not perceive it as negatively as they would if the baseline expectation for the amount of cosmetics and furniture was not met.

To summarize the findings so far, the reception of a game update is partially affected by how well the developers have identified whether certain baseline expectations are lacking and focus their efforts on that. If the baseline expectations in most areas are met, there seems to be some evidence that players might prefer updates with the most novelty. Assuming there are issues that need to be fixed, the update is evaluated based on how well it addresses those issues. Additionally, failing to meet these baseline expectations in certain aspects of the game may have varying severity depending on the consequences for the player.

6.2 Facilitation

When it comes to having to learn something new about a game, there seemed to be quite a lot of variation in the interviewees' reactions. The general consensus seems to be that players welcome new changes and get excited about them if they consider them appropriate. However, a sense of dread can be felt in the answers towards changes that are considered unnecessary or overly burdensome to learn. The interviewees also brought up ideas concerning how the facilitation should be arranged around new changes. One idea that emerged is that learning the changes should be incorporated into a regular gaming session instead of having to separately take time for practice. Additionally, some responses expressed the desire that developers should let players find out more complex ways to utilize the contents of an update by themselves. There seems to be evidence that players wish to be provided basic information about how an update is supposed to be used during their regular gaming session. However, any further facilitation by the game itself might be received as annoying or dismissive of the player's ability to learn by themselves. If players hope to seek more in-depth ways of using the new content, they seem to prefer doing it by researching things from third-party sources. As for how the game should tell the player about new changes, the responses showed that popups with a long list of changes were perhaps not the most preferred way to do it. It appears that players wish to see a brief summary of the changes, but with an option to seek out more detailed information.

Another common theme that emerged surrounding this topic was that updates should preferably add alternative ways to enjoy a game instead of replacing or altering existing mechanics and playstyles. This is especially true in the case of playstyles that have existed for a long time. The interviews were quite unanimous in voicing their disapproval of having their favorite way to enjoy a game ruined. A common opinion was that these changes would disregard the effort veteran players have put into learning a game in-and-out over the years. However, the amount and the direction of change could alter this perception drastically. As person D mentioned, veteran players might have grown bored of the game and consider small, well thought out changes to be refreshing. Person A found that this could be best implemented by adding something extra on top of how things currently work, so that utilizing it would be essentially optional. It also appears that players prefer the more difficult challenges to be tied to these sorts of optional mechanics and game modes. Additional maps, characters, game modes and so on seem to be the preferred way for players to test the limits of their skill. Meanwhile, the interviewees don't generally appear to be fond of the idea of making the core gameplay easier than it is. Perhaps the main reason for this attitude is that making the game too easy discourages players from utilizing their whole skillset and coming up with creative ways to tackle the challenges ahead. This lack of engaging core gameplay could result in a boring experience.

6.3 Social and pricing

The interviews clearly indicate that how game updates are received are relatively strongly affected by social factors. Having a friend or friends recommend a game due to a new update seems to be an important factor, even if the person doesn't care about the update itself. Person B mentions that this effect is partially affected by how accessible it is for him to join his friends. Various actors in social media and the internet also influence the opinions of players regarding new updates. As person B brings up, gaming influencers have somewhat replaced traditional gaming magazines and websites in spreading current information about new updates and their opinions on them. A few of the interviewees tell about certain games that they keep up-to-date with through various information channels. Then, if the said game ever reaches a desired state where they could imagine playing it, they're already knowledgeable about all the content that has been added during this time. What's interesting is that this behavior can occur regardless of the player's history with the game: person D is a veteran with his game, while person B has never played his. Supporting this type of behavior could therefore both attract new players and retain old ones.

Based on the answers from the interviews, the pricing portion of game updates seems to be relatively straightforward. Common sense would tell that the less you have to pay the better it is received, but players also seem inclined to pay a reasonable price. Perhaps the most notable observations from this topic are that players dislike being forced to purchase content they don't want alongside large DLC packs, and that purchasing content should not give you competitive advantage that would be otherwise unachievable.

6.4 Long-term and strategy

On the topic of habit and history with a particular game, a number of interesting ideas emerged from the interviews. The general consensus seems to be that players are quite loyal to games they have played for a long time. Even if they're met with an update they don't mostly agree with, it most likely won't affect their behavior that much overall. However, over long periods of time, the effect these updates had on the player accumulate and can change their behavior and attitude drastically. A similar effect seems to be possible to achieve with a singular, impactful update that provokes strong feelings. The interviews only demonstrate this in the context of extreme negativity, but it remains unclear whether an equally strong positive reception would also be possible to achieve.
The interviews also indicate that being engaged and committed to a game correlates with evaluating new updates more critically. Despite the word 'critical' having a somewhat negative connotation, this seems to merely suggest that these players are concerned for the health of the game. Person D demonstrates how overly critical reception can be unnecessary when developers add quality of life

changes to archaic mechanics in the game. The initial reaction may be daunting, but over time players may come to accept and understand the purpose behind these changes. Lastly on the topic of history, the length of a hiatus doesn't appear to have a clear effect on retention. When a large update after a hiatus arouses retention intentions, the interviewees appear to have one of two opposite reactions: either the update and changes are evaluated as too intimidating, or it's seen as a good time to join with others and enjoy the new content. It's likely the reaction is largely based on individual tendencies and temperament, but anxiety towards a long list of changes since last playtime is something developers might be able to relieve with targeted facilitation.

The final topic of update strategies provides a basic guideline for what a successful cycle of updates might contain. As it turns out, the interviews show that players are content with various ways to implement this. Generally, players' expectations for upcoming updates seem to align well with what is realistic to expect regarding developer resources. Whether players would prefer content updates more often assuming development resources were infinite is unknown. However, as the interviews have proven, changing a game too rapidly even in the form of content updates can alienate a portion of its players. The interviews also seem to suggest that one way to categorize updates is by their overall impact, not their contents. Players expect high impact updates to be released in longer intervals, while small impact updates could be released continuously. It seems that update types tend to have a certain intrinsic amount of impact to them, but that isn't always the case. For example, even though most technical performance patches tend to have quite low impact in general, they can also be very impactful if used to fix significant issues that have bothered players for a long time. Another categorization that becomes apparent from the interviews is that of separating updates into three types: content updates, gameplay updates and performance updates. While five categories were used for the purpose of the interviews, it has become apparent that social features and cosmetics share similar properties with 'playable content', or just content. Meanwhile, gameplay updates and technical updates have their own distinct properties as well. The interviews reveal how unlike other update types, gameplay updates carry an inherent risk with potentially corrupting existing content. Technical performance updates on the other hand determine how well the content can be accessed, and they tend to have an inherent sense of urgency and highly varying priority.

	Content	Gameplay changes	Performance
Includes	Maps Characters Items Etc.	Balance adjustments Game rule changes Difficulty adjustments	Hotfixes Optimization Online improvements
Distinct properties	Possibly optional Possibly priced Paid advantage	Mandatory High-risk High-impact	Highly varying priority Defines access to content

TABLE 1 Three categories of updates and their respective distinct properties

However, even though many developers follow a similar principle regarding update strategies, it seems possible that deviating from this can result in equally successful and perhaps more creative products. Of course, the constraints of developer effort and company resources place a limit on what combinations are realistic to implement. Perhaps the most popular strategies that prevail at the moment allow game companies to create a sufficient amount of novelty while only spending a reasonable amount of resources. However, when a strategy is implemented, it is important that developers are conscious of their decisions. As the interviews suggest, maintaining a long, steady lifecycle for a game is appreciated by the players. Maintaining a singular game seems more beneficial than ever, but a few related observations emerged in the answers. Even though players can enjoy the same game for many years, a limit is reached eventually. After that, there's a risk that developing a sequel might not capture the same appeal that the previous version had. On the other hand, a sequel is an opportunity to correct certain fundamental issues the previous title might've had.

6.5 Additional topics

Lastly, the interviewees were asked whether any additional topics came to mind during this interview. One of the purposes of this research was to discover whether the subjects brought up in the interviews were comprehensive enough to sufficiently address the intricacies of game updates. However, none of the interviewees came up with anything to add to the topic, and they thought the questions were extensive enough to cover most of the essential ideas. There are a few ways to interpret this result. First, one might accept this as the truth, and the introduced topics truly were as comprehensive as they say. After all, the questions were based on frameworks and models that are well established in the topic area. A second view is that since the interviewees weren't initially completely

familiar with the topic, one might presume that their thinking regarding the topic hasn't matured enough to be able to come up with novel ideas surrounding it and to notice any missing pieces in the interview. As such, the topic of game updates could still be too recent and complex that a certain default model hasn't yet developed in many people's minds. Then, the third view for why the no novel ideas came up is that the interviewees were simply too exhausted ready to move on at the end of the interviews. It is hard and perhaps impossible to measure how much of an effect this might have, but it definitely explains the results a little and is completely understandable.

Content	Addressing issues that fail to meet baseline expectations Evaluation of updates based on novelty and personal preferences High-impact updates enable drastic and swift changes in perception
Pricing	Preference for modularity rather than monolithic packages Strong responses towards paid competitive advantage
Social	Peer groups may strongly influence perceptions and attitudes Gaming personalities and medias influence opinions and keep up-to-date
Facilitation	Facilitation focused on basic utilization and redirecting Players feel empowered by discovery and creativity Additional facilitation efforts for players facing large update logs
Long-term	Perception of updates over time slowly alters players' biases and opinions Engaged veteran players might assess updates more critically Players appreciate steady support and a long lifecycle
Strategy	Various implementations can be successful Players might evaluate strategies based on impact expectation Game sequels enable fixing fundamental issues, but may alienate players

TABLE 2 A summary of the main findings on game update-related topics gathered from the interviews

7 SUMMARY

This paper was initiated with an introduction on the background of how game updates have come to be more important than ever. Some game developers have shifted towards a more update-based model for a multitude of reasons, such as shortened lifespan of games, alternative revenue models, risk management, and extended customer relationships. This change has made the game update a topic of interest since it defines what the reception will be. In order to research more about this topic, two research questions were formed:

1. How could the properties of game updates be conceptualized?
2. What do players' attitudes reveal about the properties of updates?

Chapter three was used to provide a theoretical background to enable forming proper interview questions in chapter four. Then, five people were interviewed in a semi-structured interview to gain insight on these research questions. Their answers were written out in the fifth chapter and then analyzed in the following chapter. In the end, three categories of game updates and their distinct properties were identified. Additionally, a summary of the main findings on various topics is provided. These results should be useful to read for players, game developers, video game researchers, and other interested parties.

As for future research topics, this paper should offer plenty. One might approach a similar topic as the one in this paper but with quantitative research by conducting a questionnaire on internet forums. However, it might be more lucrative to focus on one of the more narrowed-down topics found from the results. For example, research could be done with a focus on either content, gameplay change or performance updates. To specify the topic even further, only a particular game genre could be taken into account. The six categories of findings could also be researched further. A focus on how new features are facilitated in games or a long-term study that observes changes in players' attitudes over a game's lifespan would be interesting reads. These categories could also be refined further to fit into a game update model that this paper might assist in creating. One of the challenges in this area of research is the amount of contexts and variables,

varying depending on gaming platforms, games, game genres and players' personal preferences. It might prove difficult to set up research in a way that could generate generalizable results. However, the fact that certain best practices have emerged in game development prove that there are specific properties in games that apply to the general population.

The research of this paper has a number of limitations that can make the results less reliable. First, the people interviewed for this study were demographically quite homogenous. If a more in depth research were to be conducted of a similar topic, then it should include a more diverse set of players. Then again, one has to ask which set of players should be chosen to most accurately represent the average gamer. From this perspective, a young male is probably a decent choice. The number of players interviewed could also be increased to further improve reliability. A second limitation this study might have is that even though players understand what the topic is about, they might not have a comprehensive understanding of all the possible properties an update might have. They can also have a limited view on updates that concern only their types of games, despite the interviewees having a reasonable history with games. One of the purposes of this study is to help players and researchers gain a basic conceptual understanding on the properties of game updates so that future interviews can benefit from it. Finally, basing the research and analysis on directed content analysis tends to pose certain issues. Hsieh and Shannon (2005) suggest that since the research is partially based on existing theories, there's a tendency to find evidence that supports these theories rather than not. The authors also mention that the interviewees might be inclined to answer a certain way when asked to elaborate further on certain topics. In this study, this could be partially noticed when the players were provided examples on how they might feel about various topics to help them think about the answer. How these examples are worded can cause the answers to be biased into a certain direction.

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APPENDIX 1 INTERVIEW QUESTIONS

(Background):

-What is your gaming history like?

Update type:

-What types of updates would you prefer from the following? Rank in order of importance:

Technical performance
Cosmetics and sound
Gameplay changes
Social features
Playable content

-How would the size of the update affect your attitude?

Performance expectancy:

-How would you describe the importance of performance updates to you?

Effort expectancy:

-What are your thoughts regarding having to learn parts of a game over again after an update?
-How much effort would you be prepared to put in to learn a new update?

Social influence:

-How would you describe the influence your friends have over what you play?
-How would you describe the effect of social media affecting what you play?
-How much do the contents of an update matter to you if your friends want to play it together?

Facilitating conditions:

-How, where and to what extent should a game teach you about what a new update is all about?

-Would you prefer learning about an update by yourself, or with the help of a friend or a media source?

Hedonic motivations:

-How do you think your skill in a game affects your attitudes towards updates?
-What do you think about an update changing the overall difficulty of a game?
-How would you feel if an update changed your favorite style or way to play a game?

Price value:

-How would you describe the effect of price in your choice to get an update?
-What are your thoughts on paid updates that help players gain an advantage?

Habit:

-Would you keep playing a game out of habit, even though you don't like an update?
-How many bad updates does it take to remove a habit?

History:

-How do you think a game's past updates influence your attitude for new updates?
-How do you think your past commitments (money, time and effort) towards a game influence your attitude for new updates?
-How do you think your attitude towards an update is influenced by the length of a hiatus?

Update strategy:

-How often would you prefer games released updates?
-Would you prefer that games take longer to release but with more content at the start, or the opposite?
-How long do you think you could play the same live service game before wanting a completely new version?