Master Thesis

MSc in Management of Innovation and Business Development

AN INVESTIGATION OF MONETIZATION STRATEGIES IN AAA VIDEO GAMES

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Abstract

The AAA video game industry has recently been associated with multiple controversies and community outrages, most commonly attributed to aggressive monetization strategies. Due to the rapid evolution of the industry in question, the body of academic literature is quite lacking, especially with regard to developments that are more recent. The authors gathered research investigating the impact of a number of factors, related to the most prevalent monetization strategies, on the games themselves, and combine these insights, in order to create a foundation for a holistic theory of these relationships. A qualitative study, in the form of a literature review, was undertaken to explore the various factors impacted by the chosen monetization strategy affects the rating scores given by critics and consumers. These studies add to the understanding of how a chosen strategy can affect the consumer perception of the game, which is directly related to the generated revenue. Furthermore, the literature review provides a rough outline for the interaction between consumer purchase motivations, purchase incentives implemented into the games and their effectiveness. These findings can have important practical implications for AAA video game providers when designing future games.

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Introduction

The video game industry is both very dynamically changing and rapidly expanding. While still quite niche a decade ago, with global revenue under 20\$ billion (Statista, 2010), its value was 138\$ billion already in 2018, with the projections putting it at 180\$ billion in 2021, as reported by The Association for UK Interactive Entertainment (UKIE, 2018). The research area of this thesis takes a more focused perspective, as the authors have chosen to investigate the so-called "AAA" segment of the industry, due to two reasons, namely the scope and significant differences, between the identified segments.

Firstly, it is considered the most interesting, as the production of these games involves the greatest risks and rewards, because of their high budgets and plentiful opportunities for revenue generation. This has resulted both in certain shifts in the business models and the main value streams, as well as multiple controversies related to community outrages over certain design choices within the games, which have caught the attention of the authors. The interest in new methods of creating value is understandable, due to a staggering success of additional in-game content sales, such as the example of Grand Theft Auto V. It was reported that out of the 1,4\$ billion, generated in revenue from its release in 2013 until 2017, 78% stemmed from additional content sales (Strickland, 2017). This pursuit of new monetization strategies has not been fruitless, as 2018 has many success stories of its own, with the 20 most profitable games earning in the range from ca. 430\$ mil to 2.4\$ billion (Jurkic, 2019). Whilst profitable, some of the games experimenting with new business models have drawn the ire of consumers, thus investigating why that may be the case, is one of the main goals of this thesis.

The trend for major customer backlashes, due to business-related decisions taken by the game creators, could be seen to greatly overlap with the inclusion of microtransactions in the game, however, it was not consistent in relation to genre of games, or even their publishers, although certain trends were also present in the second case. It could be argued that although the majority of customers do not follow the developments in the industry, there exists an "informed" customer segment, which actively seeks out the related news and community outrages, which might result in a coordinated outpouring of extremely negative reviews for a game, known as "review bombing", which some score aggregators try to counteract (Good, 2019). The most notable events, related to customer backlash in recent years, occurred in connection with the releases of Middle-earth: Shadow of War, published by Warner Bros. Interactive Entertainment and Star Wars Battlefront 2 by Electronic Arts, both from 2017. The games based their progression system, at least to some extent, on the so-called "loot boxes", which are a type of microtransaction with randomized rewards. These terms shall be explained in detail in the later parts of the thesis. In Middle-earth: Shadow of War, the main reasons for criticizing this system were the negative impact on immersion, as the presence of loot boxes detracted from the game, as well as the impact on progression. In the final chapter of the game, the players were faced with a choice to either purchase the necessary goods with real money or be forced to engage in repetitive tasks, for a prolonged period, to finish the game. Due to very bad reception of this particular system by the customers, the microtransactions were eventually completely removed and the last part of the game redesigned (O'Connor, 2018). As Star Wars Battlefront 2 comes from a significantly bigger publisher, measured by the amount of released games, and is connected to one of the most profitable intellectual properties in the world, the expectations towards the game and marketing efforts taken by the publisher were much higher than in the previous example, however, the harshness of backlash was also proportional. Even though the design decisions were at first defended by the firm, earning their justification for the

progression system the mark of the most downvoted post in the history of the website Reddit, by a huge margin (Schreier, 2017), following this event, the firm has taken steps to appease its customers. At first, it was a significant change to the pace the player could unlock in-game content, reducing the required time by 75%, however, it was not enough from the consumer's point of view, as the outcry continued (Alexandra, 2017). With accusations of implementing gambling in an unregulated way and a looming threat of investigation by gambling authorities both in the EU and USA (Hood, 2017), eventually, the entire progression system in the game was completely redesigned, with paid loot boxes removed (Tassi, 2018). After the changes, the players were only able to purchase specific goods, which would visually alter their characters, without any impact on the gameplay. Although, investigating the reviews given for two games, as well as other similar cases, could provide the researchers with valuable insights, regarding which specific aspects the customers disliked, the authors decided to explore academic literature instead, in order to find the underlying reasons for this lack of acceptance. The desired result was finding much broader principles related to monetization strategies in the AAA segment of the industry, rather than just things to avoid in implementing microtransactions.

Secondly, in the preliminary investigation of the industry, the authors discovered that it could essentially be split into three segments, based on the types of video games produced. Although the segment of "mobile games" can be clearly separated from the other two, as it simply refers to games released on smartphones, the definitions of "AAA" and "indie" games are much more abstract. As Brendan Lowry (2017) puts it, "indie titles are always developed by individuals or small teams, which rarely have financial support from a publisher", while "AAA games are developed by large studios that have hundreds, or even thousands, of people working for them. In addition, the projects are backed by a publisher (...) which supplies the development team with a massive budget". This vagueness partly stems from game budgets not being publicly available information, which makes it unrealistic to deduct a clear cut-off point between an "indie" and "AAA" title. Despite this, the more recent titles can be placed in these categories with a reasonable amount of confidence, due to certain industry developments, which will be outlined later in the introduction. Another important distinction, which allows for effective allocation of games into these categories, is the one between developer and publisher. The report of Prato et al (2010) for the European Commission, will be used for this purpose, as they define these terms very clearly in their description of the value chain within the industry. "A video game developer is a company that invents and develops video games, and in particular develops the necessary software to run the video game." "A video games publisher is a company that publishes video games that it either develops internally or has ordered from a video game developer. The publisher is responsible for licensing the rights and the concept on which the game is grounded, for handling the marketing and often even the distribution." In cases where this distinction was either not necessary, or when it is quite contentious, whether the decision to implement certain elements into the game is made by the developer or the publisher, the authors have chosen to use the term "game provider".

Arguably, the greatest revolution, the industry has experienced in recent years, is the advent of microtransactions, defined by the Oxford dictionary (2019) as "a very small financial transaction conducted online". In the context of video games, however, such a definition obfuscates the diversity of monetization mechanisms used in the industry, which the researchers elaborate upon in the section of the thesis devoted to describing monetization strategies. During the research phase, the authors discovered some of the most important and fundamental differences between the business models present within the AAA industry segment, namely the distinction between designing the game as a product or as a service, and the decision for it to be premium or freemium. Although existing explanations of the meaning

of these terms could be found, the researchers have decided to define them on our own, to ensure that the terms accurately represent how the games are classified. A game, as a product, refers to the way video games were historically designed, meaning minimal, or no support and updates to the game post-launch, as well as online infrastructure, limited to providing the possibility of multiplayer mode. In this model, the number of units sold is the measurement of the game's success. Games as a service, also referred to as "live-services" (Palola, 2018), is the new way of designing games, adopted by some of the largest publishers in the video game industry. The focus of this method lies in maximizing recurrent user spending and as such, the games tend to require a constant internet connection, due to frequent content updates, alterations and problem fixes. As such, the main purpose of online infrastructure is ensuring the availability of engaging in microtransactions, regardless of the single- or multiplayer aspects of the game. It could also be argued, however, that storing the game data on the game provider's servers, rather than the customer's personal computer, is used to ensure that the users do not alter the game in a way that diminishes the publisher's revenue. An additional consequence stemming from the industry shift towards the live service model is the trend to release unfinished games, with either the intention or unfulfilled promises of improving the game after its release (Sinha, 2018). Although it allows the developers to more consistently fulfill the deadlines imposed by the publisher, the negative impact on the reviews of the game, and subsequently the initial player base, is undeniable. The distinction between premium and freemium, which will be elaborated upon later in the thesis, simply refers to whether an upfront payment for the game is required, which is the case for the premium model.

As any model based on earning revenue from microtransactions essentially refers to selling virtual goods, another difference needs to be pointed out. Although almost every game contains virtual goods, in the vast majority of cases they are a design element intrinsic to the game, bought with the currency earned for playing the game itself. Therefore, the authors deem it crucial to separate, what shall be referred to as "standard virtual goods", described in the previous sentence, from "premium virtual goods", which regard items that are purchased with real money, or "premium in-game currency". This leads to the next differentiation, which will be further elaborated upon in connection to monetization strategies. Video games, mainly in the "live service" category, can contain at least two in-game currencies. The authors have chosen to label the ones which are earned by playing the game as "standard currencies", whereas the ones bought with real money is termed "premium currencies". This leads to the necessity of defining the last term, namely "mechanics", which refers to elements of game design, such as the described currencies and general gameplay, including the incentives used by game developers to promote purchasing virtual goods by the players.

As stated above, the focus of the industry has shifted from selling the games as products to offer them as services. Although this change can be attributed to the discovery of a new, highly profitable revenue stream, its foundational causes are rooted in the rapid development of technology, which has tremendously impacted the direction, in which the industry evolved.

In their investigation of paradigm shifts in the video game industry over the decades of its existence, Zackariasson and Wilson (2010) find a clear pattern of changes in the extent of the prevalent degree of vertical integration. Interestingly, the historic changes show that the pattern has the shape of a parabola, although the extent of initial vertical integration has not been reached yet. The authors describe the first major company within the industry, Atari founded in 1972, was in full control of every significant point of their value chain. The firm created game consoles, the games which were used on them and even developed and serviced arcade places, where the games would be played. Atari completely dominated the industry both during

the Arcade era and the initial shift to home entertainment, due to lack of competition. Activision, founded in 1979, was the first third-party video game publisher ever established. At first, Atari launched a multitude of lawsuits against Activision for making cartridges for their console, since they didn't want the competition to their own games. Later the firms saw the benefits of cooperation, as increasing the number of games available for the console had a positive impact on its value, thus driving the sales of hardware. Following this development, the industry adopted a multi-tiered model, consisting of hardware providers, game publishers, and game developers. As a result, due to the increasing attractiveness of the industry, other large firms were established, or joined it, which resulted in Atari losing its prominent position, to the point of becoming an insignificant player.

Arguably, the greatest technological change, which shifted the evolution of the industry back to integration, was the spreading adoption of broadband internet connection. The introduction of Massively Multiplayer Online Games (MMOG's) has vastly expanded the market by adding a social element to gaming. The pressure towards consolidation stemmed from two sources. Firstly, the cost of developing MMOG's was exorbitant for the industry standards of that time, however, it was translated to a plethora of features offered by these games, which has set future, customer expectations towards new products. Secondly, the rapid marked growth led to more firms entering the industry. The fierce competition required putting the emphasis on product quality, thus driving the costs up further. This is the last development, described by Zackariasson and Wilson (2010), however, the industry has experienced another major shift since the time they published their research.

The previously mentioned microtransactions are both the next paradigm shift in the industry, as well as the core focus of this thesis. Although there are varying accounts of their history, due to differences in how they are defined, in the case of this short overview, it is only necessary to show the direction in which they evolved, rather than accurately describing their emergence. The concept itself can be traced back to the emergence of smartphones, as mobile games were the first to incorporate it, thus creating the previously defined term "freemium" (Lim, 2018). Although the most successful mobile games experience a revenue inflow counted in billions of dollars, only 0.15% of consumers account for 50% of this income (Agarwal, 2019). As recounted by Crunch (2019), the first microtransactions in the AAA segment of the industry, as defined in this thesis, were introduced to UEFA Champions League by Electronic Arts in 2007. The model, which was found to be immensely profitable, was first included in the publisher's sports titles, with their flagship FIFA currently accounting for 26% of their revenue. Seeing the astounding financial success of this revenue stream, other game providers soon followed suit, thus making microtransactions commonplace in multiplayer modes (Lim, 2018). Electronic Arts was a pioneer in the segment, as they were also the first to introduce the concept of loot boxes in 2009, also to their sports franchises. Currently, microtransactions are also being incorporated into single-player games created by Ubisoft (Totilo, 2018), however, loot boxes have, until now, only been included in one, exclusively single-player, AAA game, unsuccessfully though, as shown by the example of Middle Earth Shadow of War.

The final, significant consideration, which affects the analysis of the data samples collected for studies discussed throughout the thesis, is the demographic breakdown of gamers. As presented in an extensive statistical analysis by Yee (2017), there are major differences regarding the gender split, depending on the game genre. Although the yearly industry reports from the Entertainment Software Association have the number of female gamers fluctuating between 30 and 40%, they do not take into account the type of games being played or the frequency of the activity. Yee shows that in game genres typically associated with the AAA segment, women

are drastically underrepresented, with the female ratio in most of the genres ranging from 2-20%, with the only outlier being different types of RPG games, where the range contains 26-36%. Additionally, the genres known for containing the most aggressive forms of microtransactions, such as sports and first-person shooter games are played almost exclusively by men, with women represented by under 10% in this segment. This information is significant, as evaluation of the data sample and its collection methods are important elements of the literature review, performed by the researchers, especially in cases of conflicting findings.

Research question

This introduction culminates in the following research question, which is accompanied by eight sub-questions. These are the result of the exploratory research approach and will assist in analyzing the effects of the defined monetization strategies on these factors.

'What are the effects of the most prevalent monetization strategies used in AAA video games?'

Sub-questions

- 1. Which are the most prevalent monetization strategies used within AAA video games and how are they perceived by consumers?
- 2. How do online evaluations influence the purchase behavior of consumers?
- 3. How do the highlighted monetization strategies impact online evaluations?
- 4. How do consumer purchase motivations influence purchase intention of virtual goods?
- 5. In which ways do video game providers incentivize consumers to purchase virtual goods?
- 6. What are the differences between the approaches to consuming video games?
- 7. Which criteria do consumers and critics consider when reviewing games?
- 8. What are the game provider's opinions on the discussed monetization strategies?

Methodology

In the process of writing this thesis, the researchers took the approach of letting the gradually gathered data lead them towards the research sub-questions and structure of the thesis. The only guiding principle was to give a comprehensive explanation to the problem of monetization of games in the AAA segment. As such, even though many academic frameworks, which would be used to study business models of specific case companies, were considered, it was discovered that such an approach would give a very incomplete and somewhat biased answer to the research question. The frameworks themselves would act as restraints on the researchers, rather than helping with the analysis, and might ultimately answer which case firm was managed in a better way, rather than providing generalizable insights to create a holistic theory of monetization, which was the main purpose of the thesis. The core of the research was based on reviewing and comparing the findings from a vast body of literature. The initially planned structure of the paper went through many, radical changes, as additional academic articles were analyzed and the topics they discussed were added to the table of literature overview, the researchers have constructed. The resulting adjustments will be discussed in greater detail towards the end of the methodology section. Furthermore, as hinted in throughout this

paragraph, this section is one of the last to be written, as it serves to report the actions and considerations taken by the researchers during the entirety of the writing process, rather than before it began. Finally, the work of Saunders et al (2016) will be used to provide structure to the description of the methodology used in writing the thesis.

Since the epistemology and ontology were not actively considered by the researchers during the data analysis process, it could be argued that the authors have adopted a pragmatist approach, due to the focus of this view on accurately answering the research question, rather than philosophical considerations. In line with arguments presented for this view by Saunders et al (2016), the researchers did not consider debating the nature of knowledge creation and knowledge itself to be worthwhile topics, which would help in achieving the goal of the thesis. On the other hand, as all the analyzed literature studies complex, human decision making processes, which are not consistent from one person to another, they are by definition social phenomena and thus cannot be objectively measured. This is shown by the variance in criteria across the studied literature, used to analyze the impact of certain customer motivations on purchase intention. The social roles and hierarchies played a significant role in many of the investigated studies and these findings were extensively utilized, which points to the interpretivist perspective. Additionally, although the conclusions are meant to be generalizable, it must be acknowledged that a radical, industry wide change, to how the games are designed could make the findings of this thesis obsolete. Despite these arguments, the researchers believe that pragmatism is the most accurate representation of their methods, as the ultimate purpose of this thesis is laying theoretical foundation for a model, which could objectively predict the effects of a given monetization strategy on the aggregate customer purchase intention and perception of the product itself.

With regards to axiology, it is worth to note that both of the researchers are very passionate about the studied subject, due to the products provided by the industry being one of their hobbies. In the context of the research question, this bias is believed not to significantly affect the analysis, as the thesis aims to explore the revenue generation practices of the industry and their impact on games in-depth, rather than to judge the business ethics, or make predictions about the future of the industry.

The authors have decided to combine the deductive and inductive approaches in the paper. As building a holistic theory of monetization of AAA games is the purpose of the thesis, induction is the primary method of conducting research. The insights from the numerous academic works are cross-examined and combined, forming a growing framework of relationships between the analyzed factors. The aim of the thesis was not only to present these connections, but also explain why they exist and how they affect each other in context of the entire business model. In a sense, the researchers were forced to adopt this approach, due to the lacking body of knowledge related to this topic, especially in the context of investigating such relationships. It could be explained both by the relative youth of the AAA segment of the industry and its niche nature up until recent years. The deductive approach comes in the form of the study on consumer and critic ratings performed by the authors. Due to the vastness of findings and very high complexity of the theoretical foundation arrived at through induction, it was feasible for the researchers to test only a small aspect of the framework. The study was designed to test the impact of monetization methods on the ratings of the games and its methodology will be described in detail right before the analysis part. As such, this thesis also combines the elements of an exploratory and explanatory study. Firstly the literature is used to assess the existence and impact of various factors related to the research questions, which is its exploratory aspect. Secondly, the authors aim to establish certain causal relationships, between the investigated elements, which represents the explanatory aspect. Although, as stated earlier, testing the majority of the discovered relationships is beyond the scope of the thesis, thus this second stage is incomplete.

With regards to the research strategy, the authors have decided to fully adopt the grounded theory approach. Although, as explained earlier, this was not the initial plan for the thesis. The original idea involved a comparative, multiple case study of two to three companies with radically different approaches towards monetization of their games. During the brainstorming sessions, however, the researchers realized that this approach would have two major flaws, significantly affecting how the investigated subject would be explored. Firstly, despite the chosen firms having publicly traded stock, most of the information required to control for differences in their size, marketing budgets for the games and the resources that were invested in the game itself are not publicly available. Although the authors could possibly arrange for some interviews, the likelihood of being granted access to such a large amount of very sensitive information was considered to be extremely low, thus any control factor would have to be based on estimates, rather than concrete data. Secondly, an extensive analysis of the case firms would result in a more descriptive study, showing which monetization strategies work, depending on the game genre they are used in, thus giving a very incomplete picture, as the explanation of why they work, could only be a subject of speculation. The grounded theory approach allowed the researchers to create a foundation for a holistic theory, which analyzes why certain relationships exist and how strong they are. Finally, the theory itself would work as a set of guidelines to game design, illustrating the effect of various incentives on the sales of virtual goods and reception of the game, depending on the game genre. As such, this was considered to be an approach that gives the most comprehensive answer to the problem of video game monetization.

The authors have chosen the mixed-model research due to their focus on exploring the literature related to the investigated subject and subsequently testing a fragment of the theory. Hence, the majority of the collected data is qualitative and analyzed as such. The reason for the research being mixed-model, rather than mixed-method, is the fundamental purpose of the ratings study presented in the thesis. Rather than being a simple statistical analysis, meant just to confirm, or reject a hypothesis, it is supposed to be an addition to the narrative of the entire theory, providing the authors with additional insights related to the relationship between the effect of a specific monetization type used in a particular game genre and the score given by the consumers. Although ideally, the study would be cross-sectional, as the authors are most interested in the current developments in the industry, the researchers were not able to find enough relevant data, which was published recently, thus adopting the longitudinal approach. However, it could be argued that it has benefited this thesis, due to the dynamic evolution of the industry, as it allowed for exploration of how the approaches, towards implementing ingame incentives to purchase virtual goods, have changed over the last decade.

Due to a focus on induction and the exploratory nature of this thesis, the main source of data is written materials in the form of academic papers. The rating scores presented in the study were another type of secondary data, however, the methodology of collecting them will be presented directly before their analysis begins, rather than here. Thus, the following section shall only describe the procedures related to collecting and analyzing the academic literature, which guided the direction, in which this thesis evolved.

The process of literature selection was split into five rounds, which helped the researchers with refining the areas of interest and focusing on the subjects, which were not explored extensively

enough. In order to ensure finding a vast amount of accessible, academic literature, the digital library platform "Libsearch" (2019), with access provided by the authors CBS credentials, was used. In order to ensure the high quality of the final product, the researchers have decided to use the "peer reviewed" filter, regardless of the search terms. The first phase consisted of very broad search terms, as the researchers were only exploring the problem, with the only specific insight gained from observing the video game industry over the years, being the difference between the opinions of critics and consumers on a number of popular video games. Thus, the first set of search terms consisted of: "review", "video games", "video game review", "business model video games", "microtransactions" and "video game industry". This has resulted in finding 25 articles related to the search terms and three books, which were digitally available. The authors started by investigating the books, two of which provided historic perspectives on the industry (Hart, 2017; Wesley and Barczak, 2016), which were eventually deemed not useful, due to a shift in research design from case study to grounded theory. Although the last book, provided some insights on the underlying reasons for player behaviors in video games (Bostan, 2016), the explanations were rooted in the discipline of psychology to the extent that went beyond the scope of this thesis. Following the examination of the book contents, the researchers have analyzed the 25 articles and created a table of topics touched upon in each of them (Appendix 1). The initial categories were: "critic reviews", "consumer reviews", "business model", "monetization strategies", "microtransactions" and "industry overview". "Critic reviews" and "consumer reviews" contain a variety of topics concerning the reviews and ratings given by these respective groups, such as related factors impacting the consumers and the differences between them. The categories of "business model", "monetization strategies" and "microtransactions" refer to progressively narrower aspects of revenue generation. "Industry overview" includes information about the industry's history and the general trends present within it, as well as the customer demographics. As these articles were discussed, the authors came to realization that more precise categories are required, as certain significant insights didn't fit into any of the present ones. The following headings were added as a result: "purchase motivations", "purchase incentives", "purchase intentions", "network effects", "industry prediction", "game design - players" and "game design - critics".

"Purchase motivations" consist of the reasons why people buy virtual goods, which are internal, meaning they could also exist in contexts other than video games, although all the included studies investigate the video game industry. "Purchase incentives" contain various strategies that video game providers use to encourage sales of virtual goods, both standard, and premium. Any aspects affecting the likelihood of selling virtual goods that did not clearly fit under the previous categories were placed under "purchase intentions". "Network effects" refer to the impact of the quantity of customers on factors ranging from the adoption rate of a gaming system to the value of virtual currency. Some of the papers providing the researchers with insights related to the industry as a whole also contained predictions about its future, based on the trends present at the time they were written, thus the heading of "industry prediction" was included. The last two categories relate to what these respective groups focus on and value in video games.

The second research round consisted of 16 articles and used search terms related the newly created categories, as well as more precise findings such as "purchase motivation video games", "player motivation", "gamer motivation", "incentives video games", "game design incentives", "network effects video games", "video game industry prediction", "game industry prediction", "video games", "video games", "virtual goods video games", "cosmetic goods video games", "advancement goods video games". The following rounds, which contained 4, 26 and 11 articles respectively aimed at saturating the existing categories. One of

the strategies, used by the researchers, was to further analyze some of the references found in the literature reviews of the investigated articles. Arguably, the categories of "industry prediction" and "game design - critics" did not reach a point of data saturation, as the low amount of articles on these topics stems from a very lacking body of literature related to them, rather than continuous inflow of similar insights. In the case of "game design - critics", the reason might be the extremely niche nature of the subject, which results in a lack of interest in it. As the researchers analyzed the predictions made about the industry, the common trend was for them not to come true, thus it is reasonable that academics are cautious while forming them, which leads to a low amount of academic works exploring this area.

In order to ensure the reliability and validity of the findings contained in this thesis, the researchers have scrutinized both the definitions of terms and data collection methods of every study that was analyzed throughout the paper. This has allowed the authors to identify multiple measurement inconsistencies stemming from differences in variables included under specific definitions. Additionally, due to these evaluations, the researchers could judge the validity of specific findings in the context of the thesis, especially in instances of significant deviations between separate studies. While in some cases, the studies were simply considered more reliable due to a more robust methodology, in others the researchers considered validity a deciding factor, meaning the studies investigating subjects closer to the AAA segment of video game industry, were considered more valid for the purpose of this thesis. As this method was employed as a guiding principle of the literature analysis, the authors were able to combine the insights from numerous articles, despite their inconsistent, or sometimes contradictory findings. The method was especially helpful in grouping the insights from literature related to purchase motivations into new categories, which were then used through the remainder of the thesis, when exploring the causal relationships to incentives used by game providers and approaches the customers take to playing video games. Finally, rather than having separate sections for delimitations and limitations of the thesis, the researchers have decided to incorporate them in relevant sections. The reasons for this choice are rooted in the perceived increase to cohesiveness of the text, due to choosing this approach, as well as the exploratory nature of the thesis. Setting many, strict delimitations from the start of the process could negatively impact the findings.

Importance of monetization strategies

As touched upon in the introduction, the video game industry has seen several innovations to their monetization strategies, partially motivated by increased production costs, but also by the opportunities made available by the widespread commercial use of the internet. In order to identify patterns amongst the ratings in the later study, the various monetization strategies need to be identified and categorized. Once defined, each game will fit into one or more monetization categories, whereafter the ratings data can be coded and possibly reveal which monetization type attracts the most negative evaluations and which creates the largest discrepancy between critics' and consumers' average. In addition, including the game genre in the study can give insight into the degree of acceptance for the various monetization strategies in the respective game genres.

Most prevalent monetization strategies

Prior to the widespread commercial use of the internet, physical premium sales were the only viable monetization strategy for games, with consumers making an upfront payment in exchange for the limited experience included in the game (Nenad, 2017). This model was, and is, relatively more vulnerable to internet piracy, with AAA titles eventually being downloadable for free on specialized forums (Nenad, 2017). With the rise of the internet, multiplayer games rose in popularity with the massively multiplayer online role-playing game (MMORPGs) genre gaining huge traction. This genre is characterized by a lock-in effect, as a result of high switching costs after the player has invested numerous hours in developing their in-game character. In addition, network effects are an important characteristic, as the network size can increase the perceived value of the game, whereby games also experience strong tendencies of concentration (Komorowski and Delaere, 2016). The internet also changed the possibilities of game-design as these could now theoretically have a never-ending experience, which is in stark contrast to the limited experience offered in solely offline games (Komorowski and Delaere, 2016). With this change in the duration of the game experience and the addition of a social aspect, the game developers and publishers saw their chance to add to the premium sales monetization strategy and thereby also make this continuous through an ongoing subscription model (Zackariasson and Wilson, 2010). Initially, companies took advantage of this aspect by both having an upfront premium price, along with a monthly subscription fee, as seen in the incredibly popular game World of Warcraft (Humphries, 2018). With some game genres focusing heavily on character development, these games turned into open worlds, for which virtual economies were an enhancing factor (Alves and Roque, 2007). This aspect concerns the exchange of virtual currency, goods, and services, either between the players and some game elements, such as store vendors, or amongst the players themselves. A virtual economy, with supply and demand, presented the opportunity of an item-selling based model, wherein revenue is generated through microtransactions of in-game virtual items pertaining to progress, cosmetics or advantages (Oh and Ryu, 2007). Initially, items sold by the game providers were to be purchased with either real or virtual currency, with the real money offer being at a discount to incentivize these purchases. However, this could quickly break the game balance, whereby the items started being separated, so that one category was only purchasable with the in-game currency and another with real money (Oh and Ryu, 2007).

Whereas the premium sales-model was a one-time payment for a product, subscriptions were a continuous payment, turning the game into an on-going experience (Heitmann and Tidten, 2011). However, the subscription model was heavily reliant on network effects and still had a limit to the amount of revenue being generated per user. The introduction of the item-selling based model almost entirely removed this ceiling with players being able to continuously make transactions of in-game items, whereby the network effect became even more of an accelerant; additional players not only enhance the experience for the established player base but also had the potential to increase revenue by more than the fixed amount of the premium or subscription price (Alves and Roque, 2007). For this reason, many companies moved towards a freemium model, whereby some consumers would be able to play the game for free, thereby adding to the positive network effects. Unlike the premium and subscription models, not all consumers are generating revenue under this model, but the free aspect can draw in new consumers. This strategy becomes profitable as the variable cost of adding more players is relatively low, but some portion of the new consumers will be heavy users willing to pay for additional features, whereby the potential revenue from microtransactions should exceed the increase in costs (Seidl et al., 2018; Nenad, 2017). The conversion rate of the consumers buying in-game content naturally differs across genres and individual products, with games like World of Tanks and Team Fortress 2 reportedly having a paying segment of 20-30% (Hamari, et al, 2017) and

Fortnite a significant 68.8% (Brown, 2018). Freemium should not be confused with free trials as the former is offering a full and continuous experience, which can be enhanced further by various in-game purchases, whereas trials are limited, often in content or playtime (Georgieva et al., 2015). The first three monetization strategies of upfront premium sales, on-going subscriptions and item-selling based have been used both individually or together in some combination, however, the freemium model should be considered a stand-alone version of the item-selling based strategy, which can't be combined with premium sales or subscriptions.

Premium sales were criticized for their relatively low protection against piracy, due to the game being a simple product, in contrast to the live service model, in which the game becomes an on-going experience. However, including premium sales in the business model allows for preorder sales, which isn't suitable for the other monetization strategies. A pre-order is a premium sale of the game prior to its actual release date. This brings several benefits to the publisher and developer; they can make a more enlightened estimation of the server load upon release, implement a pre-release beta period, during which players who pre-ordered can test and report issues, but most importantly, they'll generate revenue prior to actually being finished with the product. As described in the introduction, having already received payments has led some companies to release relatively "unfinished" games with promises of resolving issues, or adding essential features, at a later date, despite the risk of consumers returning the game to the physical or online store from where it was bought. To incentivize the players to make this purchase in the first place, pre-orders are often accompanied by a discount and/or extra content, such as exclusive cosmetics. Sometimes the pre-order might include extra content that the players would otherwise have to purchase later on, known as downloadable content, or DLC (Nenad, 2017).

The sale of DLC packs was introduced as a way for companies to achieve economies of scale by reusing the resources used for the creation of the game (Nenad, 2017). These DLC expansions were initially sold at a price frequently as high as premium games and could consist of entirely new storylines or other content adding several hours of playtime. However, over time the lines have been blurred and criticism has risen over how some minor content sold on within the online marketplaces, such as cosmetic skin for a horse, are not DLC at all, but rather content keys, which unlock content already on the game disk. With this, the feeling of paying for ownership turns into simply paying for access when the consumers cannot see the actual DLC pack being downloaded - or bought on a separate CD (Tyni and Sotamaa, 2011). This research paper will consider DLC any content that extends the playtime of a game, such as extra storylines in a singleplayer game or additional maps to fight within for multiplayer games, as the other DLC bears too much resemblance to the content purchased in the item-selling based monetization strategy.

For the larger DLC, the publisher usually creates a bundled, often discounted, deal, commonly known as a season pass (Reiner, 2016). These are sometimes even more ambiguous than preorders as the consumers might not have any information about the content of the season pass, but only the promise of receiving the future DLC, which likely haven't been created yet. As a likely response to this uncertainty, on the end of the consumers, some companies have moved away from a bundled one-time deal and instead focused on an on-going subscription, whereby DLC mirrored the monetization strategy of full games. The publisher of 'The Elder Scrolls Online', Bethesda Softworks, implemented this strategy with an 'ESO Plus[™] Premium Membership', which includes on-going gifts of the in-game currency, a boost to the XP and gold gained, along with access to all the DLC available (ESO, 2015), whereby the company will have an on-going revenue stream and the consumer will receive additional benefits. Day-one DLC has increased in popularity within recent years, whereby the criticisms have followed. Upon purchasing a game, consumers expect a full experience, however, some game providers have accompanied game releases with a day-one DLC, whereby the consumers will have to pay extra for this content (Tyni and Sotamaa, 2011). The critics of this approach argue that any content already developed at launch should be included in the original game, as the companies shouldn't blatantly chop up games into several pieces and sell them in parts for greater profit. DLC was originally meant as add-on experiences, hence this trend of making DLC purchases necessary for experiencing the full game hasn't been well received (Kain, 2012).

Aspects of microtransactions

Most games have adopted a premium virtual currency, which can be bought for real money through microtransactions. This currency can then be exchanged for the various in-game content. This can be advantageous to the game publishers for several reasons, such as blurred actual cost of content, upselling using excess funds from previous purchases and avoiding possible legal ramifications related to loot boxes, which is covered later in this segment. Xu et al. (2017) conducted a massive study on 60.000 players of a popular Chinese MMORPG. After a one year observation period from 2013 to 2014, they concluded that network effects had a positive impact on the in-game currency value. More active players enhanced the gameplay in the virtual game world, which made consumers more willing to pay for the premium virtual currency to purchase virtual items. Cultural differences should not influence this dynamic, thus these findings are considered valid across genres and regions. With increased perceived value, game publishers should be capable of charging higher prices for their premium virtual currency as the network grows, however, an increase might not be well-received, hence establishing a high price at launch, which then becomes more acceptable with growth, is likely a better approach.

The content sold within the strategy of item-selling based, or freemium, falls into the categories of cosmetics, progress, and advantages. Cosmetics consist of visual content, which doesn't have an impact on the game dynamics, such as skins or textures for characters or structures. The category of progress pertains to content that can accelerate progression, such as experience boosts or automation of repetitive tasks. Advantages relate to any in-game content giving the buyer an edge, in comparison to players, who didn't make the purchase, such as upgraded weapons or improved statistics of the buyer. The value of in-game items is context-bound to the environment they are usable in, thus the value stems from the role and meaning inside of the game, whereby a person with no knowledge of the game likely wouldn't consider the item valuable (Hamari and Keronen, 2017; Lehdonvirta, 2009).

Network effects were impacted by network size, but the in-game items can also influence the network effects with the different categories of in-game items impacting the network effects differently. Wu et al. (2013) investigated the independent effects of selling cosmetics and advantages with a combined sample size of 566 items across five games. They find that selling cosmetics will result in positive network effects due to players looking to "show off" their purchases, however, too much of the same or a similar item, owned by the same player, would result in negative network effects due to a decreasing utility. In contrast, selling advantages created negative network effects due to the perceived threat from other players and an increased sense of unfairness. The findings by Huang (2012), who surveyed 176 Taiwanese gamers, suggest that cosmetics had a greater influence on purchase intention than paid advantages.

These findings show that both the buying and non-buying players prefer purchase of cosmetics over advantages due to a sense of fairness and aspects of social interaction, which is elaborated upon in later sections of the literature review. With no contradictory findings, but more related studies presented later, these two studies are deemed valid for the research of this paper, despite possible limitations of sample size, cultural- and demographic differences. The category of progress isn't covered in the presented studies, however, in relation to advantages, progress should be viewed as fair advantages that can help late-adopters get to an equal progression level as early-adopters. Thus, purchasable progress content consists of soft advantages allowing the player to skip undesirable content, whereas advantages give a performance boost. Thereby there's a fine line between progress and advantages as it to a large extent can be subjective, especially in multiplayer games.

The findings of fairness and social interaction are mostly impacted just when the player deliberately chose to purchase unearned advantages, which might lead companies to hide and randomize the rewards gained from an offer in what has been termed loot boxes. These are defined as virtual items in video games that contain randomized contents but can be paid for with real-world money or in-game currency (Zendle and Cairns, 2018). The use of loot boxes began in freemium games, but with included possibilities of getting immensely rare items at a relatively low price, these loot boxes quickly grew in popularity to become the largest revenue driver within the category of microtransactions, whereby they were adopted by the majority of game genres and business models (Macey and Hamari, 2019). To understand the motivation from both companies and players, one can imagine two fictional scenarios of microtransactions; the first, arguably unreasonable, offer is a 500 DKK sword in a multiplayer game. Buying this offer, with just a few clicks, won't give the player any sense of achievement of it being earned, however, if the same valuable sword is included in, relatively more reasonable, 10 DKK loot boxes with a 0.5% chance, the player would statistically have to spend 2000 DK in order to get that same sword - in addition to several other in-game items of little value from the other loot boxes. Initially, this way of presenting an offer will obscure the cost versus rewards, thereby increasing the purchase intention of very price sensitive players, whilst also theoretically getting four times the revenue from the spenders, commonly called whales, willing to spend whichever amount necessary to acquire the rare content. Despite the negligible value of the additional items received, the sheer amount of content acquired will increase the perceived value to some extent, but more importantly, the acquisition of the sword can now feel more like an achievement, compared to a direct purchase, due to the added aspect of luck, which is comparable to drop rates of regularly discovered items in such games.

This aspect of luck can also increase the purchase intention as some players undoubtedly will purchase just a few loot boxes in the hope of them receiving the main prize, despite the low chance. In reality, the vast majority will receive some in-game item they would've never purchased if the rewards weren't random. From this, it should be clear how loot boxes closely resemble regular gambling activities with the main difference being that the main prize theoretically holds no monetary value, however, for some games a secondary market for transactions between players exists. Zendle and Cairns (2018) conducted an elaborate study of 7.422 international gamers. In their study, they related loot boxes to problem gambling, defined as severe gambling getting in the way of everyday activities, hurting mental health, causing financial issues and being the reason for problems with family or friends. Their findings were inconclusive on whether loot boxes were a gateway to problem gambling, or if problem gamblers were simply more drawn to this form of microtransactions, though they note that it may very well be that both directions of casualties are true in that problem gamblers spend more on loot boxes, whilst buying these random microtransactions simultaneously leads to

increase in problem gambling amongst gamers. Macey and Hamari (2019) provide support for these findings in their study of 582 international gamers with a comparable demographic profile. They find that rates of problematic gambling are substantial with those classified as either being problematic gamblers or at a moderate or low risk of developing problematic behavior, totaling 50.3% of the sample. The study by Gainsbury et al. (2012) can explain the tendency of gamblers moving from offline to online-based gambling activities. They surveyed 6.682 Australian gamblers and found the advantages of internet based gambling to be the online, 24/7, availability to be the primary driver with a lack of crowds and unpleasant people being a close secondary and physical comfort and anonymity following closely thereafter.

In complete contrast to the randomized loot boxes, are the relatively new monetization mechanism of battle passes. These are similar in style to the season pass, however, instead of being a discounted bundle of DLC packs, the battle pass is a discounted bundle of in-game content. A battle pass is commonly structured as a tiered system wherein the player will have to progress through the tiers, often simply by playing, to unlock the content at the higher levels. Several of the included rewards will naturally have little value for the player, but this mechanic works due to the exclusivity and token of accomplishment that the highest tiered rewards can have. Due to the transparency of the rewards and sense of achievement, these battle passes have seen relatively less controversy and have been incredibly popular in recent games, such as Fortnite, Apex Legends, and Call of Duty: Black Ops 4 (D'Anastasio, 2018).

As a final note on microtransactions, the term itself has been criticized for not correctly conveying the nature of the content, which some companies are adding to their games. There's no upper limit included in any definition of microtransactions, however, when the price of single in-game items starts being comparable to the cost of a full game, it can be argued that a better term would be macrotransactions (Altay, 2015). Call of Duty: Black Ops 4, by Activision Blizzard, was at the center of controversy related to this aspect when they sold a tiny bundle of low-value items, along with one rare hammer, for 28 USD (Pramath, 2019). The outrage largely stemmed from the fact that the in-game currency needed for the purchase of the bundle wasn't earnable through playing, hence the players were forced to pay with real money if they wanted this rare virtual hammer.

Implications of monetization strategies for the video game industry

Premium sale, subscription-based and item-selling based were identified as the most industry defining monetization strategies within video games. These can be used independently or combined in the overall business model. The freemium model is a modified item-selling based strategy, in which the game is offered at no cost and revenue is generated through microtransactions. These four strategies, and their combinations will lay the foundation for the monetization categorization in the later ratings study, whereby patterns between these categories and rating discrepancies can emerge.

DLC, defined as playtime extending content, takes advantage of economies of scale and can be monetized through premium sales, in retail or online stores, as part of a subscription service, or sold as an in-game microtransaction. Premium sales are used mostly for large DLC expansions adding several hours of playtime, whereas DLC adding new ways of playing liveservice games are more commonly sold as microtransactions, often bundled in a discounted, ambiguous season pass.

The sale of the undeveloped future content in season passes is merely one of several aspects having sparked controversies over the last decade. Pre-orders generating early revenue and leading to relatively "unfinished" games being released, is a related controversy, which has occurred. In contrast, some games are fully developed at release but come with day-one DLC, whereby some part of what the consumer might view as the "complete experience" requires an additional payment. The biggest controversies are associated with microtransactions; these ingame payments, which can be quite substantial, appear to be relatively well-received in freemium games, likely due to the players getting the choice of only purchasing the content they want to pay for. However, for games sold at a premium price, or through an on-going subscription, microtransactions can be viewed as a risk due to the full experience, which the consumer already paid for, being modified in various ways to incentivize spending. This aspect of creating gaps in the game design is investigated in the segment describing purchase incentives. As a result, cosmetics are considered the most accepted type of in-game items due to their non-invasiveness regarding gameplay and balance. In contrast, paid advantages are viewed as unfair by both the buying and non-buying players, whereas the perceived fairness of progress-related items largely depends on the degree of benefit they provide. The most discussed controversy is arguably loot boxes due to their random rewards and possible association with problem gambling. All of these monetization mechanisms likely wouldn't have sparked community outrages, leading to erosion of the brand equity, if they were introduced and implemented independently. However, most of the companies at the center of these controversies have attempted several of these mechanisms, sometimes also within the same game.

Battle passes, with their tiered rewards earned through progress, constitute an example of a transparent monetization mechanism, which enhances the game experience through a sense of achievement. The in-game items amongst the rewards are of a cosmetic or progression nature, whereby they're non-invasive to the game balance and perceived as fair. Fairness, transparency and a non-invasive nature are deemed the factors directly related to the degree of acceptance from consumers, whereby developers and publishers should keep these aspects in mind when creating monetization mechanisms and individual offers.

Fairness is primarily achieved by not introducing unfair advantages to the players able and willing to pay for content. For this reason, it may be better to focus on the sale of cosmetics, and progress, over advantages. However, some games may not be compatible with cosmetics as it could be viewed as forced or inappropriate, such as in a single-player experience or a shooter game in which historical accuracy is valued. For such games, the focus could instead be on selling progression related content, but advancement may not be part of the game design and the implementation of this could change the intended game experience. Thus, there'll undoubtedly be some games wherein items pertaining to the advantage category will be the easiest to implement and sell. Here the game developers should consider implementing two types of currencies, one purchasable and another earnable, and make offers available in both. Making an item available for purchase both through the purchased and earned in-game currency could add to a sense of fairness as it's technically available for everyone - both the paying and non-paying players. In addition, it could potentially increase the perceived value of the item for the paying players due to others possibly thinking it was earned.

Excluding randomized rewards from the sold content is the primary way of increasing transparency. However, loot boxes have been proven to be a tremendous revenue generator, whereby they've been included in a vast range of recent games. Expecting game providers to exclude a potentially major revenue contributor is unlikely, though there are mechanisms they

can introduce to increase the degree of acceptance from consumers; Apex Legends, by Respawn Entertainment, has implemented three relatively well-accepted elements into their loot box system, which attempt to decrease the risk for consumers. Firstly, loot boxes cannot contain duplicate items that the player already owns, secondly, each loot box contains three items of which one is guaranteed to be a rare-tier item, and thirdly, the system contains a "bad luck protection" which guarantees a legendary-tier item every 30 packs if the player hasn't received one until then (Fenlon, 2019). Elements like these can increase consumer satisfaction despite the inherent lack of transparency. In terms of ways to increase transparency, instead of just circumventing it, game providers should look at how their pre-orders, DLC expansions and season passes are marketed and sold. For pre-orders, the controversy has largely been in the context of the released game not resembling the promotional material shown at game presentations, or the game having notable issues, which the game providers will resolve later. Solving these issues simply involves not overpromising and making sure service delivery and consumer expectations are aligned. Gaps between these likely can't be eliminated, thus when issues arise, the game providers need to be communicative about how and when these will be resolved. The same factors should be considered for DLC expansions sold separately. In regards to day-one DLC, the game providers could likely benefit from holding back the announcement until some time after release. If this isn't a possibility, emphasizing the distinction between this and the main game is of major importance as it should be perceived as an add-on and not a piece of the intended experience. This can be done by highlighting an independent storyline, or more generally by introducing an aspect of game design that is not a part of the initial consumer expectations for the main game. Season passes are inherently ambiguous as they are the bundled sale of future DLC, though the game providers can fairly easily increase the transparency by sharing their expectations, such as how much playtime new storylines will add or what themes new maps will include. However, they should be cautious about the information they share as it ties back to not overpromising, whilst also making sure it'll be viewed as a game enhancing add-on and not a cash-grab. Scratching the season pass monetization mechanism in favor of a discount on the newest DLC, if the previous is already owned, could eliminate the ambiguity, though this wouldn't get the company the revenue stream upfront, which is considered a deciding factor.

In terms of non-invasiveness, game providers should ensure that the game is designed with the experience in mind, whereafter the monetization strategy can be added. In contrast, if the progression system is designed around the in-game purchases, the risk of the game experience being negatively impacted increases. Middle-earth: Shadow of War, published by Warner Bros. Interactive Entertainment, was highlighted as having an infringing progression system, which required the player to do repetitive tasks or buy content to finish the ending of the game. When certain microtransactions were removed due to the backlash, they acknowledged that the progression was dragged out and saw it necessary to revamp it. This should serve as an example of malpractice, thus game providers should consider whether the game design and especially the progression aspect, are sensical if the monetization mechanisms were removed.

Main aspects of online evaluations

Electronic word-of-mouth, or eWOM, was well defined by King et al. (2014) as "any positive or negative statement made by potential, actual, or former customers about a product or company, which is made available to a multitude of people and institutions via the Internet".

These sentiment expressions can be made by both the groups of consumers or critics. The consumer group consists of potential, actual, or former customers. Critics are consumers themselves, but also belong in one of these three categories; either they're being paid for making these sentiments, such as journalists making game evaluations for large websites. People who have their livelihood depend on their sentiment expressions, such as popular YouTube reviewers, are also deemed critics. The last category consists of critics with a direct following, who might simply evaluate games as a hobby, such as bloggers.

Consumers and critics can make online evaluations in two forms; reviews and ratings. Reviews are written, or spoken, sentiment expressions, which can vary in length from long articles to brief comments. Ratings use a numerical value and a scale to make a comparative assessment of the game's quality, standard or performance. Thus reviews are qualitative and ratings quantitative, whereby these two forms are often used together.

Valence is the trend of one or more online evaluations, ranging from positive to negative, which makes it a qualitative assessment. For ratings, the valence could also be a weighted average, thus quantitative, whereas it remains qualitative for reviews. The valence is relatively subjective as the individual consumer can assign different weights to various factors of the review, such as reviewer credibility or the aspects focused on in the review. Simplified, the valence is the overall takeaway that shapes the individual consumer perception of the product. Volume is the quantity of reviews or ratings, which in itself can add to product awareness regardless of the valence. Two, or more, online evaluations with differences in valence will create a gap, defined as variance. This factor relates to how consumers interpret different opinions and how it shapes the consumer perception.

With the increased volume of extreme negative consumer reviews, the influence of online evaluations, and the included factors, on consumer purchase behavior becomes increasingly important. A relation between these two aspects could have a direct impact on sales and consumer perception of the companies and individual games, whereby this is investigated in the following segment.

Online evaluations' influence on the purchase behavior of video games

The impact of online evaluations, reviews and ratings, on consumer purchase behavior is an extensively researched topic; King et al. (2014) carried out a comprehensive literature review of 190 different studies on various aspects of eWOM. The reviewed literature, ranging from 2004 to 2014, clearly indicates that there is a positive relation between eWOM and purchase behavior. To confirm the validity of these findings for the industry of video games, separate studies, investigating aspects more closely resembling this industry, will be introduced and limitations discussed.

Senecal and Nantel (2004) conducted a study of 487 participants in which the influence of online product recommendations on consumer choice was tested for an experience product, wine, and a search product, a calculator. The findings strongly support their hypothesis of consumers being influenced in their online product choices by online recommendations. Furthermore, they find that recommendations for the experience product, wine, were significantly more influential than recommendations for the search product. Video games are considered an experience product, whereby this study could suggest that gamers are likely to have their purchase decision influenced by online recommendation sources. The generalisability of these findings can be questioned when considering the limitations of this

study as females made up 50% of the studied sample, which is a relatively larger proportion than that of the gamer segment. Furthermore, this study from 2004 only investigated the influence of online recommendation sources on consumer choice for a non-online based experience product, which doesn't necessarily provide support for online recommendations impacting purchase behavior for video games today.

Whether the relationship extends to the video game industry could be validated by introducing a second study by Cox and Kaimann (2015). The researchers analyzed a data set of 1480 video games, released between 2004 and 2010, and made a comparison between online reviews and the sales performance of the individual video games. They find that both consumer and critic reviews had an impact on sales performance, though single critic reviews are found to have a significantly higher influence, which outweighs that of single consumer reviews. This secondary study would seem to validate the findings of the first presented study by extending them into the video game industry and thereby also neutralize the limitation of a female saturated sample. However, their findings suggest that the relevance of the data set should be questioned, which could invalidate the results; firstly, they analyze a comparable amount of critic to consumer reviews, whereas the ratio between reviews presently can be as much as a thousand consumer reviews per critic review. Secondly, they show that the average of the critic and consumer reviews are very similar, though this is often not the case for more recent games, which is shown in the later ratings study. Thirdly, the period from 2004 to 2010 is considered to be prior to the widespread implementation of microtransactions, which could both be the reason for the difference in averages, but also question the validity of these findings in regards to the impact of online evaluations on purchase behavior for video games at the present time.

Held together, these three studies clearly indicate that a relation existed between online evaluations and the consumer purchase behavior, whereby assessments should be an important factor for game developers and publishers as these directly impact sales performance. The introduction of microtransactions, and the accompanied community outrages are believed to further strengthen this relationship, as the utilized monetization strategies have become increasingly more important to gamers. As a result, the possibility of the presented findings being outdated is disregarded as the following cited literature also provides more recent support for these, but these will be presented in the context of investigating other factors of online evaluations.

As seen in our later ratings study, the difference in averages for critic and consumer ratings have increased for some recent games with microtransactions implemented. This difference raises the question of whether the critic or consumer reviews hold the largest influence on consumers. The previously cited study by Cox and Kaimann (2015) finds that the marginal impact of one additional review from a critic is significantly greater than that of a single consumer review, though the mentioned limitations, of similar volume and averages for the two groups, could be the reason for these results. However, this finding is further supported by Floyd, et al. (2014). who conducted a meta-analysis of 26 empirical studies including 412 sales elasticity estimates. They found that sales elasticities for products evaluated by experts in online product reviews are significantly higher than those reviewed by other consumers, likely as a result of these sources exhibiting greater expertise and trustworthiness, thus making them more credible. In addition, they support the previous finding of evaluations for high involvement products being more pronounced. Only 25 of the 412 sales elasticities were related to video games, with a majority being for books, hotels and movies, thus the validity of the findings should be questioned as these are different experience products.

Contrasting these studies are two smaller ones of Taiwanese university students; Tsao (2014) conducted a study investigating the influence of consumer and critic evaluations on moviegoers. They surveyed 320 Taiwanese university students and found that consumer reviews are more influential for moviegoers and their post-viewing evaluation than critic reviews. This was supported by Chen (2008), who surveyed 180 Taiwanese university students on their book shopping behavior, adding that consumer ratings were considered more trustworthy than experts and perceived as more similar to the decision maker, though the lack of trust could stem from cultural differences. In addition, they find that online evaluations have a stronger impact on sales elasticities for high involvement products, for which a lot of time and/or money is invested. According to this definition, video games would be a high involvement product. Both of these studies suffer from a fairly limited sample in terms of demographics, whilst also studying related experience products and not video games directly. In addition, the two samples have male proportions of 44 and 50% respectively, all of which differs from the gamer demographic and could skew the results. The previously cited study by Senecal and Nantel (2004) also had a sample consisting of 50% males, with a high proportion of students, however, they found no significant difference between the influence of critic and consumer reviews on the one experience product, wine. Though their study wasn't designed to test this and it was merely a serendipitous finding.

Taken together, it is clear that online evaluations exert some influence on the purchase behavior for experience products, and thereby sales performance, however, the findings on the individual impact of critic and consumer reviews are conflicting. The two Taiwanese studies have certain limitations; one paper studies movies, which are considered a low involvement product. In comparison to video games, movies require a far lower investment of time and money, thus the risk perception is assessed as radically different. The other paper studied books, however, whilst it is considered a high involvement product, the findings could stem from possible cultural differences, where authorities are trusted less. The two largest studies, in terms of data, provide support for individual critic reviews exerting more influence than individual consumer reviews for video games specifically. The latter are assessed to most closely resemble the dynamics within the industry today, however, whilst a single positive or negative critic review is assessed to be more impactful than a single consumer review of the same type, a difference in valence, volume or variance could drastically change their respective impact, thus these factors will be investigated.

Effects of valence

Valence is most commonly defined as the weighted average in the presented literature, though it should be noted that for qualitative data, valence can be the positive or negative trend of the online evaluations. Thereby, variance is directly related to valence as a narrow or wide spread between the online evaluations can change how the valence is perceived by consumers. Furthermore, volume is often compared to valence as large quantities of reviews possess some influence on their own regardless of the valence.

Ratings are the simplest form of online evaluations, both in terms of evaluating the products and examining the customer sentiment expression. However, this simplicity can create gaps on its own; Na et al. (2010) investigated a sample of 520 movie reviews and found that the star rating scale can be perceived differently for the individual critic or consumer. Whilst the ratings were generally more consistent for critics, they still used their own scale, thus a 7/10 rating could be very good for one, but merely average for another. Thereby star ratings couldn't be collected and averaged for sentiment classification, or valence. Instead they found it necessary

to analyse the written reviews together with the star rating in order to get an accurate assessment of their sentiment orientation. Though the study was conducted for a separate experience product, a similar difference in perception of ratings scales should also exist for both critic and consumer reviewers of games, which can lead to implications when consumers try to interpret the actual quality of a game based on ratings alone. This especially becomes apparent for controversial games where upset consumers will bombard review sites with highly negative ratings, which is often the lowest option available, as mentioned in the introduction. This is likely perceived as a "call for action" by the reviewers, as they want some specific aspect of the game changed, however, this can easily be perceived differently by other consumers, which might interpret the negative valence as the game being unplayable or a complete waste of time.

Whereas professional critics more often review the games based on the objectivity of the game design, as investigated later, consumers can be more emotionally affected by how their experience was, which can lead to extreme reviews based on relatively small aspects of the game. With the increased negative valence in consumer reviews, for games including microtransactions, as seen in our later ratings study, the different relative impact of negativity and positivity on purchase behavior becomes important. The previously presented study of 320 Taiwanese university students (Tsao, 2014) also investigated this aspect and found that negative consumer reviews had a greater influence on the movie selections of potential moviegoers than positive ones. In addition, they found that both positive and negative consumer reviews alter the evaluation of movies by consumers, however, negative reviews were more damaging to evaluations than positive were beneficial. If these findings are generalizable to the video gaming industry, this can create major implications for game developers and publishers as the previously mentioned extreme negative reviews can have a drastic impact, not only on the consumers' choice, but also on their experience of the game, whereas the gamer might have disregarded small flaws if they weren't specifically highlighted in negative reviews.

These findings are supported in all the reviewed literature with none being contradictory, but only adding more perspectives; the previously presented literature review of 190 studies King et al. (2014) linked it to loss prevention and found that negative eWOM had a much greater impact than positive on purchase behavior, especially for consumers with neutral expectations. Yang et al. (2016) support this finding in the results of a questionnaire sent to 137 undergraduate students in a business school in the USA. They found that negative reviews induce a higher risk perception and a less favorable attitude towards purchases compared to positive reviews. The risk perception and loss prevention can relate to a study by Ashby et al. (2015) in which they found that long research times lead to more attention paid to negative reviews, hinting that consumers will eventually try to find any possible flaw to prevent any sense of loss. Interestingly, Von Helversen et al. (2018) found that a sample of young adults, with an average age of 21 years and mostly consisting of males, were highly influenced by the average consumer rating. In contrast, older adults, with an average age of 69 years and consisting of approximately 60% females, gave less importance to this factor. However, both groups were strongly influenced by elaborate negative reviews, even if these were unrepresentative of the product reviews. This sample of young adults is assessed to closely resemble the gamer profile, whereby the similar findings of the other presented literature is considered valid for the research of the video game industry.

With negative online evaluations having been found to have a greater influence on purchase behavior than positive ones, it is considered reasonable to assume that a relatively smaller number of negative evaluations, compared to positive ones, can make the consumer perception for the accumulated online evaluations negative. With average consumer ratings having a strong influence on young adults closely resembling the gamer demographic, the implications of these extreme negative reviews could potentially be drastic for game developers and publishers. In order to assess the actual impact of negative online evaluations, it is necessary to investigate how the volume of reviews influences the valence.

Volume and valence

Duan et al. (2008) conducted a study of 71 movies, which is considered a related experience product, but with lower involvement. They investigated the effect of eWOM valence and volume on the box office revenue and found that while valence does not directly affect revenue, higher valence indirectly increases the revenue by generating a higher volume of eWOM. This could be viewed as partially contradictory to the previous findings of valence having a significant influence on purchase behavior, and thereby sales performance. However, whilst the indirect effect could be the underlying factor behind the findings in the previously presented literature, this study was also done for movies, which is considered a low involvement product.

The previously presented study of 137 undergraduates (Yang et al. 2016) also investigated the relative impact of valence and volume and found that review valence has a stronger impact on consumers' perceptions than review volume does. However, this study was done for a search product, tablet, and its authors mention that the findings may not be generalizable to experience products. The study of sales elasticities by Floyd, et al. (2014). investigated the same dynamic and likewise found that the valence of an online review exerts greater influence on sales elasticities than the volume of reviews available online, with this effect being more prominent for high involvement products.

With these findings, it becomes clear that there is no quantitative answer to the dynamic between valence and volume, however, the literature suggests that valence exerts a relatively greater impact than volume on the purchase behavior of high involvement experience products. When considering pre-release behavior, Kim and Hanssens (2017) mention that the release day performance of movies is impacted by prerelease advertising and eWOM volume, not by eWOM valence. This could be explained by the aspect of trustworthiness as consumers' will believe negative valence pre-release to a lower degree, since the reviewers can't write based on experience, but only expectations. However, all eWOM can add to the awareness of a given product and increase the release excitement, whereby volume is deemed more impactful pre-release. Despite the volume of reviews growing and more reviews appearing on the extremes, the valence doesn't necessarily have to change, as this is the weighted average, however, this high variance can impact the consumer perception of the product, thus the influence of this is investigated.

Variance

The reviewed literature largely agrees on how variance within online evaluations influences the consumer perception of the product, however, the actual effects of variance can be both positive, negative and insignificant dependent on several factors; the literature review presented by King et al. (2014) highlights how low variance and a high average rating will lead to high expected quality, which is logical. However, the perceived quality of books with a low average rating and a high variance can increase, which isn't necessarily intuitive. Wang et al. (2015) add to this by separating consumer and critic reviews in three complementary studies

of respectively 136 movies, 179 digital cameras and a book with 242 subjects. They define a customer breadth effect in which consumers will steer away from products with high variance in user reviews and link it to the previously mentioned factor of loss prevention, which entails the risk of the product or experience not matching their needs or preferences. They also define a customer depth effect where high variance within the user reviews is accompanied by high variance within the critic reviews, which can create a sense of uniqueness and enhance the purchase intention. This second effect might likewise not appear intuitive, however, it should be viewed as when there are broad differences in opinions, the consumers will perceive the product as being more special because it might satisfy their very specific needs. Though this is only the case when some proportion of the critics have validated the "objective quality" of the product, whereby this positive effect is also strengthened by quality signals, such as product cost. Langan et al. (2017) provide further insight on both of these aspects in a study of manipulating the independent variables and testing the impact for 312 subjects; firstly, they provide support for the previously presented findings by mentioning how high variance and a low average rating will have a positive effect on consumer perception, whereas a high variance combined with high average rating will have a negative effect. However, their study also found that higher levels of review variance lower purchase intention with the impact being more prominent for negatively valenced products and to a greater extent for utilitarian compared to hedonic goods. This could partially be viewed as contradictory to the first observations, however, they also find that in cases of high variance, brand equity and reviewer credibility plays a very important role in purchase behavior, thus by reviewing the variables independently, they found the circumstances under which the mentioned sense of uniqueness emerges. For high variance product, the consumers will firstly consider the brand equity, however, when this is low, reviewer credibility becomes an important factor in consumer perception, whereas this factor is of little influence when brand equity is high.

Taken together, a high variance can have a positive effect on consumer perception when the valence is negative, though the effect will be negative when the valence is positive. This dynamic was explained with the factors of risk perception and the sense of uniqueness. Furthermore, when the variance is high for both consumer and critic reviews, consumer perception can be enhanced regardless of the valence. However, these dynamics are greatly affected by brand equity, or if that is low, reviewer credibility becomes the prominent factor. The studies were not done for video games, but the findings are assessed to also apply for consumers of video games as that is a related, high involvement, hedonic product.

As seen in the later ratings study, the variance is relatively low amongst the critic reviews, thus any variance is likely to stem from the consumer reviews. In the case of high variance within consumer reviews, the overall valence of both reviewer groups determines the actual effect on purchase behavior. Instances of positive consumer reviews and negative critic reviews are relatively rare in the reviewed game ratings, hence the high variance occurs primarily in instances where critics rate a game highly and the informed consumer segment, or a majority of consumers, create negative reviews. In this case, the overall valence of both rating groups will depend largely on how much weight the individual consumer assigns to critic reviews and negative consumer reviews, which was found to be the two important factors in prior sections of this literature review. It could be argued that the extreme negative reviews are viewed as "unfair" or overly subjective, due to often focusing on very specific aspects of the game, thus these are likely to receive less weight by the regular consumer, whereby the overall valence would likely be somewhat positive. As a result of high variance and positive valence, the video game industry likely faces the negative effect of high variance with the risk aspect being more prominent than the aspect of uniqueness. Furthermore, it can be argued that several large game developers and publishers have suffered greatly in terms of their brand equity - at least in respect to the informed consumer segment. Thereby these companies lose some of the control they could've held over the consumer perception, and instead, the reviewer credibility becomes the influential factor.

Additional aspects of reviews

In regards to critic reviewers, there are several different types. Some will try to remain very objective and focus on game design, whereas others might write reviews solely based on their personal experience with the game. In the middle of these would be reviewers highlighting the various facts about the game and how they believe these game aspects will be perceived by consumers. The medium used, whether it's in writing or video, also has an impact on how the message is perceived. Blank (2006) investigates the sociology of reviews and highlights how consecutive positive experiences with a reviewer can lead to trust building and thereby consumers following that same reviewer. Interestingly, they mention how for book reviewers, it is often possible to check the credentials of the critic, however, this is assessed to be relatively different for game reviewers where this might often not be the case. The difference likely stems from the lack of a formal education related to game critique, whereby it is acquired through experience, however, consumers might expect book reviewers to have some sort of related education to make them knowledgeable. This aspect is believed to further strengthen the first factor of trust building as consumers of games to an even higher degree will follow the advice of whichever reviewer they found to be trustworthy. The large increase in the number of YouTube reviewers likely also stems from this aspect as consumers find them more trustworthy than just an impersonal name on a written review.

Trust building should not be viewed solely as a one-directional effect, as an increased following can also impact what critics include, or exclude, in their reviews. Situmeang et al. (2014) investigated this aspect in a study of 577 video games released in series from 2000 to 2009. They found that critics adapt to the taste of consumers, which is believed to be even more prominent when the critic has verifiable followers, such as YouTube reviewers, as their livelihood can be dependent on their success. Generally, critics were also influenced by the average consumer rating of prequels along with the average sales of these, thus the success of 'Example 1' will have a direct impact on how 'Example 2' will be reviewed. Adding to this, the reviews of the earlier releases were found to carry over to the reviews of the sequels conducted by the same type of reviewer, hence critics will pay close attention to the aspects highlighted by other critics they consider similar to themselves. Despite the study being conducted for previous games released over a decade ago, there is no literature indicating a change, whereby this trend is not believed to have altered - if anything it is more likely for these effects to have increased with the growth in more personal review forms, such as video reviews on YouTube. These findings can have drastic implications for the industry today as the consumers posting extreme negative reviews can have a direct impact on not only the sales of the game at hand, but also indirectly on future releases, unless game developers and publishers cater to their specific needs, or perform some sort of damage control to prevent consumers from viewing this type of reviews, as mentioned in the introduction.

Another aspect of reviews is how accumulation sites, like Metacritic, often only accept the first review and the first score published for a given game by a given publication (Metacritic FAQ, 2019), hence the majority of critic reviews will be based on their opinion at release of the game, whereas consumers can rate the game during its entire lifetime. It should be mentioned that some extreme negative consumer reviews might be posted early on without them having played the game, simply to voice their discontent with one or more aspects of the game, or the

company. The quality of the game at release becomes increasingly important when critic reviews aren't updated, hence the mentioned trend of pushing out relatively "unfinished" games could have noteworthy implications. Some publishers have used this aspect of review sites to their advantage by holding back features of the game, that could be viewed negatively, until after the release. Call of Duty: Black Ops 4 is an example of this where the developer Treyarch, and publisher Activision, added various microtransactions months after the release of the game, whereby the reviews were already written and collected by sites like Metacritic (Kain, 2019). For some specific games, this factor could possibly explain the discrepancy between the averages of critic and consumer ratings, which will be investigated later in the ratings study.

Engelstätter and Ward (2018) investigated the impact of strategic timing of entry on a data sample of 1192 video games released between 2005 and 2009. They mention how gamers often prefer to play and discuss the same games simultaneously, thus the effect of social bandwagoning can have a tremendous influence on the success of a game. This effect can be a result of huge pre-release eWOM volume or positive review valence at release. However, it can also happen without these factors, whereby a game can become a "blockbuster" seemingly out of proportion with the reported game quality. Examples of this could be Minecraft (Peckham, 2016), League of Legends (Prell, 2014) or Fortnite (Matsangou, 2018). Furthermore, their findings highlight how companies should adjust their release dates to avoid the fiercest periods of competition, or even engage in release date coordination to increase the likelihood of success for all parties.

The implications of online evaluations for the video game industry

As would be expected, the literature makes it clear that online evaluations of video games have a notable impact on consumer purchase behavior. In addition, it was established that critic reviews have a relatively higher influence than consumer reviews, and negative reviews are likewise found to have a relatively higher influence than positive ones. The literature did not give insight on the relative influence of these two aspects of evaluations on purchase behavior, but it was found that critic reviews are impacted by consumer taste and past reviews, whereby the negative reviews can have both an immediate negative effect and an indirect one on future critic reviews. In terms of factors related to online evaluations, valence, volume and variance were investigated in the presented literature. Valence and volume were both found to exert influence on consumer perception, though the dynamic between the two has only been researched to a lower degree, whereby conclusions on the relative impact can't be made for the video game industry. However, it was found that the impact of volume was notably more important pre-release, whereas valence exerted relatively more influence post-release. Lastly, the increase in the number of harsh reviews can lead to higher variance, which can increase the risk perception for consumers.

Taken together, game developers and publishers should be very mindful of implementing controversial game design or business models in their games that could result in the mentioned extreme negative evaluations, which in turn can lead to negative valence and increased variance. Both of these factors impact consumer perception and purchase behavior negatively, which will culminate in decreased sales. Additionally, as mentioned before, negative valence for a released title could impact the long term profitability of the company, as the critics guide their reviews by the consumer ratings of previous titles in a game series.

Ratings study

Online evaluations, from both critics and consumers, were found to have a significant influence on the purchasing behavior of potential customers, whereby the impact of various monetization strategies on these evaluations can have notable importance for the game providers. The industry has seen several controversies over various factors, such as the release of "unfinished" games, day-one DLC and season passes, but heavy reliance on microtransactions, including loot boxes, as a revenue stream have arguably resulted in the biggest community outrages. Therefore, the following study seeks to identify patterns within the online evaluations of games utilizing different monetization strategies, from specific publishers and of distinct genres. Gaining insight on pitfalls experienced by past games can allow game providers to steer away from these and thereby minimize the risk of sparking future community outrage, whilst still having sustainable revenue streams.

Method

The publishers included in this study were chosen based on a purposive sampling approach, grounded in the researchers knowledge of the industry, with the sample being derived from a few sources; firstly, the companies associated with notable stock decreases in the first quarter of 2019 have been chosen (Fahey, 2019). These include Activision Blizzard, separated into the two publishers Blizzard Entertainment and Activision, Electronic Arts, Sony Interactive Entertainment and Take-Two, separated into the two publishers 2K Games and Rockstar Games. Whilst Nintendo also experienced a decline, the majority of their produced games are non-AAA and created for their own consoles and handheld devices. This study solely includes games created for PC, PS4 and Xbox One, or the preceding consoles, as the vast majority of AAA games are created for these platforms due to limited computing power of others (Irving, 2018). Nintendo, and their console have been excluded as identifying AAA games amongst all their publications is troublesome due to the lack of public information on game budgets and the AAA definition being abstract. Additional publishers were chosen based on a list of popular publishers, including Ubisoft, Bethesda Softworks, Sega, Warner Bros. Interactive Entertainment (Metacritic Popular, 2019). Some publishers from this list were excluded due to primarily providing non-AAA games, whereby identifying the suiting games amongst these would be speculative, like with Nintendo. Lastly, a few publishers behind immensely popular games, mentioned in the literature review, have been handpicked and included in the study, despite some of these games arguably not being AAA games. These include Bluehole, Inc., behind Playerunknown's Battlegrounds, Epic Games, behind Fortnite: Battle Royale, Hi-Rez Studios, creator of SMITE and Riot Games behind League of Legends. With the inclusion of these publishers, the study comprises of data from 14 different publishers. These are deemed representative of the industry both in terms of varying sizes, game genres and contributions to community outrages.

Metacritic (2019) is a website aggregating critic evaluations of games, movies, TV shows and music. In addition, it allows users to post their own evaluations. For each game, there are two aggregated scores showing the average critic and consumer rating. The average critic rating is displayed as a number between 0 and 100 with the average consumer rating being a number between 0 and 10, whereby the consumers are using a smaller scale. The reasoning for this is likely that critics use different scales and rate more games, thus a wider range can more accurately portray their various opinions, whereas the consumers might appreciate the simplicity of a small scale. To directly compare these ratings, the consumer average is

multiplied by ten. A purposive, heterogeneous sampling approach was used for the data collection process, whereby the researchers could contribute with their industry knowledge to make patterns emerge over a relatively smaller sample. To ensure maximum variation, the sample selection criteria were identified prior to selecting the sample. The first set of criteria were to include games released, by the selected publishers, in the year range of 2014 to 2019. Microtransactions and loot boxes existed throughout this period, however, their significance and the consumer attitude towards these have changed notably over this period, whereby it is believed that patterns will emerge from this dataset. The second set of criteria comprise of which games from this period are included, as non-AAA games could skew the findings. As stated, information on game budget isn't public and the term itself is defined in an abstract way, hence it isn't viable to exclude games based on such factors. Various websites make estimates of game budgets, but each source will differ in their information, which would make the identification troublesome. Instead, the researchers decided to exclude games based on a set rating threshold. This threshold was set as 10 for critics and 150 for consumers, whereby games with an amount of ratings lower than these were excluded. The critic cutoff is relatively low due to critics being found to have very similar opinions, whereby a doubling of the number of critic ratings wouldn't have a significant impact on the average, if any. For the consumer cutoff, the researchers reviewed various games from the selected publishers and noticed a trend of non-AAA games generally having less than, or just above, 100 consumer ratings with lesser known games deemed AAA, by the researchers, having 200 or more ratings. Thereby the threshold of 150 ratings excluded a majority of the unwanted data, whilst ensuring all AAA games would be part of the dataset. Some non-AAA games are relatively popular, whereby they'll have enough ratings to be included, however, the importance of including all AAA games is valued higher than excluding all non-AAA games, especially due to the ambiguity of the term. This study investigates the impact of monetization strategies on relatively well received games, thus games with a critic rating score below 50 were excluded from the study due to large differences likely being due to consumers giving more extreme ratings, as suggested by the literature review, which would skew the results. The data was gathered by going through the list of game releases for each included publisher and collecting the data for all games meeting the criteria. This approach resulted in 152 games being included, wherein patterns already emerged, thus the researchers chose not to increase the year range further.

The data gathered from Metacritic for these 152 games were the release year, genre, average critic rating and average consumer rating, with the latter being multiplied by 10 to make it directly comparable to the critic value. In terms of the genres, many games are described by more than one genre, similarly to how movies can be both a drama and thriller, however, each data point was assigned to just one genre. The researchers assigned games based on the genre most accurately describing the game experience. In addition, certain game genres were combined due to sharing major similarities and this grouping having no influence on the emerging patterns, but increasing the simplicity of the presentation of these. The game genre of 'Action' comprises of the sub-genres of Action, Action RPG, Action Adventure, RPG, Shooter, Platformer, Fighting. The genre of First-Person Shooter (FPS) share similarities with these genres, but was left as a stand-alone genre due to its major popularity and a larger focus on microtransactions. Similarly, the game genre 'Sports' comprises of all the various types of sports, with the exception of 'Racing', which is a separate category because of its low focus on microtransactions. The group of 'Strategy' combines genres of real-time, tactics and strategy due to these mostly going together. The sixth game genre is 'MOBA' (multiplayer online battle arena), which is also a game type, thus the three games of this type are assigned this genre. Two games fell outside of these six game genres with Hearthstone: Heroes of Warcraft being deemed a card game and The Sims 4 being considered simulation. These two games, and their

genres were excluded in the genre analysis, due to only having one data point, but remained part of the overall analysis.

Furthermore, each game was assigned a number from 1 to 4, which corresponds to the four monetization types defined previously. Monetization type #1 is the standard premium sale, #2 is the combination of premium sales and item-selling, #3 is the combination of premium sales, item-selling along with a subscription and #4 is the freemium model. The combination of subscription and item-selling without premium sales and the combination of subscription and premium sales without item-selling were found to not be relevant for the games included in this dataset, whilst also being outlier models rarely used, if ever. Monetization strategies were assigned based one of three methods; firstly, if the researchers had knowledge about a game from experience, the strategy would be assigned based on this. Secondly, the database on the website microtransaction.zone (2019) was used to identify strategies as it reviews and compiles user submissions on the type of monetization mechanics in various games. Thirdly, if the researchers had no personal experience and microtransaction.zone didn't have a submission, the researchers investigated monetization strategies by searching on Google, using the terms "price", "subscription", "freemium", "in-game items", "microtransactions" and "loot boxes" alongside the game title. The second method was used for the majority of the games, though when sufficient references for the assessments were missing from the database, this was accompanied by the third method to validate the information. Despite loot boxes being a type of microtransaction, whereby they are a part of the item-selling based monetization strategy, the implementation of these was included separately due to an expectation of loot boxes being relatively more ill-received than other types of microtransactions.

As a result, publishers, monetization types and game genres are the three categories for which patterns are investigated and compared to the values of the entire dataset. Publishers are chosen to highlight whether it's only certain game companies causing the controversies, whereas monetization type should reveal whether it's the strategy, or loot boxes, causing the outrages regardless of publisher. Lastly, the game genre should give insight into the acceptance of microtransactions, thus giving publishers valuable information about the match between strategies and genre. The values used for comparisons within the categories, and to the overall dataset, are the average critic rating, average consumer rating and the numerical difference between these values. The average critic rating for each game is taken from Metacritic, whereafter the means of all these values are calculated for the entire dataset along with each category investigated. Similarly, the individual average consumer rating is obtained from Metacritic with the means being calculated for all these values. Thirdly, the numerical differences between the individual critic and consumer ratings are calculated by subtracting the critic rating from the consumer one, whereafter the means for all these values, and individual categories, are calculated. These values are used for comparison instead of a percentage as all data in the set is on a scale from 1 to 100, whereby there's no need to turn it into percentages that can be more ambiguous in their presentation. Furthermore, the population standard deviation (SD) is calculated for the average difference to highlight variations from the mean as a large spread in this regard can give insight on its own. Lastly, all numbers used for the analysis are rounded off to the nearest integer for easier comparison.

Limitations and delimitations

Firstly, the critic reviews aggregated on Metacritic only include website reviews, thus this study solely consists of the ratings by critics paid a salary, to make these sentiment expressions. As the two other categories of critics, those with a direct following who either are self-employed,

or doing it as a hobby, were speculated to be more affected by consumer taste and perception, hence the inclusion of these could make the average critic ratings lower. Furthermore, the study solely include ratings, and not written reviews, though the valence across the two types of online evaluations should be consistent. As stated, some of the different game genres were combined into larger groups as this allowed patterns to emerge over a smaller dataset due to the similarities between the subgenres. In addition, publishers were used as a category over developers due to the structure of the industry with all developers of AAA games either going through or being a subsidiary of a publisher. The monetization strategy, and loot box inclusion, are primarily based on secondary data as buying and playing every individual game long enough to identify the monetization mechanisms would demand more resources than available for this project. As an extension, the individual different types of microtransactions and the incentives behind these are excluded from the study, with the exception of loot boxes, for the same reason as identifying these would require even more resources. Additionally, microtransactions and loot boxes were solely included in the study when purchasable with real money, thereby in line with the focus of the paper. Furthermore, despite volume and variance of online evaluations being found to have some degree of impact, this influence is to a large extent subjective, whereby these have been excluded. The scale of the study would be expanded exponentially with these factors included as the individual valence for each game would have to be tested across a group of subjects, hence this wasn't a possibility with the resources available and a volume cutoff was used instead.

For games with more expansions, such as World of Warcraft, Call of Duty and Starcraft, the newest release, meeting the criteria for inclusion, has been used as to include the most updated opinion on the game. However, DLC content, which is more of an add-on than a complete game overhaul, has been excluded due to only adding marginal playtime and rarely meeting the sampling criteria. Thereby, there's a clear distinction between expansions, DLC and microtransactions. Also, when the game was available for more than one platform, the game will have separate ratings for the PC, PlayStation and Xbox versions, thus the platform with the most consumer ratings was used due to the mentioned trend of critic ratings often being similar. If the used platform ratings are PS4, PS3 or Xbox One, these are denoted next to the game title to show console iteration, whereas nothing is written when the PC ratings are used due. This choice assumes equal perception of microtransactions across the platforms, which is a limitation. Lastly, the study doesn't take changes in monetization strategy into account as reviews will already have been made. Star Wars: Battlefront II, by Electronic Arts, is an example of this where community outrage forced the publisher to change how loot boxes worked in the game, however, this didn't minimize the large difference between the critic and consumer average, whereby it's previous monetization strategy is included in the study to minimize the number of outliers skewing the results.

Hypotheses

The literature analysis of online evaluations suggested that professional critics more often review the games based on the objectivity of the game design, whereas consumers can be more emotionally affected by how their experience was, hence they tend to give relatively more extreme reviews based on small aspects of the overall game. As a result of this factor and recent controversies of various scales, the researchers expect the total average critic rating to be higher than the total average consumer rating.

H1: The total average critic rating will be higher than the total average consumer rating.

Insights from the literature review, elaborated upon in a later part of the project, suggest that microtransactions are more heavily implemented in games designed to be played indefinitely, such as game genres with a focus on the multiplayer aspect, like Sports, First-Person Shooter and MOBA. In contrast, game providers will focus less on the implementation of microtransactions in game genres where the single-player experience is the core of the game, such as Action, Racing and Strategy.

H2: Game genres with games that are designed to be played indefinitely are more likely to have microtransactions implemented than other types.

Microtransactions are, in the literature review on monetization strategies, theorized to be the biggest contributor to controversies and consumer negativity, hence the researchers expect games with monetization types 2 and 4 to have a higher average difference between the critic and consumer rating, than monetization type 1, due to the implementation of microtransactions. Monetization type 3 is excluded, due to only having one data point, which would skew the results. The game genres with more focus on the implementation of microtransactions will have a higher average difference. Furthermore, publishers with a higher number of games including monetization type 2 and 4 will have a higher average difference than the total dataset. Lastly, with loot boxes being deemed the most controversial type of microtransaction, games including this monetization mechanism are expected to have a higher average difference than games of the same type, but with other microtransaction mechanisms. Additionally, loot boxes are expected to have increased in popularity over recent years, thus this mechanism will be more present in games released from 2017 to 2019 compared to games released from 2014 to 2016, whereby the average difference is expected to have increased as a result of consumer negativity towards loot boxes.

H3: Games with monetization types that include microtransactions will have a higher average difference than games without microtransactions.

H3a: Game genres, which were found to have a higher share of games including microtransactions, will have a higher average difference than the games without this monetization mechanism.

H3b: Publishers with a higher share of released games that use monetization types including microtransactions will have a higher average difference than the total average difference for the dataset.

H3c: Publishers with a lower share of released games that use monetization types including microtransactions will have a lower average difference than the total average difference for the dataset.

H3d: Games including the microtransaction mechanism of loot boxes will have a higher average difference than games of the same monetization type, but without loot boxes.

H3e: The monetization mechanism of loot boxes will be more present in games released from 2017 to 2019, compared to games released from 2014 to 2016, thus the average difference between the two periods will have increased.

Analysis

The dataset, with values for the 152 games, can be found in appendix 2. The results of the calculations made, presented in the following segment, can be found in appendix 3.

Premium sales, monetization type 1, and premium sales combined with item-selling, monetization type 2, accounted for 95% of the games in the sample with each type being represented by 72 of the 152 games. This can be explained in two parts; firstly, the strategy of having both premium sales, subscriptions and item-selling, monetization type 3, is believed to be an outdated practice where the only data point is the old, but popular game World of Warcraft. Ten years ago, this type was used to a larger degree, but game providers likely realized the potential of the microtransactions being drastically higher than the limited subscription revenue, thus they presumably changed to monetization type 2 instead. Secondly, the sample only includes 7 games with the freemium model, monetization type 4, which is due to this model seldom being a go-to strategy for AAA games as it relies heavily on network effects to become profitable. In addition, three of the games with monetization type 4 are arguably non-AAA games, which were handpicked due to their popularity and inclusion in the literature review.

The total average critic rating is calculated as 79 with the total average consumer rating being 64. This results in an average difference of 15 with a SD of 17. These findings support H1, expecting the critics to generally have a higher rating than consumers. Interestingly, the SD is relatively high, which is a result of the difference ranging from -12 to 66, thus the spread is quite wide. Even when excluding the 26 games with a higher consumer rating, the critic average only increased by one point to 80 and the consumer average decreased by three points to 61, which gives a difference of 19 with a SD of 16. Whilst the difference increased by four points, the SD only decreased by 1 point, which makes it clear that the volume of high difference samples is more prominent than the volume of those with a negative difference. This can also be seen visually in figure 1 where all 152 deviations between the critic and consumer ratings are presented and the trend below the average is close to linear with the trend above more closely being exponential.



Figure 1: Differences in dataset

152 games in dataset

As speculated, if games with a critic rating below 50 had been included in the study, the number of games with a negative difference would likely increase due to consumers rating more extreme and emotionally, however, this would skew the results by making the average difference lower and increase the spread further. In addition, by including games that arguably aren't of the highest quality, but that consumers might derive satisfaction from, the focus would move away from the games causing consumer negativity due to the monetization strategies, whereby this sampling criteria still appear correct. Interestingly, if only the data samples from the period of 2017 to 2019 are included, thus excluding 2014 to 2016, the trend closely resembles the overall dataset, as seen in figure 1.1. Thus, the highest differences aren't a result of recent controversies, however, this is explored further in the analysis for hypothesis H3e.

Figure 1.1: Differences in data samples from 2017-2019



Numerical difference between average critic and consumer rating

When analyzing the defined game genres, 'Simulation' and 'Card game' are left out due to these solely having one data point each, which didn't fit into the other combined categories. The game genre with most subgenres was 'Action', whereby it is also the biggest genre with 77 games, of which 7 included microtransactions. The other genres expected to not include microtransactions, argued for previously, were 'Racing' with 7 games and 'Strategy' with 8 games, which, respectively, had 1 and 0 games with microtransactions. In contrast, the genres 'First-Person Shooter' with 28 games, 'MOBA' with 3 games and 'Sports' with 27 games had 15, 3 and 20 games including microtransactions, respectively. These findings provide support for H2 and are visualized in figure 2 with the number of games, and share with microtransactions, shown for each genre. Further research could investigate the relationship between genre and monetization type by including more subgenres, which could confirm whether the social interaction, investigated in the purchase motivations part of the literature review, is the primary driver of microtransaction inclusion.



As stated, monetization type 3 is excluded from the analysis of the monetization types influence on ratings due to there only being one data point of this type. as for the other types, monetization type 1 has an average critic rating of 80 with average consumer rating being 75, which gives the lowest difference of 4 with the lowest SD of 10. In contrast, monetization type 2 has an average critic rating of 79 with an average consumer rating of 55, whereby the difference is 24 and the SD 17. Lastly, monetization type 4 has an average critic rating of 81 with an average consumer rating of 61, thus the difference is 20 with a SD of 13. This data is shown in figure 3. As the average difference for monetization type 1 is drastically lower, with a SD lower than the dataset as a whole, H3 is supported. Interestingly, the average critic ratings are almost identical, hence the differences in consumer ratings are the reason for the average difference being so dissimilar. These findings suggest that critics pay no attention to the monetization type within the games, which can be linked to the aspects highlighted in the online evaluations segment. This factor will be investigated later in the literature review. Surprisingly, it would appear as if consumers don't differentiate between premium and freemium games, but simply express negativity towards all monetization types that include microtransactions. However, the researchers believe these findings could be a result of the seven freemium data points being hand picked due to sudden immense popularity, and not AAA status, as described previously, thus they could be subject to more negativity from individuals with AAA expectations. This aspect would require further research, but could give insight contradicting these findings.


Figure 3: Rating differences by monetization type

Monetization type

The findings for H3 would imply that the genres of 'Action', 'Strategy' and 'Racing', which had less focus on microtransactions, will have a lower average difference than the three other genres. This holds true for 'Action', with an average difference of 8 and SD of 14, and 'Strategy', with an average difference of 14 with a SD of 8. However, 'Racing' has an average difference of 20, with the SD being 18, which more closely resembles the genres of 'First-Person Shooter', 'Sports' and 'MOBA' with average differences of 22, 27 and 22, along with SDs of 17, 19 and 5, respectively. This data is presented in figure 4 and the findings only provide partial support for H3a. 'Action' has a lower difference than 'Strategy', but with a slightly higher SD, which is expected, due to the genre comprising of 77 games, whereas 'Strategy' only consists of 8 games. Similarly, the SD of 'MOBA' is low, despite the relatively high average difference, due to there only being 3 data points of this genre. Using only the data to explain the relatively high, and unexpected, average difference of 'Racing' is troublesome. However, from the researchers knowledge of the industry and from investigating reviews of these games, it seems likely that the consumer negativity stems from relatively expensive DLC expansions being available for these games. As described in the delimitations, this study solely investigates negativity towards microtransactions, hence further research should include more types of monetization mechanisms, whereby the mentioned speculation could be validated, thus a modified version of H3a could be fully supported.



Figure 4: Rating differences by genre

In order to investigate whether the previously supported findings of microtransactions also apply to publishers, or if negative brand equity of specific publishers is the reason behind these findings, the rating scores of each included publisher are compared to the total rating scores. Firstly, the use of the four monetization strategies, along with the specific mechanism of loot boxes, are highlighted in figure 5. 2K Games, Activision, Blizzard Entertainment, Electronic Arts and Ubisoft appear to have the largest focus on microtransactions with the number of released games, with monetization type 2, 3 and 4, being, respectively, 7 out of 11, 7 out of 12, 4 out of 6, 26 out of 37 and 14 out of 19. As for loot boxes, these publishers have included this mechanism in 4 out of 11, 7 out of 12, 3 out of 6, 21 out of 37 and 3 out of 19, respectively. Whilst Sony Interactive Entertainment have also included loot boxes in 4 of their games, the number of games using monetization type 2, 3 and 4 is only 4 out of 23. Similarly, Bethesda Softworks, SEGA and Warner Bros. Interactive Entertainment only use monetization strategy 2, 3 and 4 in, respectively, 3 out of 7, 6 out of 18 and 5 out of 13 of their games. With this data, the former group of publishers is expected to all have a higher average difference than the total dataset, whereas the second group is expected to have an average difference lower than the total dataset.



Figure 5: Released games by publisher and monetization type

Publisher

The rating scores for each publisher are presented in figure 6. As expected, the average difference for 2K Games, Activision, Blizzard Entertainment and Electronic Arts are found to be, respectively, 22, 21, 29 and 23, all of which are higher than the average difference for the entire dataset of 15. Their SDs are calculated as 20, 18, 14 and 18, all of which are relatively close to the one for the complete dataset of 17. Electronic Arts was found to have an average difference very close to the other publishers in this group, despite arguably being linked to the most controversies. This finding was surprising to the researchers, but could possibly be explained by the number of their releases being drastically higher than the other publishers. Interestingly, Ubisoft was part of the first group of publishers, but their average difference of 11, with a SD of 9, is lower than the total. Based on the knowledge of the researchers, this could be a result of their use of microtransactions having relatively low impact on gameplay, whereby it is less invasive for the players who are playing the game normally and aren't looking to skip content. However, to make conclusions in this regard, further research on the specific incentives used by Ubisoft would be necessary. As a result of Ubisoft not following the expected pattern, H3b is only partially supported. In terms of the second group of publishers, Bethesda Softworks, SEGA, Sony Interactive Entertainment and Warner Bros. Interactive Entertainment have average differences of, respectively, 10, 4, 5 and 8, whereby they're all below the average difference for the entire dataset of 15. With SDs of, respectively, 13, 10, 10 and 18, they are all close to, or lower than, the SD of the total dataset of 17. Thereby, H3c is supported.



Figure 6: Rating differences by publisher

Publisher

When analyzing the influence of loot boxes on the rating difference, only monetization types 2 and 4 are relevant, due to the one data sample with type 3 not having loot boxes. Monetization type 2 had 42 games with loot boxes and 32 games without, whereas type 4 had 5 with and 2 without, thus it's a fairly small sample as touched upon previously. As expected, the average differences for monetization type 2 are 29 for the games with loot boxes and 17 for the games without these randomized paid rewards. With the critic rating being 79 and 78, respectively, it is also clear here that the inclusion of this mechanism leads to negativity only from the consumer segment. Surprisingly, type 2 with loot boxes have a SD of 17, which is the same as the total dataset. In addition, the SD decreases from 18 to 14 when loot boxes are excluded, which is intuitive as a controversial mechanism will impact consumer perception similarly and thereby lead to more consensus. Surprisingly, the average ratings for the freemium model, type 4, are 85 and 65 for the critic and consumer, whereas they fall to 73 and 53 when loot boxes are excluded. This leads to an average difference of 20 for both groups, however, the SD increases from 10 to 20 when loot boxes are excluded, which is in stark contrast to the expected findings for monetization type 2. The researchers believe these findings are due to the small sample of freemium games, however, it could also be possible that the loot boxes enhance the freemium games by bringing an adrenaline rush similar to gambling activities, as mentioned

previously. Further research would need to investigate freemium games separately as to not include more non-AAA games that would skew the results of the AAA-focused study. As a result, H3d is only partially supported.



Monetization type

When investigating how the rating differences have changed over time, the dataset is separated into the period of 2014 to 2016 and 2017 to 2019, as seen in figure 8. For the first three year period, 73 games were released, whereas 79 games were released in the second period of approximately two years and four months as the latest entry in the dataset was 'Days Gone', released on April 26th. Thereby, six more games were released in the second period despite the period being eight months shorter. A separate study could investigate the reasoning for this increased output, however, this observation doesn't provide insights for this study. Surprisingly, the number of games with loot boxes included is very close to the first period having 22 and the second 25, thus it hasn't increased as hypothesized. The incorrect expectations could possibly be explained by the ratings as they have followed the previously highlighted trend of a consistent critic average with a decreasing consumer average, whereby the average difference has increased from 21 in the first period to 34 in the second. The SD of the periods also increased from 10 to 20, which is expected as some games, primarily those of monetization type 1, will maintain their average difference, whereas the games with a lower consumer rating will widen the spread of the various differences. These findings highlight how the consumers are more negative in the second period, which could explain why the researchers expected an increase in the number of games with loot boxes, however, it would appear as though the increased number of, or coverage of, controversies could impact the consumer perception negatively in this regard. Further research could look into the number of controversies, and the media coverage of these, over a longer period and investigate how these have influenced the consumer perception of both game providers, monetization strategies and individual games. Whilst the average difference increased over the period, the number of loot boxes in the games didn't, whereby H3e is only partially supported.



Figure 8: Rating differences, by loot boxes, over time

Findings

As hypothesized, the total average critic rating was found to be higher than the total average consumer rating, with values of 79 and 64, which gave an average difference of 15. Only 26 of the 152 games had a consumer rating higher than the critic rating, thus this difference was primarily a result of consumer ratings being lower than the critic ones. The spread of differences was wide spanning from -12 to 66 with a notable portion having relatively high average differences. Interestingly, the spread for the entire dataset, ranging from 2014 to 2019, matched the trend of just the latest period from 2017 to 2019, thus these high difference games were not a result of very recent controversies.

When investigating game genres, 150 of the 152 games were combined into six overall game genres. The three genres being characterized by a single-player focus, 'Action', 'Strategy' and 'Racing', were all found to have very small shares of games that included microtransactions. In contrast, the three genres associated with a multiplayer-focus, 'First-Person Shooter', 'Sports' and 'MOBA', which is meant to be played indefinitely, all had drastically higher shares of microtransactions included in their monetization. The primary driver behind microtransaction inclusion is here speculated to be the aspect of social interaction, hence this is investigated further in the purchase motivation segment of the literature review.

The average critic rating saw little change throughout the study with the value being close to 80 regardless of monetization type, publisher or genre. In contrast, the average consumer rating was heavily impacted by the monetization type with the value being 75 for games solely sold at a premium price, whereas games with a premium price and item-selling had an average consumer rating of 55 and the freemium type having 61. It is clear that critics and consumers value different criteria, thus this aspect is investigated further in the literature review. The lower consumer rating for games with monetization types that include microtransactions result in an

average difference of 24 for premium sales and item-selling, and 20 for freemium, whereas it is a mere 4 for games that are solely sold at a premium price.

The general consumer negativity towards microtransactions can also be seen in the rating differences of the genres with the multiplayer-focused games, associated with microtransactions, having average differences of 22, 27 and 22, which is relatively higher than the single-player-focused genres with 8 and 14. The single-player-focused genre of 'Racing' had an average difference of 20, however, this is speculated to be due to expensive DLC expansions. This monetization mechanism was not deemed a microtransaction as per the used definition, however, releasing expansions that might be expected as part of the full experience was previously mentioned to be the cause of separate controversy.

In terms of publishers, the consumer negativity towards certain monetization strategies followed and surprisingly didn't show any signs of eroded brand equity, whereby all the included publishers should be able to change their practices for new games and obtain low rating differences. The first group of publishers, consisting of 2K Games, Activision, Blizzard Entertainment, Electronic Arts and Ubisoft, had a larger share of games with microtransactions included, along with more loot box inclusion. The average differences for these publishers were respectively, 22, 21, 29, 23 and 11 with Ubisoft being the outlier. The second group of publishers, comprised of Bethesda Softworks, SEGA, Sony Interactive Entertainment and Warner Bros. Interactive Entertainment, had a lower share of microtransaction and loot box inclusion with average differences of 10, 4, 5 and 8, whereby they're all below the average difference for the entire dataset of 15. The findings for Ubisoft suggest that certain ways of implementing microtransactions will be more accepted by consumers, thus this aspect is investigated further in the purchase incentive segment of the literature review.

Looking specifically at loot boxes partially confirmed the expectation of consumer negativity. Games sold at a premium price, with microtransactions, increased from an average difference of 17 to 29 when loot boxes were included. However, when looking at the freemium model, the average difference remained at 20, as both the critic and consumer ratings decreased, though this was likely a result of only having 7 data points of this type. Thereby, the findings for the freemium model are inconclusive, whereas the inclusion of loot boxes in games sold at a premium price, with item-selling, will have the ratings impacted negatively. In addition, this trend was found to be relatively new as the share of released games with loot boxes included was fairly consistent when comparing the period of 2014 to 2016 with the period from 2017 to 2019. However, the average difference between critic and consumer ratings increased from 21 to 34, thus the widespread consumer negativity towards this monetization mechanism is found to be relatively new.

Motivations

The researchers define purchase motivations as reasons people have for buying goods. The range of explanations that was found in the literature could be more broadly grouped into two categories; psychological reasons related to emotions, or social aspects and rational choices, based on considering the benefits that purchasing an item would bring. Based on the literature analysis, the researchers grouped motivations considered similar enough into themes, in order to more precisely compare the stated impact of specific factors, rather than describing each

study as a whole separately. The additional factors that did not fit into any of the themes will be described at the end.

The paper by Hamari and Keronen (2017) will be used as the point of departure for this analysis, as it is based on an overview of studies on purchase behaviors in various video games and contains multiple items from both of the above-mentioned categories, therefore many of the themes were constructed by utilizing the terminology from this study. Additionally, as some studies will be utilized multiple times to analyze different themes, the limitations specific to a study will be outlined only the first time it is used. Further limitations may be pointed out in relation to other studies investigating a specific theme.

An analysis of the methodology of the studies will be presented only in cases of contradictory findings, in order to reconcile the relative validity of the findings for the purpose of answering the research questions of this thesis; otherwise it will be briefly overviewed.

Attitude

The first prominent theme is attitude toward purchase, defined as "own opinion on how positive or negative purchasing virtual goods is". It is included in five studies that were part of the paper, one of which has been independently analyzed by the researchers for the purpose of this thesis. In the study of various types of online games, Hamari (2015) found that positive attitude towards virtual goods strongly increases the willingness to purchase them. The limitation of this study, from the perspective of usefulness to this thesis, is the complete focus on freemium games, also called free-to-play (F2P). However, the conclusion is further solidified by the analysis of the other studies, as Hamari and Keronen (2017) found the attitude to have the strongest association with purchase intention out of analyzed factors, which will also be discussed as other themes. The main limitation of the meta-analysis is a relatively low amount of quantitative research related to some of the themes. This is due to most researchers focusing on attitudes towards the games themselves, rather than virtual goods sold within games. As the study is also recent, the researchers have not found a relevant study on the subject that was not already included in the analysis.

Social interaction

The second major theme, that researchers found, is more broadly related to social aspects of in-game purchases and all related aspects will be placed under the term "social interaction", used in an empirical study investigating player motivations for purchasing in-game content by Hamari, et al (2017). Other terms, which will be included under the theme, are "self-presentation needs" and "social presence" from the meta-analysis by Hamari and Keronen (2017), "perceived social status" (Barnes and Guo, 2012), "social aspects of the gaming and purchasing" and "self-expression" by Cleghorn and Griffiths (2015), as well as "visual authority value" (Park and Lee, 2011). While independently analyzed by the researchers, it is worth to note that studies by Park and Lee (2011), as well as Barnes and Guo (2012) are already included in the meta-analysis by Hamari and Keronen (2017).

Hamari et al (2017) took the approach of investigating motivations for purchase for more types of in-game content, rather than just virtual goods. While social interaction is found to be "a strong incentive" for in-game purchases, it is not the main contributor to the amount of money spent. The main limitation of the study is the inclusion of only F2P games, which might

diminish its generalizability to the AAA market, as the monetization strategy affects game design (Alves and Roque, 2007).

Hamari and Keronen (2017) make a distinction between self-presentation and social presence. The first one is defined as expressing oneself through the in-game avatar, while the second is the sense of human contact. Both of those factors are found to be positively associated with purchase intention, almost to the same degree. Although the distinction is made, it is not possible to determine how much effect the social aspect has on the self-presentation needs, as no studies on single-player games have been included in the analysis.

Barnes and Guo (2012) constructed the term "perceived social status" in order to capture "the influence of players" current position within the virtual world on forming a strong desire toward acquiring advanced, valuable virtual items". They theorized that people with high social status would be more inclined to pursue valuable virtual items to both retain their status and distinguish themselves from others. Their findings support this notion, however, the study does not clearly distinguish between items that can be acquired through gameplay and real money. This lack of distinction is intentional for the purpose of the study, however, it negatively impacts its usefulness for this analysis, as it focuses on paid items. While the questionnaire was applied on a global scale to World of Warcraft players, the sample was self-selected, as in many other studies of this type. Additionally, the findings might not be generalizable to game genres other than MMORPG's.

Cleghorn and Griffiths (2015) focus on categorizing various motivations for buying virtual assets, rather than ranking them in order of magnitude. This is due to how the study was designed. The researchers took a different approach than other studies investigating the subject and conducted 6 semi-structured interviews with gamers, who regularly bought in-game goods in various games, utilizing a method called interpretative phenomenological analysis. Whilst this method cannot be used to generalize the impact of specific motivations, it is perfectly adequate for categorizing them into themes, as it facilitates a much deeper understanding of reasons beyond the capacity of a simple questionnaire. Out of seven superordinate themes identified, two are relevant for the social aspect of motivations. Firstly, there is an emotional investment, as the game can be a replacement for going out and the cause of lasting friendships. Secondly, a recurring theme of identifying with one's avatar emerged in the interviews. It positively impacts purchase behavior, as improving one's avatar and gaining new items is connected to the feeling of pride. This phenomenon has been further explained by the authors: "It has also been found that gamers wished to portray their ideal self" through 'Wishful Identification' (Hoffner & Buchanan 2005) where the user felt greater self-efficacy and satisfaction if their avatar had a vast range of powerful items (Kim et al. 2012)." The study is not without limitations however, as in addition to the already mentioned problems with the sample size, it was also self-selected, which further diminishes generalizability of this research.

The study by Park and Lee (2011) develops a model explaining how virtual goods are evaluated by players. The model shows four different values affecting the item. One of them is "visual authority value", which relates both to improving the looks of one's character and impressing others. It has been found to be strongly associated with purchase intention. Additionally, out of the 4 tested values, correlation between this one and purchase intention is the strongest. The limitations of this study include a 40-76% rate of underage respondents, which might affect the purchasing habits due to more limited disposable income. Secondly, it has to be acknowledged that the study has a more purposefully selected sample than most others analyzed in this

section, however, the respondents could still be argued to be self-selected due to an unknown response rate.

While the above-mentioned papers make distinctions between some of the terms, it has not been deemed useful for the purpose of this thesis, as all of them relate to either direct or emotional interaction between the players. Additionally, regardless of the study, all the social aspects are always found to positively affect purchase intentions. The only aspect that potentially doesn't have to be related to social interaction is self-presentation, as it could also be part of emotional attachment to the avatar, or "wishful identification" (Cleghorn and Griffiths, 2015), which doesn't require the presence of other players. Out of the four studies that make the distinction between social interaction and self-presentation, three found the latter to be positively related to purchase behavior. Cleghorn and Griffiths do not measure the effects of this phenomenon on purchase intentions, while neither of the studies investigates the effects in single-player games, to exclude the social factor.

Economic rationale

The third major theme in various studies is the economical aspect of purchases. The term "economical rationale", defined by Hamari, et al (2017) as "reasonable pricing, special offers, supporting a good game, and investing in a hobby", will be expanded to include terms used in other studies, as the meta-analysis by Hamari and Keronen (2017) uses a less precisely defined term "perceived value". "Effort expectancy " is a useful addition to the analysis explored by Barnes and Guo (2012). Through their interviews, Cleghorn and Griffiths (2015) discovered the themes of "exclusivity, "collectability" and "impulse buying", while Park and Lee (2011) include the "monetary value" as one of the values that determine an item's desirability.

In their study, Hamari et al (2017) found the economic dimension to be both significant and most strongly associated with how much money players spend on in-game items in F2P games. The finding specific to this study is the seemingly inseparable connection between wanting to support the game developer and a simple value versus cost relationship. It is unclear, however, whether reasonable prices are the enabler of this support, as the consumers want to capitalize on preferable deals, or simply support the developer. An additional finding is the diminished effect of attitude on customers, who deem economic rationale important for their purchase decision making. This is significant, as attitude could potentially be the most impactful factor, as outlined earlier in this thesis.

As mentioned earlier, Hamari and Keronen (2017) take a more narrow approach to economic reasons, which is more in line with the literature they analyzed. In this perspective the customers make a rational analysis of the cost to value ratio and use it as one of the factors in their purchase decision. The literature shows that perceived value strongly impacts virtual goods purchasing, however, it makes no distinction between games and virtual worlds, regarding how impactful this factor is.

Even though the study by Barnes and Guo (2012) is already included in the analysis by Hamari and Keronen (2017), the factor of "effort expectancy" was not taken into account, due to how the analysis was constructed. It refers to the degree of both physical and mental effort. The term is applied to goods that could be "earned" by simply playing the game. The study finds effort expectancy to be a significant factor in purchase intention, which could have ramifications for game reward systems when the design goal is to ensure a certain level of in-game purchases.

"Exclusivity" and "Collectability" (Cleghorn and Griffiths, 2015) refer to qualities of items that increase their perceived value. In the game environment, exclusivity can be created through artificially limiting the supply of an item, or connecting it to an event. Items of this type are typically sold as microtransactions for a limited time, which drives the urgency to acquire the item. Additionally, some of the study participants were found to be interested in collecting "vanity items" with no functional purpose, other than its aesthetics. Interestingly, despite both factors increasing the purchase intention of gamers, the study found that its participants were cautious of impulse buying. This could potentially diminish the impact of creating time-limited items. The reasons stated for this cautiousness were the ease of transactions and the ability to preview how items look and behave before purchase. It should be considered, however, that this is not necessarily the norm, as the sample was very small and its participants are not necessarily representative of video game players in general.

The aspect of perceived value in the study by Park and Lee (2011), relevant for this part of the analysis, is the "monetary value". It refers to how cost-effective and reasonably priced the item is. The factor has been found to be one of the determinants of perceived value, though its individual impact is not elaborated upon in the paper.

As in the case of previous motivation group, all the papers have found a positive link between the perceived value of the items and the purchase intentions. While most of them take the approach of a cost to benefit ratio, it is worth noting that studies by Barnes and Guo (2012), as well as Cleghorn and Griffiths (2015) take different perspectives. Rather than looking at the intrinsic value of the item, the first one looks at the cost to effort ratio, as one of the rationales for purchase. The second one takes into account the supply and demand dynamics, which will be further elaborated upon in the "purchase incentives" section of this thesis.

Perceived enjoyment

In the case of enjoyment, the term "perceived enjoyment" used by Barnes and Guo (2012), as well as Domina et al (2012) has been deemed to best capture the elements used for this part of the analysis. The term relates to the enjoyment of "virtual world participation experience", which is broad enough to include the relevant factors from the other papers investigating this component of motivation. Hamari and Keronen (2017) use two distinct terms, "flow" and "service use enjoyment", while the study by Huang (2012) investigates the impact of "cognitive" and "affective" involvement on "flow" and the influence of all three on purchase intention. Finally, Park and Lee (2011) use the terms "enjoyment value" and "satisfaction about the game".

Barnes and Guo (2011) found "perceived enjoyment" to be the third most significant factor influencing purchase behavior, behind advancement and customization, which will be further elaborated upon in the relevant sections of the motivations part. It is worth noting, however, that despite the definition stated above, which is used for this thesis, the study investigates the satisfaction achieved from getting access to the item itself and its impact on the overall experience, rather than enjoyment of the game as a whole.

Domina et al (2012) analyze "perceived enjoyment" as one of the constructs measuring "flow", which is the state described in the next paragraph. Although the paper defines the term in question as "the degree to which using a virtual world is perceived to be enjoyable regardless of any performance consequences", which is more in line with "service use enjoyment" in the

study by Hamari and Keronen (2017), the hypotheses and analysis make it clear that "perceived enjoyment" is investigated in the context of shopping experience itself, rather than the service as a whole. The factor has been found to have a significant impact on purchase intention. The paper itself, however, contains a notable limitation in the context of what this thesis investigates, due to its approach towards investigating the phenomena. The fact that the sample itself is not representative of the gamer population, as it consists almost exclusively of female participants is arguably not a significant issue since the differences between preferences across genders have not been the focus of the thesis. The major factor, impacting the validity of the paper, in the context of investigating AAA games, is the choice of the game itself. "Second Life" is more akin to an virual world that allows for an extreme degree of interaction between participants, rather than a game in the classical sense of containing objectives. The distinction is important, as Hamari and Keronen (2017) find differences between the impacts of various motivations on purchase intention within these two contexts.

In line with the literature they analyzed, Hamari and Keronen (2017) make a distinction between "service use enjoyment", which refers to the fun of using the game itself and "flow", described as a mental state of full immersion and drawing enjoyment from performing a certain activity. Each of the aspects is positively correlated to purchase intention, albeit to a different degree. The association to flow is significant, however, to a noticeably lesser extent in games, rather than virtual worlds. While the correlation between service use enjoyment and purchase intention is significantly weaker than in the case of flow, the gap between games and virtual worlds is even larger.

Although the study by Huang (2012) is included in Hamari and Keronen's (2017) analysis, they do not separate cognitive and affective involvement from flow. Cognitive involvement refers to importance, relevance and value of using virtual goods, while affective involvement entails how interesting, exciting and appealing it is to use them. The above-stated definition of flow applies in this case as well. The study found affective involvement to be most strongly, positively correlated to purchase intention, with flow being the second most important factor. Cognitive involvement was associated with purchasing to a much lesser degree. Interestingly, however, both cognitive and affective involvement strongly impact flow, therefore the effects of cognitive involvement cannot be discounted in the game design process. The study is not without its limitations. The sample is both self-selected and relatively small compared to many other studies used in this thesis, with 176 fully completed responses out of 258 submitted. An additional, major drawback impacting the validity of the study for the purpose of this thesis, is the type of games used for the study. The study was designed to investigate purchase behaviors in social networking games on Facebook, which are designed in a substantially different way than AAA games, which are the focus of this thesis. The validity is impacted, as game design is a serious consideration to implementing microtransactions, which will be elaborated upon in further parts of this thesis.

"Enjoyment Value" (Park and Lee, 2011) is one of the factors in the integrated consumption value of a virtual good. In this case, the value refers to deriving additional pleasure from the game experience through the purchase of an item, rather than the enjoyment of the game itself. In the study, the term was associated with obtaining more excitement, or enjoyment from the game, or simply the feeling of happiness due to the purchase. The data showed a strong association between enjoyment value and purchase intention. The second factor taken into account by the researchers is "satisfaction about the game", which conventionally should lead to initial and repeat purchases. Despite that, the results of the study showed no increase in purchase intention, regardless of how satisfied the players were with the game.

The analyzed literature provides evidence for a strong link between enjoyment and purchase intention, however, the distinction between the virtual good itself and the service as a whole is crucial. It is the attributes of the item, or flow formed through a specific action, that create enjoyment and impact the purchase intention, not the satisfaction derived from the service as a whole. Regarding the enjoyment of the game itself, Park and Lee found no correlation to purchase intention, while Hamari and Keronen (2017) found a weak, positive link. On the contrary, evidence showing a negative impact of game enjoyment on purchase intention will be presented in the section of the thesis describing incentives used by developers to encourage the use of microtransactions.

Function

The term "function" is classified as one of the subordinate themes under motivation for purchase by Cleghorn and Griffiths (2015). It can be directly linked to in-game progression or indirectly linked to the relative quality of the item in terms of its impact on the player's performance. Hamari et al (2017) use the term "competition" as one of the motivation categories. Barnes and Guo (2012) investigate "performance expectancy" and "advancement" as separate themes, while Park and Lee include "competency value" in their framework.

Cleghorn and Griffiths (2015) use the category of function to include the non-visual attributes of the item, which impact progression. The gameplay affecting aspects of the virtual good are at the center of this term, as the researchers make a clear distinction from items that bring no tangible benefits, other than the "cool factor". They found that function positively impacts spending.

Hamari et al (2017) define the "competition" dimension as wanting to be the best. In practical terms, it refers to virtual good's attributes that increase the player's performance, giving them an advantage over others. Interestingly, despite this factor being included in monetization strategies of some games and a discussion topic both in academic literature and on online forums, the researchers found this dimension to be rather unimportant both as a purchase motivation and in association with the amount of money spent.

The study by Barnes and Guo (2012) makes an interesting distinction between the attributes of the item itself and the attributes of the trading platform it can be acquired from. Firstly, they use the term "advancement", which could be simply defined as the impact of the item on the gameplay. The second presented concept is "performance expectancy" that "refers to the degree to which an individual believes that using virtual world trading platforms would help him or her to successfully attain desired virtual items". Performance expectancy involves the functions of the trading platform related to easily finding and being able to compare the relevant items. The study found purchase behavior to be strongly influenced by "advancement". The effect of "performance expectancy" was found to be one of the least significant amongst the tested variables, presumably due to relatively low requirements of Worlds of Warcraft players towards the in-game trading platform.

Lee and Park (2011) explain the competency value as follows: "gamers purchase game items to increase character strength and power in the game context". Its relationship with purchase intention is strongly significant, however, it is the weakest out of four tested values.

The findings of the studies are not completely consistent with each other, as they range from a positive, albeit insignificant, to a strongly influential factor of item function impact on purchase intention. Due to the previously described limitations of these studies, the influence of function, in relation to the research problem of this thesis, is believed to be between insignificant and least significant of the above-mentioned factors. There are two major points, reducing the validity of studies by Cleghorn and Griffiths (2015), as well as Barnes and Guo (2012), in relation to this thesis. It is the very small, sample size, which cannot be generalized to the entire consumer group in case of the first one. In the second study, it is the lack of distinction between paid and non-paid items. Separating paid from non-paid items is important to this study, as buying advantages for real money can impact the perception of fairness, which was highlighted in the monetization segment and will be elaborated upon further in the section on game design. An additional finding in this section is the relatively low significance of trading platform design, which should not necessarily be influenced by the type of items offered on it.

Necessity

Necessity (Cleghorn and Griffiths, 2015) can be directly linked to functionality, as it refers to the compulsion to purchase virtual goods in order to progress in the game, rather than improving performance. Hamari et al (2017) make a distinction between the "unobstructing" and "unlocking content" dimensions.

Cleghorn and Griffiths (2015) find necessity to be a motivation supporting the purchase behavior of virtual goods. An additional finding in their interviews sheds some light on player psychology, as necessity remains a motivation, despite the gamers clearly viewing it as a developer's tactic to encourage spending money.

The factor "unobstructed play" (Hamari et al, 2017) "includes purchase motivations related to being able to smoothly continue playing without obstructions or distractions" and was positively associated with the amount of money spent in the game. The factor of "unlocking content" is a very broad term, referring to purchasing additional content to play, which can range from entire maps to single characters, or items. While the factor was the most important purchase motivation on its own, there was no significant association with the amount of money spent. The researchers acknowledge that the broadness of the term could have impacted the results, as the data could be interpreted to either show that unlocking content is equally important to small and big spenders, or that the term caught many, smaller purchase motivations, therefore skewing the investigated correlations.

Both papers investigating this theme find it to be positively associated with purchase intention. As already mentioned, necessity is directly related to the function of virtual goods, as the game developers impose certain performance requirements to progress in the game. In this case, those requirements could be linked to virtual goods not obtainable by simply playing the game. This theme will be further explored in the section of the thesis describing purchase incentives.

Effect of subjective norms

Subjective norms are the last significant theme identified in the literature analysis. "Subjective norm refers to a perceived social influence from important others to perform or not perform a certain behavior" (Hamari, 2015). Their effect on purchase intention is also investigated by Hamari and Keronen (2017), as well as Barnes and Guo (2012).

Hamari (2015) investigates the impact of opinions of others towards paid virtual goods on purchase intention and attitude. The data shows social influence to be a strong predictor of both, with the greatest effect on games requiring a greater amount of social interaction and on people with more friends in the game. The additional impact on attitude raises the significance of this factor, as attitude is one of the greatest purchase predictors on its own.

Hamari and Keronen (2017) define subjective norms as "perceived social pressure from other people on how acceptable playing games or using virtual worlds is", however, in the discussion section they state that the term incorporates attitudes of others towards virtual goods. The paper is based on an analysis of 8 studies investigating the correlation between subjective norms and purchase intention. They find them to be similarly impactful on both games and virtual worlds, however, the exact scale of the effect was not determined, due to very high variance between the studies.

Although the study by Barnes and Guo (2012) was included in the above-mentioned paper, there is a major difference in how they define social influence, when compared to the previous articles. Their definition states that it "refers to the degree to which an individual perceives that important others believe he or she should obtain desired virtual items through purchasing from other players in VWs". In this case, the investigation focuses on the push from others towards purchasing, rather than the perception of how acceptable they find it. Barnes and Guo find the factor to not play a part in the purchase decision.

Due to the analysis of the above-mentioned articles, subjective norms are believed to have a moderate to strong influence on purchase behavior, depending on a couple of factors. Firstly, their impact can be determined by game design, as Hamari (2015) states that the amount of social interaction in the game correlates with the effect of this factor. Secondly, it will vary amongst individuals, since not everyone puts the same importance to the opinions of others, as pointed out by Hamari and Keronen (2017). The study by Barnes and Guo (2012) is considered less valid for the purpose of this thesis due to methodological reasons. While the sample size is less than 10% than in the study by Hamari (2015) and only one game is investigated, rather than three different game types, it was the definition of social norms that played a major role in the decision to focus on the findings of the two other studies.

Other factors affecting motivation

Through the literature analysis, the researchers identified six additional factors, which did not fit into any of the above themes. Three of them, including "service use intention", "perceived network size" and "perceived ease of use" are described by Hamari and Keronen (2017). The factor mentioned last is also analyzed by Domina et al (2012) along with "perceived control". Hamari et al (2017) investigate the motivation of "indulging children", while Barnes and Guo (2012) look at the impact of "habit" on purchase intention.

Hamari and Keronen (2017) define "service use intention" as the intention to use a game or a virtual world. They found a mediocre correlation to purchase intention in virtual worlds and a low correlation in games. "Perceived network size", or the number of people using the service was found to be the third most impactful factor on purchase intention. "Perceived ease of use" refers to the interface design, rather than the game itself and its relation to purchase intention was estimated to be positive, but very weak.

Although the factors discussed by Domina et al (2012) are defined similarly, they affect different aspects of the game. The definition and impact of "perceived ease of use" are in line with the work of Hamari and Keronen (2017), however, "perceived control", characterized as "people's perception of ease or difficulty in performing the behavior of interest", refers more to the whole process of acquiring items, rather than simply the interface. The factor has been found to have a significant influence on purchase intention.

"Indulging the children" (Hamari et al, 2017) refers to a situation, in which parents buy ingame content to entertain their children. In this context, the children's motivations are only partially taken into account, as it is the parent, who holds the money and makes the purchase decision. The motivation was not clearly linked to any specific type of content, however, participation in special events and preventing the loss of things already achieved were most strongly associated with it. Overall, "indulging the children" is not a significant factor affecting the purchase intention. Its relative unimportance could be connected to the characteristics of the sample, as close to 70% of respondents were men under 30 years old.

The influence of "habit" is unique amongst the analyzed literature to the paper by Barnes and Guo (2012). The study investigates how routine use of trading platforms affects both purchase intention and whether it moderates the effect of other analyzed factors. The researchers found habit to be very strongly associated with purchase behavior. Additionally, what could be of even more interest, strong habit reduces the predictive value of all other variables.

Out of the three mentioned factors, "perceived network size" and "habit" were found to be strongly associated with purchase intention. However, it could be argued that network size affects the players indirectly, as it determines two other variables important to players. Firstly, it affects "social interaction", being a predictor of its amount in an online game. Secondly, it can be connected to "economic rationale", through being a surrogate measure of a game's "health". If the player base is too small, sustaining the servers of a game is not profitable to the company, which leads to shutting them down. Therefore, a perceived risk of soon losing the purchased items in a game not considered "healthy", should lower the purchasing intention of players. Finally, the moderating influence of "habit" on other variables creates some implications towards the game design choices, which will be further explored in the part of the thesis concerning incentives used by game developers to encourage engaging in microtransactions.

Concluding remarks regarding motivations

The purpose of this analysis was to determine the motivation related factors affecting purchase intention, however, their impact is not quantified for two reasons. Firstly, some of the analyzed papers took the approach of categorizing the factors into significant groups, without a strong focus on measuring their relative impact. Secondly, while the outcomes of the measurements were fairly consistent across the papers in terms of whether a specific factor had a strong association with purchase intentions, the quantities are not easily comparable, as elements that were taken into account differ across studies. Additionally, taking the work of Hamari and Keronen (2017) as the baseline, some of the researchers chose to further break down distinct components of a motivation, while others grouped them together. For this thesis, the researchers deemed a qualitative approach of describing the relative importance of various motivations to be the most viable. The alternative method that ensures reliable measurement would require designing and conducting a separate study based on the analysis of the abovementioned findings which would change the entire structure and purpose of this thesis.

It could be argued, that among all the discussed elements of motivation, only six of the significant ones are unique, as others can be directly tied to them. The first one is the general attitude towards virtual goods. It is perhaps the strongest predictor of purchase intention, however, it is not widely analyzed in the academic literature. It is directly connected to subjective norms, as one's own opinion can change due to the perceived views of others. Additionally, for people prioritizing economic rationale, the impact of the attitudes on purchase intention is diminished.

Social interaction is the second very significant factor. The researchers found overwhelming support in the literature for its importance, as regardless of the elements included in, the social aspects were found to be positively associated with purchase intention in every instance. Social interaction moderates the effect of previously mentioned subjective norms, as the amount of interaction with others determines the amount of social pressure they exert on the player. Network size directly influences the frequency of meeting other players and thus the amount of social interaction. Therefore, it could be argued that network size is a moderating factor for the significance of social interaction.

All of the analyzed literature shows economic rationale to be strongly associated with purchase intention. Due to the cost and benefits analysis being the underlying principle behind it, it might also be the least subjective out of the investigated motivations. It is also clear that any attributes of the item, considered under other categories of motivations, impact the cost to benefits ratio and thus economic rationale itself. The developers need to carefully consider this factor both during the implementation of microtransactions in the game and during the designing of the rewards systems themselves, in context of deciding, how hard will it be to earn the paid items through playing the game, or whether it should be an option at all. A weak link could be also drawn to the effect of perceived network size, however, it cannot be expected that an average player attentively follows the life cycle of the game and takes such a factor into consideration.

The analyzed literature shows perceived enjoyment to be positively associated with purchase intention. It refers both to happiness related to obtaining the virtual good itself as well as its impact on the satisfaction from the service as a whole. An additional factor influencing both perceived enjoyment and purchase intention itself is flow, which relates to immersion. Flow is an important element, as creating, or breaking it is related to certain design decisions, which will be further elaborated upon in the game design section of the thesis. Interestingly, it is crucial to distinguish between the enjoyment created by the virtual good and the satisfaction drawn from the game itself, as the latter does not have a direct, positive impact on the purchase intention.

Even though function and necessity have been analyzed separately, the attributes of the virtual good, which place it under the category of necessity, could also be considered to be its function. The findings of those sections show that players are not very inclined to pay for improving their performance in the game and thus, in a way, competing unfairly, but the dynamic can change due to certain design decisions by developers. Once the item is required to progress in the game, unlock certain content, or simply get rid of undesirable gameplay elements, the function's impact on purchase intention raises dramatically. This finding is very significant for designing both the incentive systems to purchase virtual goods and the items themselves, as it shows that simply changing the performance affecting attributes of an existing item, which could be done at negligible cost to the developer, is not enough to for players to pay for the virtual good.

Finally, an unexpected finding is the impact of habit on the purchase intention itself and the other motivations. While significant on its own, its influence on diminishing the predictive power of the other factors could lead towards a radically different direction when designing a game. It could be argued that game developers are well aware of its effects, as the phenomenon of "loot boxes" and their addictive properties was already discussed under the microtransactions section of the thesis.

Purchase incentives

The topic of design decisions used by the game developers to incentivize the purchases of ingame virtual goods could be considered a controversial one, as they might not necessarily be in the customers' best interest. Broadly taken, the incentives could be separated into those that create a win-win situation, where players are satisfied, while the firm generates more revenue, and win-lose scenarios, in which the game quality is purposefully deteriorated in order to increase the revenue.

Although lowering the quality of a product to increase the revenue it generates might be counter-intuitive, the previous analysis of the motivations sheds some light on why such a strategy would be effective. The following section aims to explain in detail various incentives that the developers can use, their connection to motivations, as well as their impact on game design. Firstly, the paper 'Dark Patterns in the Design of Games' (Zagal et al, 2013), will be used to establish which practices are considered to be against the players' best interest. Each practice will be further elaborated upon using additional literature investigating in-game incentives, some of which have already been analyzed in the section of this thesis regarding motivations. Secondly, the perspective provided by Hamari and Lehdonvirta (2010) will be explored, as it looks primarily at differentiation strategies promoting sales of virtual goods.

Zagal et al (2013) investigate patterns in game design, which could be considered "questionable and perhaps even unethical". The purpose of their paper is the construction of a working definition of the term "dark pattern". They do this by investigating various aspects of game design, described in the preceding literature. The final definition states: "A dark game design pattern is a pattern used intentionally by a game creator to cause negative experiences for players which are against their best interests and likely to happen without their consent." A limitation of this study stems from design elements in the so-called "gray zone", which cannot be definitively stated to affect players negatively, as their impact on both the game and players is relative. Additionally, they could be perceived by the players themselves in a different way, however, measuring the customer perceptions regarding those aspects is not a part of the paper. As stated earlier, the identified patterns will serve as the starting point of the analysis, although not all of them will be taken into account. The components, which do not directly impact the purchase of virtual goods, or are not relevant to AAA games, do not contribute to answering the research questions of this thesis. An overview of the limitations of the prominently cited papers will be included at the end of the analysis, as the papers will be used throughout multiple sections and more importantly, in this case, their limitations do not have a significant effect on the analysis itself. It is due to their purpose being to provide examples and explanations, rather than to cross check correlations.

Pay to skip

The first relevant dark pattern, called "pay to skip", refers to a concept already explored in player motivations. It is also intimately connected to a popular term in gaming, namely "grinding", which could be defined as "performing repetitive and tedious tasks". It is generally perceived negatively, as it artificially extends the game's duration by giving priority to time spent over the skill. In this case, the incentive can take two basic forms. Firstly the developers can take a very direct and aggressive strategy, of offering the option to "purchase victory" and thus progress in the game, or even steadily reducing the player's ability of playing effectively, which culminates in a required payment, allowing for continuous, meaningful progression. However, those designs could be considered quite extreme and are currently present in mobile and web-based games, rather than high-budget ones, as shown in examples given by Zagal et al (2013). While the paper could be considered quite dated by the industry standards, the researchers could not find any AAA game with such mechanics present in a way that significantly affects gameplay. On the other hand, there are entire aspects of high-budget games designed around grinding, to incentivize spending real money, which will be further explored with examples from other literature.

An example of a high budget video game, which included grinding as a core concept in order to generate revenue, is Diablo 3, released in 2012 (Metacritic Diablo III, 2019). As described by Prax (2013) there were many considerations taken into account in the inclusion of the "Auction House", which served as a marketplace, where real money could be used to trade ingame virtual goods between players. In order to incentivize using this feature, the developers ensured that the likelihood of acquiring a desirable item would be minuscule. They achieved it through an unprecedented use of attribute randomization. Although the practice itself is quite common, especially in MMORPG games, or even in the previous Diablo game, as pointed out by Prax, the developers of Diablo 3 made a single change to the approach, which made an enormous difference. While normally the attributes are grouped in certain ways, in order to ensure that each combination is useful, Diablo 3 presented the players with a huge variety of attributes, which were completely randomized in an item, making many of them completely useless to players, or simply combining mutually exclusive features. This model supported revenue generation in two ways. Firstly, the players could not make a direct payment for virtual goods, as money first needed to be transferred to their user account associated with Blizzard. While the procedure was effortless, the firm charged a 15% fee on the amount that would be transferred back into the real bank account. Secondly, a 15% transaction fee was charged for the sale of any commodity on the trading platform. Prax demonstrates on the example of the most expensive item in Auction House, which cost 250\$, that Blizzard could earn up to 38,5\$ on a single item, just by providing a trading platform. The requirement for the players to maintain a constant online connection is arguably also present due this system. Even though it is a powerful digital rights management tool, the degradation of game quality, through the introduction of connection lag and server issues, as well as the cost of developing and maintaining it, could not possibly be justified by the desire to reduce piracy concerns. Rather than that, it is more likely there to ensure the lack of tampering with game files, so the players cannot change the way items are generated, or simply give items to their avatars.

The incentive itself works in a simple, yet reliable way. Firstly, it ensures that the likelihood of a single consumer to attain the desired gear just by playing the game is very close to 0%. The previously described motivations are the second component the model requires to work effectively. In this case, the primary motivations are those of "function" and attachment to one's avatar, which was mentioned under "social interaction". As already explained, this attachment is not restricted to multiplayer games, however, Diablo 3 includes the option of

cooperation, which makes all the elements of "social interaction" relevant. This means that even early in the game, players are enticed to use the Auction House, yet taking into account the relatively low impact of "function" and the completely optional nature of "social interaction", the impact of those factors should not be very significant. However, this is the case only until the player reaches the so-called "late game", where the performance of the character is completely defined by the items in its possession, as the skills and attributes intrinsic to the character no longer develop. The developers put further emphasis on the importance of items, by limiting the variety and viable combinations of specific character skills available in the game, thus to a large extent determining the late game performance by the quality of equipped items. As Prax points out, once players reach the late game, a certain quality of equipment is the basic requirement to play effectively. Thus, the motivation is no longer "function", but "necessity", as those who have not acquired the items in the process of playing the game, are barred from further progress. The analysis of motivations has determined "necessity" to be much more strongly associated with purchase intention, than "function" itself. Finally, the study by Barnes and Guo (2012) specifically refers to the impact of trading platforms, such as the currently discussed Auction House. Effort expectancy influence purchase intention significantly and in this case, the entire reward system is designed around maximizing the amount of time the player needs to spend, in order to acquire a desired virtual good. Additionally, it could be argued that habit plays a substantial role, as the players are heavily incentivized throughout the game to utilize the Auction House, both as a means of making their avatars more powerful and earning real money through selling the items they gained.

Although it can be clearly seen how the incentives placed by developers seamlessly work together with player motivations, less than two years after launch, the feature was eventually stripped from the game due to a strong backlash from the community (Connoly, 2014). The company could see the negative long term effects of this mechanic already a year after launch. In the conclusion to his paper, Prax (2013) describes the significant changes Blizzard made to the how items are acquired, in order to reduce the importance of the Auction House and speculates it might be connected to the loss of players the game experienced after launch. As Moore (2013) explains it, the gameplay loop of Diablo 3 at the time was to beat the game content on progressively higher difficulties, which would reward players with better items, but in turn require better equipment to beat, which made gaining "loot" the ultimate goal of the game. In this context, players engaged in the late game would pay to skip the core mechanic, on which the entire late game was based on. This leads to the second dark pattern, namely paying to win.

Monetized Rivalries

This dark pattern (Zagal et al, 2013) is commonly referred to as "pay to win", which leads to a "virtual arms race" between individuals, counting on their competitive nature. In a player versus player setting, it skews the outcomes by letting people compensate for their lack of skill with paid items, which was discussed regarding the Star Wars Battlefront 2 controversy. Alternatively, the developers can emphasize the public rankings, which could entice purchases in two ways. Firstly, they can appeal to customer's vanity by allowing the scores to be shared to the circle of friends, although this strategy is more related to mobile and web browser games, rather than the AAA industry. The high budget games tend to use incentives that apply within the setting of the game, such as special items, titles, or substantial rewards for achieving a prominent position in a ranking.

Alha et al (2014) explore the perspectives of game developers themselves on this aspect, through a series of interviews focused on F2P games. The professionals held generally positive attitudes towards F2P games, however, the pay to win mechanics were a universally disliked design amongst the interviewees. Even though they are perceived as unfair and compromising the game quality, the developers acknowledge that the games might still include it in pursuit of short term profits, noting that some companies design the games with revenue, instead of quality as the guiding principle. The section of the thesis regarding reviews describes how critics are ultimately influenced by the opinions of consumers and shows that the valence of a previous entry in a franchise will at least partially carry over to the following ones. Therefore, it could be argued, that in this case, the firms focus on generating revenue at the cost of brand equity.

As shown from the examples given by Zagal et al (2013), which do not include any AAA games, as well as the knowledge of researchers regarding such games, "pay to win" is not a common design in this type of games. As in most business decisions, the benefits should outweigh the costs, which is not the case in this situation. The extent of benefits is impacted by player motivations, while the cost consists of reducing the perceived game quality and possible damage to brand equity. Furthermore, it was already pointed out in the analysis of microtransactions that players prefer cosmetic goods to performance-enhancing goods.

Firstly, the purchase decision motivated by the desire to outperform other players would fall under the "function" theme, which is not a strongly influential factor. Additionally, it could be argued "perceived enjoyment", which is much more impactful on purchase intention, is at play in this case as well. Specifically, in the presence of pay to win items, the component of "flow", also known as immersion, suffers in the perception of gamers, due to the so-called "magic circle" (Lin and Sun, 2011) being broken. Zagal et al (2013) point out that while there was an illegal flow of financial capital between the real world and the game already in Diablo 2, it affected only the players, who sought such markets out. On the other hand, making it the core of the game design means that the most efficient way to advance in the game would be to invest the money earned in the physical world into one's avatar. Lin and Sun (2011) define the "magic circle" in the following way: "the presence of a world independent of the everyday physical world and the preservation of game world order via adherence to game-specific and general gaming rules." The first part of the definition refers directly to immersion, whereas the second component addresses fairness. The breakdown of those elements causes the disruption of flow. In their study of player perceptions of free games with microtransactions, Lin and Sun found "maintaining the magic circle" to be a sporadic argument against F2P games, which could mean that only a minority of players view the ability to purchase virtual goods with real money as immersion breaking. Based on the widespread presence of microtransactions in popular video games, as well as the above-mentioned study, it is reasonable to conclude that the erosion of "flow" can be avoided, if the implementation of the mechanic related to purchasing virtual goods is smartly justified within the context of the game, without being the main means of acquiring high-end goods. On the other hand, as shown in the example of Diablo 3, building the reward system of the game to maximize the flow of real money, will lead to a perceived deterioration of game quality, which will culminate in a significant outflow of players. The number of active users determines the network size, which was another, highly impactful, previously discussed player motivation. As it both directly affects player purchase intention and the frequency of possible "social interaction", designing such mechanics into the game could also negatively affect the revenue generated by virtual goods, not belonging to the "pay to win" category.

Additional dark patterns

Finally, Zagal et al (2013) describe three additional dark patterns, which are arguably not as widely used in AAA games, or are utilized in a context that does not necessarily impact the experience in a negative way. "Playing by Appointment" refers to requiring engaging with the game at specific times, which are defined by the game, rather than by the consumer. It is a very popular design in MMORPG games, which manifests itself through the availability of specific, optional missions, or re-spawn rates of opponents and harvestable goods. Additionally, the games tend to incentivize engaging in specific activities through the use of generous rewards, rather than by making other activities unavailable. Ultimately, any such restrictions are commonly in place to improve the game balance and to ensure that a number of players do not engage in "grinding" one specific, particularly rewarding area, which would lead both to their frustration and server issues. As argued in the article, such use of this game mechanic would not constitute a dark pattern. The examples given in the article show the extreme uses of this pattern, where the players will incur in-game losses unless they orient their real-world activities to the schedule provided by the game, however, none of the examples include AAA games. This type of design influences purchase behavior indirectly. Through the imposed requirements on return visits, the players who are invested in the game will spend even more time on it, than they normally would. Due to the sunk cost fallacy, the consumer will be more likely to continue using the game, which, as in the study by Hamari (2015), leads to increased purchase intention.

The second dark pattern not having a great, negative effect on the AAA industry is the use of "social pyramid schemes". The article describes them to be similar to multilevel marketing, where the player benefits both from recruiting others to the game and the recruited members acquiring further players. A web browser game, Farmville, is given as an example of this design, where the players are implicitly encouraged to make use of their social network, in order to progress in the game past a certain point without having to use real money. The adverse effect of this pattern stems from entrapping consumers into feeling a social obligation to play the game, rather than doing it for their own enjoyment. An example of a somewhat similar idea in the AAA industry could be the reference system in Star Wars The Old Republic (SWTOR) MMORPG game (SWTOR Friends, 2019). In this case, however, the scheme design is radically different, as it's based on rewarding both parties, with no impact on gameplay. The main incentive consists of awarding a monthly amount of in-game premium currency used for microtransactions to the recruiter, for every subscriber, who used their referral code. Due to the recruited party receiving a one-time reward as well, the players can simply "advertise" their referral codes on game forums, rather than pressuring their social circle into joining the game. The potential benefits of rewarding players with premium currency are two-fold. Firstly, it is the tangible increase in game subscribers, affecting both the immediate revenue and the game itself. Secondly, it can be used to build "habit" (Barnes and Guo, 2012) of purchasing the premium items. The players will be more likely to spend real money to acquire even more premium currency, as the most expensive goods can cost up to 60 times more, than what is received in a monthly reward per recruited player.

The last dark pattern, which is also acknowledged by the authors of the article to fall under the shades of grey, is a very broad one, namely "psychological tricks". It refers to using the knowledge of human psychology to entice the players to spend money. The examples given by the authors include artificial scarcity, or time-sensitive discounts. In this case, creating the illusion of scarcity is intimately connected to discounting premium items, rather than to the previously described "grinding". The researchers exemplify this tactic through phrases like "One Time Offer!". Discounting is a very powerful tool affecting purchase behavior, as

presented in a study by Kuo and Nakhata (2016). The crucial component in deciding on a discounting strategy is the time to purchase offered to the customer. In case of short time to purchase, "utility blindness" has a significant effect on the customers, as instead of considering the expected utility of the goods they intend to buy, due to lack of time, the emphasis is put on the attractiveness and hence the utility of the transaction itself. Thus, even a small discount can be a strong enough encouragement to make the purchase. If the time to buy is relatively long, the firm can incentivize the customers in two ways. Firstly, by offering a large discount on a single item. Secondly, by offering a small discount on a bundle of products. The authors of this thesis have experienced all three strategies to be present in the MMORPG SWTOR published by EA games.

Differentiation strategies

Hamari and Lehdonvirta (2010) propose a perspective, in which game design patterns should be viewed as marketing processes that aim at increasing the demand for premium virtual goods. Their study is based on a review of 12 popular MMO games. Its purpose is to explain how they work in terms of analogous marketing techniques. When compared to the previously investigated paper by Zagal et al (2013), the strength of this approach stems from an impartial analysis of game mechanics, which have evolved over decades and their possible effect on the sales of virtual goods, rather than evaluating incentives negatively affecting game quality.

The researchers demonstrate that differentiation in the reviewed games occurs on two planes simultaneously. The vertical differentiation is achieved through the stratification of content. It tends to be manifest itself through avatar levels, which are gradually gained as the player progresses through the game. Additionally, even within their respective levels, the items are further divided into various degrees of quality, which addresses the price sensitivity and disposable time of player sub-segments. The content stratification is enforced in two ways. Firstly, through status restrictions on the item, requiring a minimum, or putting a cap on maximum avatar level. While the level cap might seem like a punishing mechanic, essentially forcing the players to switch their equipment at a constant rate, the more popular approach revolves around the second design pattern, namely stratification of game content. In this case, the requirement of acquiring new equipment is more implicit, as the game gets progressively harder, thus making the lower level items obsolete. The mechanic of minimum level, connected with increasingly challenging content, is present in almost every MMO game, however, the premium virtual goods tend not to be designed around it. In contrast to the item-centric stratification presented in this approach, Barnes and Guo (2012) argue for segmenting the players themselves. The study found the "top" players to spend more on virtual goods, both due to performance and self-presentation needs, related to their social status. They propose to track the player performance and reward the players already at the "top", as well as the beginners quickly rising through the ranks with special functions and discounts. This would serve both to encourage players to get more invested in the game and to build a habit of using the trading platform.

The horizontal differentiation is much broader than vertical, as it aims to address various player needs derived from available content, rather than having a pure focus on improving performance. The goods can be divided into mutually non-rivalrous dimensions, which are used for distinct aspects of game content, like socializing, trading, or simply performance-oriented. Additionally, even within those categories, the items can be further divided not only by their visual appearance but also by a more specific function, as it tends to be the case with clothing, where it's split into trousers, boots, vests, etc. Finally, there exists a level of avatar

customization, where the "classes", determining the character's core competencies, may require different items for their equipment. This customization also includes appearancerelated attributes, which will vary depending on the game setting and possibly the game engine. Although, Hamari and Lehdonvirta (2010) do not analyze the connection between horizontal differentiation and sales of premium goods, the authors of this thesis have experienced the game design choices connected to this dimension to be one of the defining factors, determining what is available for sale in the modern MMORPG games, like SWTOR, World of Warcraft, or Elder Scrolls Online.

Due to the analysis of motivations guiding player decisions, it is easy to see why the design of vertical differentiation tends not to impact the available virtual goods. As outlined above, segmentation of content affects the need to acquire items improving the player performance, which was previously grouped into the category of "function". In addition to the motivation itself not being significantly impactful on purchase intention, the analysis of monetization strategies revealed player aversion towards such goods being included in the game, due to fairness concerns. On the other hand, there is a more plausible explanation, of why such designs are not popular. As pointed out by Hamari and Lehdonvirta (2010), using real money for ingame goods has first emerged in 1999 and developers have experimented with this concept ever since. In the series of interviews performed by Alha et al (2014) with the industry professionals, one of the emergent themes was the tendency to copy the successful designs of competitors, or even outright create "clones" of their games, which stifles innovation. It is also evident to both video game users and journalists that successful MMO games establish certain design standards, which are followed by the competing products (Fahey, 2012).

Other incentivising mechanics

Hamari and Lehdonvirta (2010) explore additional mechanics that drive desirability of virtual items, however, those consist of minor inputs, rather than core design of the game, as in the case of differentiation strategies. They first describe "item degradation", which can be implemented in a variety of ways. The goods can have a set expiration date and, more commonly, have a set number of uses, or degrade gradually due to combat, or with time. Regardless of the mechanic, it can end with the item becoming useless, or vanishing completely. Additionally, depending on the game and type of item, there might be a possibility of repair using the in-game currency. The authors point out that the repair cost can become a revenue stream, as in Entropia Universe, however, in the case of World of Warcraft, the most popular MMORPG in the world, by a huge margin, it is done through in-game, non-premium currency. Most importantly, in order to be accepted by the players, the mechanic needs to be justified within the context of the game. "Economic rationale" was found to be a significant motivator in decision making regarding virtual goods and the players would certainly factor in the "item degradation" aspect into making their purchase decision. While leading to higher repeat sales, an aggressive implementation could also lower initial sales, therefore the developers need to carefully balance the impact of the mechanic.

The second incentive investigated by the authors could be simplified to inconveniencing the player on purpose. The developers create a need within the game and a virtual good that is the answer. The implementation entails improvements to gameplay elements, such as user interface, imposed limits on certain functionality, or reducing the amount of necessary clicking. In case of the game "Travian Plus", the enhancements described in the paper could be linked to first designing the "dark pattern" of "playing by appointment" (Zagal et al, 2013) into the

game, to give the players the opportunity to diminish its impact by purchasing a premium account. Secondly, the motivation for getting rid of the inconvenience can vary from one player to another, depending on both how advanced they are and their patience. While some may perceive the virtual goods removing such annoyances as a facet of "function", thus not essential, others will view it as "necessity", which has a significant impact on their purchase intention, as outlined in the analysis of motivations.

Introducing mediums of exchange, which have been called "premium currency" in this thesis, is a third tactic that Hamari and Lehdonvirta (2010) delve into. Depending on how it is implemented it can either affect only the paying customers or the entire user base. Firstly, the authors argue that a virtual currency enables more pricing possibilities, allows for more bulk sales and the players will generally be left with "change" after their purchases, which prompts them to acquire more virtual currency. Secondly, the developers can devise a system of currency eachange, in which the premium currency can be traded between the players for the currency earned in the game. An important aspect of this design is the presence of desirable items that are only purchasable with the non-premium currency for exchange and "time-rich" players contribute to the revenue of the service through the virtual economy. While the developers could obviously just sell the non-premium currency themselves, having it exchanged between players alleviates the problem of perceived unfairness and therefore contributes to maintaining the "magic circle".

The next in-game incentive could be argued to evoke the "perceived enjoyment" motivation, which is strongly linked to purchase intention, as it deals with diminishing the impact of a game element clearly designed to inconvenience the player, without affecting their performance. Limited inventory space, which can be expanded through various means, is a fairly standard design in MMO games. Typically the inventory is limited by the number of slots, rather than other variables like size, or weight of the items. The mechanic itself can be implemented in various ways. As pointed out in the example of MapleStory, the player might be required to store different types of items in different inventories, which results in separate payments for expanding each of them. The obvious drawback is the possibility of the player not purchasing a virtual good, due to lack of inventory space, however, it can be avoided in various ways. The example given by the authors outlines the possibility of recycling the less desirable items for a fraction of their price, in order to make space in the inventory. The researchers have personally experienced two different ways of alleviating this problem in the MMORPG SWTOR. One of the methods is to make the inventory expansion options virtually unlimited, yet more expensive each time they are acquired. The second way of ensuring that players can always purchase the premium virtual goods is to not require them to receive them right after purchase. SWTOR offers the players an option to not keep their newly purchased items in a special inventory related to the premium item selling platform until they wish to use the goods for the first time.

Using special occasions to sell time-limited content is a standard practice in MMO games. The events can be related both to holidays related to the real world, as well as internal to the game itself. Generally, even the depiction of real-world traditions is modified to better suit the lore of the game. The strategy is very beneficial to the service due to both being a good justification for introducing new microtransactions and being closely linked to very influential motivating factors discussed earlier. In the simplest view, purchasing such goods is fueled by the "economic rationale", as the items are often exclusive collectibles. An additional factor is the impact of a limited time to purchase, which has significant implications on the discounting strategies to drive purchases (Kuo and Nakhata, 2016). Additionally, the items can be designed

to be interactive and affect other players, in non-combat ways, which would then make "social interaction" an important factor. An example of such an item would be snowballs included in SWTOR during the Christmas season.

Possibly the most commonly used strategy to drive purchases is introducing alterations to the game. It creates a plethora of opportunities to sell new items, by impacting different motivations, as it can be implemented in various ways. Firstly, it affects the players interested in collecting items, which falls under "economic rationale" in the framework developed for this thesis. Secondly, through the introduction of new content, the existing items are devalued without the need to alter them. As Hamari and Lehdonvirta (2010) point out, altering the goods that have already been purchased by the customers might be unethical, if not outright illegal. Implementation of new content is connected both to balancing the game and increasing the level cap, which represents the maximum achievable power in the game, as experienced by the authors of the thesis in MMORPG games like SWTOR, WOW and ESO. In this case, acquiring new equipment is not a case of improving "function", but rather motivated by "necessity" to continue progressing in the game. Alterations to the functionality of the game also provide the developers with an opportunity to introduce new ways of interaction between the players. The most important considerations in such updates are ensuring user acceptance, in order not to diminish the number of players, as well as a design that allows for a certain amount of flexibility for future changes. Additionally, in many cases, it simply provides more variety to the game, which positively affects the number of time consumers spend playing the game, as shown in a large scale study of player behavior by Kaimann et al (2017). The amount of time spent in the game is positively associated with purchase intention, as shown in the study by Hamari (2015). The developers need to be cautious however, as Kaimann et al (2017) also show that the new additions need to be carefully balanced in a way, that encourages experimenting with different playstyles. Otherwise, user utility and in effect play time might be decreased instead.

Finally, there are two studies, which investigate a design aspect not considered in the main sources for this section. Domina et al (2012), as well as Barnes and Guo (2012) present a case for a well-designed trading platform. In a study of users of the virtual world Second Life, Domina et al (2012) show that an interface that is easy to navigate and promotes achieving the desired purchase outcomes through useful search options significantly increases customer purchase intention. This aspect is also discussed by Barnes and Guo (2012) in the context of "effort expectancy", which was found to be an important factor in player decision making. However, it is noteworthy that both studies investigate the platforms used for trading between players. In the context of games, which do not offer advantageous, premium virtual goods, that are easy to compare, a sales platform with highly optimized search functions might be less useful. As authors of the thesis have experienced in a popular MMORPG SWTOR, the main focus of the sales platform for premium goods, is the control of bundles, discounts and time-limited offers on specific items, which are constantly cycled in and out, rather than a large, permanent offer, thus a significant investment into improving the sales platform could not be justified.

Limitations of the papers

"Dark Patterns in the Design of Games" by Zagal et al (2013) contains major limitations used for this thesis, which is why it needed to be heavily supplemented by references from other sources. The criticism is not pointed at the methodology used by the authors, as it served its purpose, but rather the factors that diminish the paper's validity in the context of this thesis. Firstly, the authors focus on how the "dark patterns" negatively impact the player, with emphasis on the players' personal observations, rather than the reasons for implementing such mechanics in the first place. Secondly, instead of identifying how widespread certain trends are in the video game industry, the study aims at a thorough explanation of their possible, negative effects on players' experience through the use specific examples of the discussed practices. Finally, although the authors do not differentiate between the impacts of specific patterns on various sectors of the video game industry, some of the designs described in the study apply mostly to mobile and web-based games, rather than the AAA sector, which is the focus of the thesis.

The analysis of Diablo 3 by Prax (2013) was rather useful in conjunction with the study by Zagal et al (2013), due to supplementing a perspective on how the company itself benefits from certain designs. The main limitation of this study, in regards to its usefulness, stems from its major focus being on the Diablo 3 Auction House, which was more akin to an experiment within the industry, rather than a representation of prevailing design patterns. Additionally, due to the age of this analysis, the information regarding the developments in the player base after removing the Auction House functionality from the game is not included, thus it is unknown how much removing this revenue stream benefited the firm. Finally, the analysis focuses on specific examples of items and users, presumably due to the very limited availability of aggregated information on the revenue Blizzard gained through this specific stream. Thus, whether the outflow of players was very significant, or if the revenue was not as large in the first place, is only a matter of speculation.

"Game design as marketing: How game mechanics create demand for virtual goods" by Hamari and Lehdonvirta (2010) contained perhaps the most comprehensive analysis of incentives used in games out of the cited studies. However, the major drawback is the lack of differentiation between the strategies that impact the value stream, from those that could potentially impact it, if implemented in a certain way. This stems from the absence of clearly specifying, which aspects apply mainly to premium items and which ones affect the standard goods instead. Although the authors point out the possibility of implementation, which would affect the premium sales, the effectiveness of such endeavors hinges on player acceptance. "Attitude" is possibly the strongest factor affecting player purchase intention, as described in the section of the thesis regarding motivations. As acknowledged by professional game developers themselves in the study by Alha et al (2014), the view that a certain practice is highly detrimental to game quality, would certainly negatively impact the players' perception of microtransactions. Additionally, such designs can be damaging enough to the longevity of the game that developers decide to remove it, as shown in the case of Diablo 3 (Prax, 2013).

Concluding remarks regarding the discussed incentives

The analysis of the studies has shown various ways, in which game developers implement item purchase incentives into their games and the underlying player motivations affecting how potent the design patterns are. Although, due to the above-listed limitations of the studies, the researchers are unable to determine the relative effectiveness of described mechanics, the analysis has resulted in some significant findings.

Firstly, in line with the claim by Hamari and Keronen (2017) that it might be in the developer's best interest to introduce gaps into gameplay to sell virtual goods, most of the analyzed incentivization methods are exactly that, however, a very important distinction needs to be made. Most of the described methods that affected the gameplay in a significant way, were

applicable to how the game was designed at its core, making the presence of premium goods irrelevant. In other words, due to the fact that the most successful MMORPG WoW includes these patterns, without an excessive focus on monetizing them through premium goods, it could be argued these mechanics are considered to be a blueprint on how to make an enjoyable game. Thus, they are present not only to incentivize the players to purchase more goods but to add another layer of depth into gameplay, thereby making the game itself more enjoyable. These ideas have been perfected in WoW for close to 15 years, since the game's release (Stewart, 2019) and have been copied countless times (Fahey, 2012).

The second finding could be related to one of the microtransactions themes already discussed in this thesis, namely the players' preference for cosmetic goods. However, the example of Diablo 3 and the absence of various dark patterns discussed by Zagal et al (2013) from the AAA industry provides a different perspective. Instead of viewing this trend as a player preference, it could just as well be player aversion towards premium goods that have a significant effect on gameplay dynamics. Although Prax (2013) discusses but one example, including such practices in a AAA game creates much controversy and the developers are often forced to either redesign their product or face the game's demise due to dwindling player numbers, as already mentioned in the introduction section.

Even though the analysis has shown that many successful incentives have been developed during the industry's lifetime, there are some crucial considerations that need to be taken into account, whilst implementing specific designs. Firstly, the developers need to decide which motivations they wish to tap into. Using cosmetic and interactive goods to elicit the needs related to "social interaction" is the safest path, as it does not impact the perception of fairness, due to not affecting gameplay performance. As already described, it can additionally synergize with "economic rationale", which is a powerful motivating force on its own. On the other hand "necessity" has also been shown to be very influential, thus incentives related to it should also be taken into account. The controversial cases show a significant risk related to implementing gameplay mechanisms that may force players to spend real money in order to remain competitive, however, it might not be necessary to completely forego this revenue stream. On one hand, some of the examples given by Hamari and Lehdonvirta (2010) depict how whether the players are motivated by "function", or "necessity" can be very relative to the way they play the game and their own perception. On the other hand, there is no guarantee that the, presumably, more invested players motivated by "necessity" will purchase the items, rather than leaving the game completely due to frustration. Otherwise, the developers could also limit access to the most enjoyable elements of the game, thus bringing the"perceived enjoyment" component as a consideration.

Nevertheless, designing incentives using "necessity" as the main motivating factor is somewhat of a gamble, which should either be carefully balanced to affect only the players truly invested in the game, or outright avoided if the game is planned to be a major product on the market for many years. In case the game has been designed to be obsolete within a relatively short time period, as in the case of yearly franchise releases, the developers would need a deep knowledge of their user base and their attitude towards microtransactions. "Attitude" was determined to be one of the most significant factors affecting purchase decisions, however, in this case, it could also significantly damage the longevity of the franchise as a whole, which was discussed in the thesis section analyzing the impact of ratings.

The next section will focus on what the consumer groups of gamers and critics consider important while evaluating a game. Additionally, the literature analysis will provide some insights into the video game user segmentation, mainly by their approaches towards playing video games. The extensive analysis of incentives will allow linking effective approaches towards specific groups, which will, in turn, provide insights into why certain incentive types, which should be effective in all contexts, are not universally used.

The following section will consist of three major themes. Firstly, based on the article by Kallio et al (2011) user's approaches towards playing video games linked to the most likely motivating factors affecting purchase intention and will be compared to insights from additional literature. Secondly, the perspectives of industry professionals on free-to-play games, studied by Alha et al (2014), shall be explored in the context of purchase incentives and elements of the business model. Lastly, the researchers will analyze literature pertaining to the game design factors evaluated by game critics, contrasting them against elements considered important by gamers, which should provide at least a partial explanation to significant differences in average scores between the critics and other users.

Approaches to playing games

Through a mix of quantitative and qualitative methods used on a large sample of gamers Kallio et al (2011) identify nine mentalities that drive customer product choices. The classification is based on three main indicators, namely "intensity", "sociability" and "games". The first indicator is defined by length and regularity of gaming sessions, as well as the amount of focus on the activity. The second considers interaction with other people in physical, or virtual space, along with discussing one's experiences. The third looks at product and situation related criteria important to the customer when choosing a specific game. The result of the study is the emergence of three main categories, namely "social", "casual" and "committed" with three mentalities assigned to each of them. It is important to acknowledge that any game consumer may possess more than one mentality at a time and while they drive the choice of games, playing by itself also contributes to shaping the gamer's approach.

The profiles related to the "social" category are: "Gaming with Children, Gaming with Mates, and Gaming for Company". The distinction between the last two profiles is whether the person engages in gaming due to enjoying the activity itself or for a purely social reason. The common theme amongst the games chosen by users with these mentalities was the requirement for the games to be easily accessible, not too difficult and inexpensive. The session length was found to be inconsistent and the games played irregularly. Additionally, the participants were found to engage in other activities parallel to gaming and not to discuss the experience, while not playing the game. An important distinction that the authors point out is whether social gamers are committed to the game itself, or the people they play with. If the first instance is the case, the mentality could be argued to fall under the "committed" category, which will be elaborated upon later, while in the second case, such consumers would not constitute a good market for virtual goods, when cross-checked against the analysis of motivations.

Firstly, due to how the games tend to be used by gamers with these profiles, "social interaction", as defined in this thesis, plays no part at all. The significant impact of this motivation on purchase intention wholly hinges on self-presentation through one's avatar and using the game as a surrogate to fulfilling one's social needs. This creates both commitments to the game and the desire to be perceived in a certain way, which the game provider can help fulfill with virtual goods. In the context of social mentalities described above, playing the game is just another means of entertainment within a social context, where the participants, rather than the activity are the focus. Additionally, the irregularity of playing, combined with limited

focus on the game itself are not supportive of the previously described incentives used by the game developers. Inconveniencing players, who are not committed to the game, would likely result in them seeking out another one, rather than a virtual good purchase. Lastly, "indulging children", which is directly connected to "gaming with children", was not found to significantly affect purchase intention.

Even though the "casual" category is defined by the player's lack of commitment, users belonging to it could become profitable customers, if certain conditions, related to their specific mentality and incentives used by the game provider, are fulfilled. Kallio et al (2011) have grouped such mindsets as "killing time", "filling gaps" and "relaxing". In contrast to the previous category, there are very significant differences between the profiles in terms of both regularity and length of gaming sessions. "Killing time", which relates to gaming due to boredom, is the most inconsistent mentality, without any patterns to session length, or their regularity across the different players. "Filling gaps" refers to regularly engaging in a very short period of gaming in-between other activities. The "relaxing" profile tends to entail regular, lengthy game sessions, with the players not limiting themselves to the most simple of games, as in the previous two profiles.

While there is some potential to generate revenue from players "killing time", due to extreme variations in their gaming habits, the third profile is most likely to provide opportunities for monetization. The most promising strategy of monetizing users with "killing time" mentality, would be to promote commitment to the game they are playing. Two designs framed as "dark patterns" by Zagal et al (2013) and previously described in the incentives section could be especially effective in achieving this goal. Firstly, in order to compel the players to engage with the game regularly, the "playing by appointment" design could be implemented. Additionally, through the use of "social pyramid schemes", the game provider can create an additional commitment to the game, due to peer pressure. On the other hand, as outlined earlier, such designs are generally not accepted in the AAA segment, which makes them quite more likely to severely damage the reputation of the game provider, rather than result in significant revenue.

The name of the profile, "relaxing", also very accurately describes why people with this mentality play video games. The most important factor for these consumers, when choosing a game, is familiarity. Combined, these two elements create an opportunity to implement certain incentives promoting the purchase of virtual goods, without great risk of driving the players away. While all of the differentiation-related incentives described by Hamari and Lehdonvirta (2010) are valid ways to increase revenue, they are not likely to result in significant purchases due to the player not being invested in the game. Lack of this factor almost nullifies the impact of some of the most significant motivators analyzed earlier, namely "social interaction" and the elements of "economic rationale" related to collecting items. Rather than offering a variety of exciting virtual goods, the developers should aim at disturbing "relaxation" and offering a way to reestablish it. The incentives most likely to achieve this goal would be the ones that inconvenience the player in notable ways. As stated earlier, the borders between motivations of "function" and "necessity" are quite fluid and depend on the player's perception. In the case of the mentality of "relaxation", it is reasonable to assume that achieving this state is treated as a "necessity", which was found to impact purchase intention significantly. Additionally, instead of alarming the player with a payment required up-front to remove the disruption, the developers can simply impose limits on certain activities, which can be rectified with a payment. This is a common strategy both in mobile games and the MMORPG segment of AAA games. The requirement of familiarity with the game is a factor that mitigates the risk of the

player abandoning it and choosing another one. Managing to get the players to buy virtual goods has additional benefits, other than revenue generation. Repeat purchases will eventually lead the customers to develop a "habit", which significantly affects both purchase intention and impact of other factors. Lastly, as the amount of money spent on virtual goods grows, there is a chance to get the player to commit to the game and be affected by the full spectrum of motivations, due to the sunk cost fallacy.

The third set of mentalities, under the category "committed", is affected mostly by the games themselves, rather than external factors and is characterized by a large amount of time spent by gamers. Players, who "game for fun" engage in a broad spectrum of game genres, prioritize the elements of gameplay, over the setting of the game and include the segment playing competitively. Due to this focus, they tend not to exhibit any attachment to their avatars, which diminishes the usefulness of "social interaction" based incentives. On the other hand, it should give developers the possibility, to make incentives based on the motivations of "function" and "necessity" more impactful, especially if the related virtual goods positively affect "perceived enjoyment", since maintaining the "magic circle" does not need to be considered. Additionally, even though the players do not identify with their avatar, they might still purchase virtual goods, either due to the collectibility related rationale or simply as a show of status in the online environment. This is exampled by the sports games in the AAA segment, which are both the pioneers and some of the most profitable games regarding microtransactions (Thier, 2016). Despite this, the developers should be careful in their implementation of overly aggressive "function" based incentives, due to possible negative effects on "attitude", as fairness, which should be especially crucial for those playing competitively, is an important consideration to players.

The "immersive" profile could be considered to be the opposite of the previous one in certain aspects. With this mentality, the players care deeply about the setting of the game, which consists of the world, it's history, characters, etc. The games chosen by this group are characterized by their complexity and large scale, with most of the examples, elaborated upon in the thesis section related to incentives, falling into this category. Despite the plethora of tested and successful strategies, the segment of players exhibiting this mentality could be argued to be less profitable, than the one described above. In the case of immersive games, the main factor inhibiting the more aggressive implementation of various incentives is the risk of breaking the "magic circle". As a result of this situation, gamers with the "immersive" mentality would lose their main reason to engage with the game in the first place, which would make the effectiveness of incentives meaningless.

The players with the last mentality, "entertaining", are involved with the games to the smallest degree, out of the three "committed" profiles, having other hobbies. This group engages with a large variety of genres, appreciates a quick learning curve and treats video games like any other consumable media. The group could certainly be affected by the previously mentioned incentives, however, they are unlikely to spend large amounts of money on virtual goods, due to their characteristics. The way in which they consume games, combined with no preference for a single genre, suggests they are much less likely to involve themselves with a single title long enough for the incentives to take effect. "Economic rationale" affected purchase intentions significantly, which would be a large deterrent to consumers, who don't intend to play a specific game for a long time.

The "committed" mentalities are the most beneficial, out of the three categories, in promoting sales of virtual items, however to a notably lesser degree in the case of "gaming for

entertainment". When designing the gameplay, getting the players to commit to the game should always be one of the developer's main goals, in order to maximize revenue. As the "dark patterns" (Zagal et al, 2013) were discovered through analysis of popular designs, it is reasonable to assume that game providers are well aware of it.

While turning non-committed users into committed ones is the optimal outcome from the point of view of game providers, it is more likely, as argued by Kallio et al (2011) that people with such a mentality will be drawn to these types of games. One of their main findings is that the vast majority of gamers exhibit elements of the "relaxing" and "entertaining" mentalities, both of which are not very conducive to increasing the sales of virtual items. Furthermore, the analysis of motivations and incentives shows that the players, who are too "committed", such as those who play competitively, or immerse themselves in the games, might not be the most profitable target audience, due to their concerns over fairness and maintaining the "magic circle". As Ernkvist and Ström (2018) show in their study, an excessive focus on catering to the more "committed" players, can be detrimental to long term profitability, as mainstream audiences value different design elements.

Through surveying CEO's of Japanese firms in the video game industry Ernkvist and Ström (2018) sought to determine the reasons for their relative lack of success in recent years. Although Japanese video game providers have been worldwide leaders for decades, following a peak in the early 2000s, they have not been as prosperous as their Western counterparts. One of the most prominent factors contributing to this decline has been their focus on the "hardcore users". The way the researchers characterize these makes them closest to the "immersive" profile in the typology presented by Kallio et al (2011). Compared to the Western audiences, the key difference stems from the additional profits, which can be claimed from related industries, as selling toys and other media related to the games has consistently been an important revenue stream for Japanese game providers. While this group was certainly the most profitable on the per customer basis, catering to their demand for complex and highly specialized games, limited the firms to claiming just a small fraction of the potential market. Additionally, as pointed out in the previous part of the analysis, due to the advent of premium virtual goods, the gamers with the "immersive" mentality are currently unlikely to generate the most revenue per customer.

Finally, Kaimann et al (2018) present a different perspective, as they investigate the game consumption, related to the duration of gameplay, in the context of demographics, experience and gameplay variety. Interestingly, the researchers found no significant differences between age groups or genders, however, the country of residence was an impactful variable, which suggests cultural differences might impact player habits. On one hand, the irrelevance of age could be argued to contradict the findings of Kallio et al (2011), as young people were overrepresented amongst the two most "committed" mentalities, however, they were a minority of gamers even when the study was conducted. As video games become more mainstream each year, it is reasonable to conclude that age might not be statistically significant anymore, in a much more recent study. The finding that more experienced and therefore skilled players spend more time on their gaming sessions is consistent with classification by Kallio et al (2011), as more skilled gamers typically exhibited the "committed", or "relaxed" profiles, which were correlated with longer session length. This finding bears additional ramifications for incentive design, as the gamers, who pay for skipping unappealing content will exhibit considerably less skill than other participants (Kai et al, 2015), which might negatively impact their long term purchase behavior, as discussed earlier. Lastly, Kaimann et al (2018) found variety in gameplay

to positively affect gameplay duration, which is supported by Kallio et al (2011), as variety depends on the complexity of the game.

The study by Kallio et al (2011) provided many insights into the breakdown of player approaches towards video games, however, it contains certain limitations, some of them in the context of this thesis, rather than internal to the study itself. Firstly, its age might be a significant factor, as shown by comparison to the work of Ernkvist and Ström (2018), as well as Kaimann et al (2018). The video game industry is extremely dynamic, with the target audience and thus the design of games shifting drastically over time. As the games become more popular, they reach a much wider audience, which affects the demographics of customers. Additionally, due to these changes, it is unknown, whether the profiles found to be the most prevalent amongst gamers by Kallio et al (2011) are still the dominant ones, close to a decade after the research was performed. Secondly, as stated by the authors themselves, the defined mentalities are somewhat "fluid" with a degree of overlap between each other. Furthermore, the gamers themselves might adopt different profiles based on the situation they are in and the game they are playing. While these are significant findings for the study, they create both problems and opportunities in the context of this thesis. The blurry borders hinder clearly identifying the size of various groups, which makes estimating the revenue generation potential of each group an issue. On the other hand, this fluidity suggests that attempting to convert non-committed users into committed ones should be a worthwhile endeavor. Finally, one of the main criteria in the study was the length of the gaming session. Due, to the research being conducted in a single, geographically small region (n=804), it makes its generalizability on a global scale somewhat questionable, when taking into account the more recent findings of Kaimann et al (2018) on the significance of country of residence on this variable (n=1408).

How the games are evaluated

The following section will explore the criteria used by gamers and critics to evaluate games in the context of written reviews. The comparison will be based on two separate studies, one of which focuses on the overall experience of the game, rated by players, the other on the importance of its technical aspects from the perspective of game critics.

Bond and Beale (2009) investigate consumer game reviews from Gamespot UK in order to identify the categories contributing to game success, or failure. Their findings are significant both to the prior discussion of game incentives, as well as the later comparison to considerations of game critics. The most important features of the product were identified as: Variety, Cohesion, Social Interaction, User Interaction and pricing. The aspect of variety, presented in the study as one of the most important criteria, while writing a review, has also been shown by Kaimann et al (2018) to not only impact the overall assessment of the game, but the duration of the game sessions themselves, which has been previously linked to getting the players more involved in the game and thus making various incentives more impactful. The importance of cohesion, defined by Bond and Beale (2009), as "seamless integration, story related to gameplay, cohesive story, consistent style", provides additional proof to the necessity of maintaining the "magic circle". In this case, creating incentives, that make the microtransactions stand out from the game, might not only lead to losing the customer, but also to bad word of mouth, as this aspect would be featured prominently in their review. Although highly impactful on customers, the element of pricing does not warrant much consideration

from the game providers, as long as they follow the trends of highly uniform prices currently present within the AAA segment of the video game industry.

The significance of social and user interaction provides a very positive outlook for game developers, as these factors have been linked to various, powerful incentives. Social interaction simply refers to the presence of well-designed multiplayer aspects of the game. In this context, the developers are able to further enhance the quality and value of their product, using premium virtual goods, through the introduction of desirable items, which do not affect the gameplay itself. While the definition of user interaction used by Bond and Beale (2009) contains certain complexities, in the context of utilizing incentives, the previously discussed term "user interface" would be most relevant. In contrast to the previous factor, the game providers need to strike a careful balance between inconveniencing the player and limiting their annoyance, as in this case the purchase of virtual goods is motivated by "necessity" and "function", which makes such items impact the gameplay by definition.

Interestingly, certain elements, which could be argued to be intimately connected to the previously described ones, fall under the "moderate importance" category. Despite cohesion being one of the most important factors, the quality of the elements, which are supposed to be cohesive, namely storytelling, environment and gameplay, was only moderately important. Additionally, although the customers were very sensitive to perceived "bad pricing", value for money was not as significant, which points to the conclusion that it is overall safer to just follow the pricing trends within the industry, regardless of product quality, rather than trying to differentiate. Furthermore, the players consider the presence of the multiplayer elements to be much more important than customizability, which impacts the justifiability of implementing microtransactions into single-player games, as the intention to acquire virtual goods will not be impacted by the motivator of "social interaction". Finally, the aspect of "technical soundness" was also considered as only moderately important, which could explain some of the differences between the ratings given by regular consumers and critics found in the ratings study presented earlier.

Livingston et al (2010) provide a metric-based approach, which helps the developers determine the best use of their resources, based on the game aspects focused on by the critics, relative to the genre. Firstly, in their literature review, the researchers establish the existence of a trend between review scores and usability issues. The term refers to the interface design, the quality of certain gameplay elements and the general technical problems. By investigating game reviews they have created a list of potential usability problems. The most frequent ones related to consistency, defined as "poor hit detection, poor in-game physics, inconsistent response to input", training and help, as well as controls. In addition to a strong critic focus on very specific aspects of the game, as opposed to the player reviews, the factor of tutorials was not considered at all in reviews analyzed by Bond and Beale (2009). The need for training and help might be more specific to critics, as they need to play many different games consecutively, in order to write reviews, rather than being able to focus on a single game they enjoy. This might also be a factor inhibiting innovation in the most complex game genres like MMORPG's, as going through a comprehensive tutorial to all aspects of unprecedented game design could take many hours, resulting in a lower score.

The different areas of focus between the regular consumers and game critics, when evaluating the game, provides insight on the reason for significant differences in average scores given by these groups. It could be argued that Livingston et al (2010) show a set of certain criteria related to the technical aspects of various genres, which are consistently used by critics, while the

factors discovered by Bond and Beale (2009) relate to the overall enjoyment of the product, which is quite subjective. However, there are significant limitations to both of the papers. Bond and Beale (2009) admit to not reaching a data saturation point, which reduces the reliability of their study, due to categories they have created being incomplete. It is mainly due to the fact that the study was conducted a decade ago when online reviews for video games were not nearly as prevalent as currently. Furthermore, as a result of the small data sample (n=33), the importance of the categories is only a rough estimate, which severely limits the applicability of the study in creating recommendations for game providers. In the case of the study by Livingston et al (2010), the limitations stem from two, main sources. The analyzed categories are based on the prior work by Pinelle et al (2009) on usability problems, which means that the extent to which critics evaluate the more subjective aspects of the game, like its story, was not taken into consideration. This is due to the purpose of the tool the researchers aimed to create, as it was supposed to provide the developers with information on the most crucial problems of more technical nature, relative to the game genre, that need to be solved before the game is released.

Perspectives of industry professionals

Alha et al (2014) conducted 14 interviews with game developers of six Finnish game companies, with their perspective on the freemium model being the focus of the study. The paper explores four themes related to this topic. The attitudes of professionals themselves, the presumed attitudes of players, ethics of the design and finally predictions on the future of this model.

The researchers have found the attitude of developers, who have previously worked with the F2P model, to be overall more positive towards it, than of those who haven't. Some of the major points being raised were also touched upon in the previous sections of this thesis. The developers liked that players could try the game for free and then determine how much it is worth to them. This can be related to the motivation of "economic rationale", as one of its aspects was the customer's goodwill towards the game provider. Although the motivation itself had a very significant effect, it is debatable, how much the players would be affected by one, small aspect of the whole. Their second point, stating that the game needed to be good, to keep people playing, could be considered a double-edged sword, due to the subjectivity of what consumers consider to be good, which will be elaborated upon in the next paragraph.

Alves and Roque (2007) explore the business models of MMOGs, which F2P games typically fall under, if revenue generation is their purpose. One of their findings, is the significant impact player wishes, regarding game alterations, have on the design of such games. While, the developers interviewed by Alha et al (2014) considered catering to player expectations to be a positive aspect of F2P games, Alves and Roque (2007) present it as a vicious cycle. The game provider needs to respond to the customer demands, at least to a certain extent, in order to keep them using the service, however, as they do not understand the implications of their ideas, due to lack of experience in game design, their implementation often results in reduced longevity of the game. Additionally, within the AAA segment, MMOGs are very costly to produce and maintain, when compared to other game types. As a consequence, the design of the game tends to be guided by monetization opportunities, in order to ensure its sustainability. Furthermore, the developers are very risk-averse, which results both in general lack of innovation and

copying successful designs from other games. These factors, described by Alves and Roque (2007), were viewed as the negative aspects of F2P games by the interviewees (Alha et al, 2014). The developers were also averse to implementing pay-to-win mechanics into the game, however in this case, based on the previous analyses of motivations and effects of such incentives, their inclusion is not reasonable from the revenue maximization perspective.

There was agreement between interviewees that the attitude of players towards the freemium model is mostly negative, but has been improving over the years. In their point of view, the early days of F2P games, with leading developers like Zynga, implementing purchase incentives in extremely aggressive ways, are to blame for this situation. They also point out that the group, which is the most critical towards this model, "hardcore gamers", is also the one, which consumes the most games utilizing it. However, it is noteworthy that "hardcore" games, like League of Legends and World of Tanks, which were already mentioned in the thesis, face much less backlash than casual ones, according to the interviewees. This could arguably be explained by the information gathered in the previous sections of this thesis. The games, which the developers gave as examples are very successful in their respective genres, both in terms of their player base and revenue generation. As they are also very competitive in nature, the players are very likely to be significantly affected by the considerations of "fairness", which cannot exist in the presence of pay-to-win mechanics according to research on player views by Lin and Sun (2011). This would suggest that purchase incentives are implemented in a way that improves sales of virtual items, without driving away the player base. Thus, the more plausible reason for the limited backlash is the type of incentives that were implemented, rather than the "hardcore" status of the games.

Alha et al (2014) found that the developers view the model as ethical overall, with single instances of identifiable, unethical behavior. Interestingly, none of the designs framed by Zagal et al (2013) as "dark patterns" and which are very prominently present in F2P games outside of the AAA segment, were mentioned by the developers, other than the general exploitation of the customer's addictive tendencies. Most of their concerns regarded the source of revenue, rather than the implemented incentives to pay. One of the raised issues was the ability for children to conduct in-game purchases without a clear concept of money, which has also been discussed by some legislators in the EU. Additionally, even though the small minority of players, called "whales", supplying the majority of revenue is a standard within this business model, it was considered unethical, with one of the interviewees suggesting that the company should contact customers spending unusually high amounts of money. Some of the developers also argued that it is more unethical to charge 60\$ for a bad game that people haven't tried.

Finally, the belief that the player attitude towards the F2P model will further improve over time was prevalent amongst the developers. In their view, the model has secured its place in the industry and will not disappear within the foreseeable future. Additionally, they have argued that the quality of games utilizing this model is increasing, with the incentives becoming less aggressive over time. As they also expected for new monetization methods to emerge, their last prediction arguably did not come true. The relatively new monetization mechanism, commonly referred to as "loot boxes", was already presented in the thesis as one of the most aggressive forms of microtransactions to develop, even to the point of legal authorities within the USA and EU getting involved in the debate of their legality.

The perspectives of industry professionals contribute to the thesis, by giving additional insights into the reasons for the popularization of the F2P model. The most interesting in the context of the literature analyzed in the previous sections, concern the purpose and ethics of game
design. While the developers have shown concerns that the design could be led by the idea of revenue maximization, the implementation of incentives was not a major theme in the discussion of ethics. As the ethics of various incentives are one of the main considerations of "dark patterns" (Zagal et al, 2013), the question remains whether the interviewees considered the other factors much more important, or if they did not view such incentives as unethical. While certainly very insightful, the study is not generalizable to the entire industry, due to the size of the sample (n=14) and complete focus on one, geographically small region. Additionally, the inclusion of mobile and internet browser game developers somewhat limits the validity of the study, when applied to the research topic of this thesis.

Conclusion

The literature review on monetization strategies identified Premium sale, subscription-based and item-selling based as the most industry defining monetization strategies within video games. The strategy of premium sales is the simplest one due to solely consisting of one upfront payment, whereafter the game is fully owned, thus this is the most accepted monetization strategy by consumers. The second strategy of subscription, consisting of recurring payments, is mostly used alongside premium sales, however, it extends the life of the game by turning it into a live-service. This monetization strategy is also relatively well-accepted as consumers can extend an enjoyable experience by paying for continued development and content, which wouldn't be profitable for the game providers without the continued revenue stream. The third strategy concerns the implementation of item-selling through in-game microtransactions, which are combined with either selling at a premium price or offering the game for free and relying on microtransactions as the sole revenue stream, termed freemium. The types of ingame content sold can be grouped into three categories; cosmetics, relating to non-invasive visual changes, advantages, concerning paid improvements, and progression, which should be viewed as soft advantages helping late adopters to get on a higher level faster. Especially the category of paid advantages is perceived negatively due to the element of unfairness and games becoming "pay to win". Microtransactions are of great interest to game providers due to the potentially unlimited revenue obtainable, which is also why some games can be provided at no cost. However, this monetization strategy inherently relies on creating gaps in the game design to incentivize spending, as in-game purchases would be rare if the game was considered perfect. Thus, microtransactions can easily be viewed as invasive to the game experience. In addition, the microtransaction type of loot boxes lacks transparency due to having randomized rewards, whilst also resembling gambling activities. As a result, microtransactions, along with the monetization mechanisms of pre-orders, day-one DLC and season passes, can lead to decreased transparency and fairness, along with being invasive to the game experience, whereby consumers are reluctant to accept these. Therefore, game providers should have these three aspects in mind when implementing any of these monetization mechanisms, whilst also being transparent about how fairness and the game experience aren't impacted by the chosen strategy.

Online evaluations are found to notably influence the purchasing behavior of consumers within the video game industry. Whilst critic reviews were analyzed to be more influential than consumer reviews, negative reviews were more impactful than positive ones. Thus, the extreme negative consumer reviews, resulting from monetization controversies, should not be disregarded by the game providers as they were found to not only impact the sales of the game at hand, but also indirectly on future releases within the same series due to critics being influenced by past consumer reviews. Whilst this isn't supported for the 'journalist' category of critics, due to the critic average being relatively stable in the conducted ratings study, it was speculated to have a more prominent effect for critics with a direct following, such as YouTube reviewers or bloggers, who aren't included in the study. In terms of valence and volume, these factors of evaluations were both found to exert influence on consumer perception. Whilst the dynamic between the two was ambiguous, volume was found to be relatively more influential pre-release, whereas valence exerted relatively more impact post-release. Furthermore, an increased variance as a result of extremely negative reviews can lead to increased risk perception for the consumers. As stated, game providers should be mindful of how they implement controversial game design or monetization strategies as mishandling these will result in more extremely negative reviews, which in turn will lead to negative valence and increased variance. These factors influence consumer perception and purchase behavior negatively, which have a direct effect on the sales and brand equity, however, future released titles would also, indirectly, be impacted negatively.

The ratings study highlighted how critics, of the journalist category, weren't significantly influenced by monetization type, game genre or publisher, whereas consumers were heavily impacted by monetization type, which had a spill-over effect on game genres and publishers, with the controversial monetization mechanisms included. As expected, premium sales were the most well-accepted monetization strategy because of the transparency and no risk of invasiveness. Subscriptions were underrepresented in the dataset, which suggests that it's an outdated practice replaced by item-selling due to the potentially unlimited revenue stream. Item-selling was found to be the monetization strategy with the highest average difference as a result of microtransactions, which can be perceived as unfair, intransparent and invasive. The freemium version of item-selling was also found to be underrepresented in AAA games, thus several of the data points were handpicked non-AAA games of high popularity, though these might not be the best indicators of acceptance due to the few data points. The monetization mechanism of loot boxes was found to be the most prominent negative influence on online evaluations, which is likely due to the inherent lack of transparency in the randomized rewards, along with the potential of being both invasive and unfair. Despite item-selling generally being perceived as a risk by consumers, some publishers had managed to successfully implement this monetization strategy into their games, likely by maintaining fairness and transparency without being invasive to the game experience.

The analysis of purchase motivations has shown a very complex relationship between customer needs and their impact on intention to purchase virtual goods. Although there is a great number of motivations, which affect purchase intention to varying degrees, the researchers have identified the six most important factors, namely attitude towards virtual goods, social interaction, economic rationale, perceived enjoyment derived from the acquired item, necessity and habit. However, it is noteworthy that these elements, along with the others mentioned in the analysis, are in constant interplay, which means that their impact can vary depending on the consumer, or the game itself. Two of the most interesting findings are the impact of habit and service use enjoyment, both of which influence the way that incentives are implemented into games. Habit is not only a significant predictor of purchase behavior, but its growing strength also reduces the impact of all the other factors. In the case of service use enjoyment, it is noteworthy that making the game better does not translate into increased sales of virtual goods, assuming a constant number of participants. Unfortunately, the researchers were unable to estimate the precise impact of specific motivations on purchase intention, due to methodological differences contained within the numerous academic sources analyzed in the

process. Diverse definitions of terms used in the studies had a significant impact on questions presented to the participants in the surveys. As the authors could not account for how much the differences in these definitions affect the degree of correlation in distinct studies, it was deemed more reliable to approach the issue in a qualitative manner.

The investigation of incentives used by game providers has provided four main findings. Firstly, the fundamental way of enticing the players to purchase virtual items consists of a variety of systems contained within the design of the game, rather than concerted marketing efforts. Secondly, due to high production costs, the industry is very risk-averse, which results in the tendency to copy the design of incentives from successful titles. As a consequence, the incentives used by game providers are not diverse and evolve relatively slowly, when compared to changes in the industry as a whole. Thirdly, the researchers determined that there are two fundamental ways, in which the purchase motivations are used in incentive design. In the first case, the developer can introduce new goods, which are desirable due to their intrinsic attributes. This can be achieved mainly by horizontal and vertical differentiation of equipable and collectable items. The second way involves creating gaps in the gameplay, thus generating a need, which can be fulfilled with virtual goods offered in the game. Neither of these approaches is inherently positive, or negative in their effect on overall game quality, as both can contribute to depth and complexity of the gameplay, while simultaneously angering the customers if implemented in some of the discussed forms. Finally, although not widely present in the AAA segment, the game providers can focus on pressuring the consumer to play the game, through a variety of described techniques. While this set of incentives does not directly contribute to sales of virtual goods, it can be combined with some of the more invasive forms of microtransactions and thus work indirectly, since the time spent on a game correlates positively with purchase intention of virtual goods. The main limitation of the approach taken by the researchers, in this case, is the focus on what the game providers are currently doing and the interplay between these methods and consumer motivations. As a result, the authors investigate and evaluate existing approaches, rather than exploring new possibilities. Finally, the monetization mechanism of loot boxes was explored mainly in context of microtransactions and impact on game rating, rather than incentives used by game providers, as the concept is relatively modern, thus not widely examined in academic sources.

Through analysis of literature, the researchers have discovered two underlying factors, responsible for the differences in video game consumption patterns. Firstly, it is the degree of commitment, which has significant implications regarding the usefulness of previously discussed incentives, as their effectiveness rises together with the degree of commitment to the game. This increase in effectiveness can be linked to extended time spent on playing specific titles, which boosts purchase intention by itself, and being invested in the game. Time spent on a game is also positively correlated with a player's skill, which in turn prolongs time spent, thus forming a virtuous circle. Consumers, who are heavily invested in the game, are both more likely to be attached to their avatars, or social status in the game, which are linked to purchase motivations, and to pay to alleviate the annoyances purposefully created by the game providers, rather than seeking out a different title. The second factor relates to the motivation for playing the game, in the context of it being used as the main source of entertainment at a given moment or just a distraction to fill the time. This is a major predictor of the choice of game genre, with consumers using games as a time filler, being unlikely to engage with AAA titles. An unexpected finding is the difference in the extent to which the discussed categories of players engage with the game outside of playing it. The ramifications of this discovery are significant to the previously discussed aspects of purchase motivation. As the methodologies of the studies contained various degrees of self-selection, it is likely that the groups, which tend to engage in

the discussion of these topics, were overrepresented. As a result, it is plausible that the correlation between various factors and purchase intention is skewed towards the preferences of these groups and not representative of the video game consumer population.

Regarding the criteria used by consumers and critics, when writing game reviews it could be argued that the critics use more consistent, or put differently, more objective criteria. While an average customer tends not to delve deeply into technical aspects of the game, as they are considered only moderately important, the critics consistently evaluate very specific features, with varying degrees of focus depending on the genre of the reviewed game. The factors most important to consumers consisted of game cohesiveness, presence of multiplayer mode, interactiveness and acceptable pricing. The last part is especially interesting in the context of explaining the differences of average scores presented in the study performed in this thesis, as it could be argued that critics consider the price on behalf of the consumers, thus it would not be as high in their hierarchy of importance, due to a very limited effect on themselves. However, as pointed out previously, the explanatory power of this analysis is somewhat limited, due to an explicit focus of the study on critic reviews on various technical aspects of the game. On the other hand, as the views of the critics on this factor can be categorized in detail and correlated to specific game genres, while being completely absent in many customer reviews, it is reasonable to argue that the factor is more important to critics.

Although the analyzed study pertains specifically to free to play games, the opinions of game providers, presented within it, are not limited to this monetization strategy. While the positive view on allowing the users to try the game at no cost is linked specifically to the freemium model, the sympathy towards driving game design by user needs can be associated with other live service strategies. Although, in their perception, the attitude of customers towards microtransactions is mostly negative, the speculated root cause for this state lies in their implementation, which is in line with the findings of this thesis regarding purchase incentives. On the other hand, the ethics of certain incentive designs were a recurring theme throughout this paper, mostly in relation to exploiting addictive behaviors. While the developers discuss certain ethical problems with monetization strategies involving microtransactions, connecting aspects of game design to overspending was not a significant theme, to the surprise of the authors of this thesis. Finally, their concern that game design could be led by revenue maximization, while these strategies are employed, has been confirmed in the thesis part regarding incentives, as many of the most prevalent design trends are focused specifically on promoting sales of virtual goods, often at the cost of game quality.

Taken together, the chosen monetization strategy has a significant impact on game design, which directly influences the consumer perception of the game, thus the purchase behaviour. In addition, consumer perception can indirectly affect purchase behaviour by influencing online evaluations, which can lead to a vicious cycle as these will further impact the consumer perception. As a result, game providers should be cautious about which monetizations mechanisms they chose and how they implement them, due to major differences in the attitude of various customer groups towards specific game design elements. The main limitation of the thesis, which impacts the validity of the findings, stems from not testing the insights gained from the literature on a representative sample of gamers.

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Appendix 1 – Literature review table

Subjects included in the articles are highlighted with an X.

	Critic re-	Con- sumer	Purchase	Purchase	Purchase	Network	Busi- ness	Mone- tization strate-	Micro- trans-	Industry	Industry	Game design -	Game design
Article title	views	reviews	motivations	incentives	intentions	effects	model	gies	actions	overview	prediction	players	- critics
Effects of micro transactions on video games industry								x	x				
The Hidden Cost of Microtransa ctions: Buying In- Game Advantages in Online Games Decreases a Player's Status									x				
Online Media Business Models: Lessons from the Video Game Sector							x	x					
Assessing the future competitiven ess of the EU video games software industry										X			
Why do players buy in-game content? An empirical study on concrete purchase motivations			x					x					
Transposing freemium business model from casual games to serious games								x					
New Business Models for the Computer Gaming Industry										x	x	x	
Why Quality May Not Always Win: The Impact of Product						x							

Generation Life Cycles on Quality and Network Effects in High-tech Markets									
A duration model analysis of consumer preferences and determinant s of video game consumptio n								x	
The power of an installed base to combat lifecycle decline: The case of video games				x	x				
Advertising and Word- of-Mouth Effects on Pre-launch Consumer Interest and Initial Sales of Experience Products			X						
Serious strategy for the makers of fun: Analyzing the option to switch from pay-to-play to free-to- play in a two-stage optimal control model with quadratic costs		x				x			
The orchestratin g firm: value creation in the video game industry					x				
New horizons or a strategic mirage? Artist-led- distribution versus alliance strategy in the video					x				

game industry										
Technologic al tying and the intensity of price competition: An empirical analysis of the video game industry									x	
Paradigm shifts in the video game industry				x		x		x	x	
Value Creation in the Video Game Industry: Industry Economics, Consumer Benefits, and Research Opportunitie s			x		x	X		x		
Variety in the video game industry: An empirical study of the Wundt curve				x						
How do reviews from professional critics interact with other signals of product quality? Evidence from the video game industry	X	x								
Nested Network Effects in Online Free Games with Accessory Selling					x		x			
History matters: The impact of reviews and sales of earlier versions of a product on consumer and expert reviews of new editions	X	X								
User Reviews Variance,	х	x								

Critic Reviews Variance, and Product Sales: An Exploration of Customer Breadth and Depth Effects									
Impact of Online Reviews on Purchasing Decisions		x							
Critics, Ratings, and Society : The Sociology of Reviews	x								
Which type of online review is more persuasive? The influence of consumer reviews and critic ratings on moviogoops									
Comparing sentiment expression in movie reviews from four online genres	x	x						x	x
The effects of critics reviews on movie demand	x		x						
Critic- proofing: how using critic reviews and game genres can refine heuristic evaluations								x	x
Price promotions and products with low consumer ratings		x		x					
Less is more: Online consumer ratings' format affects purchase intentions									

and									
processing									
The effect of consumer ratings and attentional allocation on product valuations									
Influence of consumer reviews on online purchasing decisions in older and younger adults		x							
The Effect of Rating Scale Design on Extreme Response Tendency in Consumer Product Ratings		x							
What We Know and Don't Know About Online Word-of- Mouth: A Review and Synthesis of the Literature	x	x							
How Online Product Reviews Affect Retail Sales: A Meta- analysis	X	x							
Why do people buy virtual goods: A meta- analysis			x	x			x		
The dynamics of online word- of-mouth and product sales—An empirical investigation of the movie industry									
Herd behavior in purchasing books online		x							
The influence of online product recommend	x	x							

ations on consumers' online choices											
Why do people buy virtual goods? Attitude toward virtual good purchases versus game enjoyment			X	x	x			X			
Online experiences and virtual goods purchase intention			X		X	X		X			
Identifying users' behavior purchasing virtual items			x								
At least nine ways to play: Approaching gamer mentalities										x	
Explaining purchasing behavior within world of warcraft			X	X							
Purchase behavior in virtual worlds: An empirical investigation in Second Life											
Do review valence and review volume impact consumers' purchase decisions as assumed?											
The effect of review valence and variance on product evaluations: An examination of intrinsic and extrinsic cues	x	x									
Investigating the intention to purchase digital items in social networking					x						

communities : A customer value perspective											
First dose is always freemium										x	
Virtual item sales as a revenue model: Identifying attributes that drive purchase decisions							X				
Cash trade in free-to- play online games										x	
Because players pay: The business model influence on mmog design					x	x		x		x	
Why do gamers buy 'virtual Assets'? An insight in to the psychology behind purchase behaviour		x									
Understandi ng factors affecting consumer intention to shop in a virtual world		x	x								
Game Design on Item-selling Based Payment Model in Korean Online Games			x		x	x	x	x			
Exploring the value of purchasing online game items		x									
Game design as marketing: How game mechanics create demand for virtual goods			x				x				
Free-to-Play Games: Professional			x		x			x	x	x	

	1		1	1						 _
s' perspectives										
Game design and business Model: An analysis of diablo 3			x			x				
Who plays, how much, and why? Debunking the stereotypical gamer profile								X		
Dark patterns in the design of games			x					x		
Video game loot boxes are linked to problem gambling: Results of a large-scale survey							x	X	x	
A digital revolution: Comparison of demographi c profiles, attitudes and gambling behavior of Internet and non-Internet gamblers			x	x			x			
Investigating relationships between video gaming, spectating esports, and gambling				x				X		
eSports, skins and loot boxes: Participants, practices and problematic behaviour associated with emergent forms of gambling							x	X		
Examining the effects of network externalities, density, and closure on in-game currency price in					X		X			

online games										
Strategic timing of entry: evidence from video games		x		x	x		x			
What makes a good game? Using reviews to inform design									x	x
Extended or exhausted: how console DLC keeps the player on the rail					x	x				
Risk-taking behavior of technology firms: The role of performance feedback in the video game industry	x	x			x			x		
Differentiatio n in digital creative industry cluster dynamics: the growth and decline of the Japanese video game software industry					X		X		x	
Exploring survival rates of companies in the UK video- games industry: An empirical study							x			

Appendix 2 – Ratings study, dataset

Handpicked games are highlighted with a strikethrough

Game title	Release year	Publisher	Game genre	Average critic rating	Average consumer rating	Numerical difference	Mone- tization type	Loot boxes inclusion (Y=yes, N=no)
A way Out	2018	Electronic Arts	Action	78	80	-2	1	N
Alien: Isolation	2014	SEGA	Action	81	84	-3	1	N
Anthem	2019	Electronic Arts	Action	58	41	17	2	N
Apex Legends	2019	Electronic Arts	FPS	88	61	27	4	Y
Assassin's Creed Odyssey (PS4)	2018	Ubisoft	Action	83	59	24	2	N
Assassin's Creed Origins (PS4)	2017	Ubisoft	Action	81	72	9	2	Y
Assassin's Creed Rogue (PS3)	2014	Ubisoft	Action	72	75	-3	1	N
Assassin's Creed Syndicate (PS4)	2015	Ubisoft	Action	76	69	7	2	N
Assassin's Creed Unity (PS4)	2014	Ubisoft	Action	70	51	19	2	N
Batman: Arkham Knight (PS4)	2015	Warner Bros. Interactive Entertainment	Action	87	78	9	1	N
Batman: Return to Arkham (PS4)	2016	Warner Bros. Interactive Entertainment	Action	73	81	-8	1	N
Battleborn (PS4)	2016	2K Games	FPS	68	68	0	4	N
Battlefield 1 (PS4)	2016	Electronic Arts	FPS	89	79	10	2	Y
Battlefield V	2018	Electronic Arts	FPS	81	28	53	2	N
Battlefield: Hardline (PS4)	2015	Electronic Arts	FPS	73	51	22	2	Y
Bayonetta	2017	SEGA	Action	90	82	8	1	N
BioShock: The Collection (PS4)	2016	2K Games	Action	84	84	0	1	N
Borderlands: The Handsome Collection (PS4)	2015	2K Games	Action	82	78	4	1	N
Borderlands: The Pre- Sequel	2014	2K Games	FPS	75	62	13	1	N
Burnout Paradise Remastered (PS4)	2018	Electronic Arts	Racing	82	66	16	1	N
Call of Duty: Advanced Warfare (PS4)	2014	Activision	FPS	83	57	26	2	Y
Call of Duty: Black Ops 4 (PS4)	2018	Activision	FPS	83	41	42	2	Y
Call of Duty: Black Ops III (PS4)	2015	Activision	FPS	81	48	33	2	Y
Call of Duty: Infinite Warfare (PS4)	2016	Activision	FPS	77	38	39	2	Y
Call of Duty: WWII (PS4)	2017	Activision	FPS	79	43	36	2	Y
Crash Bandicoot N. Sane Trilogy (PS4)	2017	Activision	Action	80	85	-5	1	N

Days Gone (PS4)	2019	Sony Interactive Entertainment	Action	72	79	-7	1	N
Deadpool (PS4)	2015	Activision	Action	60	61	-1	1	N
Destiny (PS4)	2014	Activision	FPS	76	61	15	2	Y
Destiny 2	2017	Activision	FPS	83	36	47	2	Y
Detroit: Become Human (PS4)	2018	Sony Interactive Entertainment	Action	78	87	-9	1	N
Diablo III	2012	Blizzard Entertainment	Action	88	41	47	1	N
Dishonored 2 (PS4)	2016	Bethesda Softworks	Action	88	79	9	1	N
DOOM	2016	Bethesda Softworks	FPS	85	84	1	1	N
Dragon Age: Inquisition	2014	Electronic Arts	Action	85	59	26	2	Y
		Warner Bros. Interactive						
Dying Light (PS4)	2015	Entertainment	Action	74	79	-5	1	N
EA Sports UFC (PS4) EA Sports UFC 2	2014	Electronic Arts	Sports	70	61	9	1	N
(PS4)	2016	Electronic Arts	Sports	79	58	21	2	Y
(PS4)	2018	Electronic Arts	Sports	75	35	40	2	Y
Everybody's Golf (PS4)	2017	Sony Interactive Entertainment	Sports	78	78	0	1	N
Evolve (PS4)	2015	2K Games	FPS	76	43	33	2	Y
Fallout 4	2015	Bethesda Softworks	Action	84	55	29	2	N
Fallout 76	2018	Bethesda Softworks	Action	52	25	27	2	N
Far Cry 4 (PS4)	2014	Ubisoft	FPS	85	77	8	1	N
Far Cry 5 (PS4)	2018	Ubisoft	FPS	81	68	13	2	N
Far Cry New Dawn	2019	Ubisoft	FPS	71	35	36	2	N
Far Cry Primal (PS4)	2016	Ubisoft	FPS	76	64	12	1	N
Farpoint (PS4)	2017	Sony Interactive Entertainment	FPS	71	81	-10	1	N
Fe (PS4)	2018	Electronic Arts	Action	70	68	2	1	N
FIFA 15 (PS4)	2014	Electronic Arts	Sports	82	57	25	2	Y
FIFA 17 (PS4)	2016	Electronic Arts	Sports	85	49	36	2	Y
FIFA 18 (PS4)	2017	Electronic Arts	Sports	84	34	50	2	Y
FIFA 19 (PS4)	2018	Electronic Arts	Sports	83	17	66	2	Y
Firewall Zero Hour (PS4)	2018	Sony Interactive Entertainment	FPS	79	83	-4	2	Y
Football Manager 2015	2014	SEGA	Sports	80	61	19	1	N
For Honor (PS4)	2017	Ubisoft	Action	78	61	17	2	N

Fortnite: Battle Royale (PS4)	2017	Epic Games	Action	78	38	40	4	N
		Warner Bros. Interactive						
Gauntlet (2014)	2014	Entertainment	Action	68	71	-3	1	N
God of War (PS4)	2018	Sony Interactive Entertainment	Action	94	91	3	1	N
Gran Turismo Sport (PS4)	2017	Sony Interactive Entertainment	Racing	75	61	14	1	N
Grand Theft Auto V	2015	Rockstar Games	Action	96	77	19	2	N
Gravity Rush 2 (PS4)	2017	Sony Interactive Entertainment	Action	80	82	-2	1	N
Hearthstone: Heroes of Warcraft	2014	Blizzard Entertainment	Card game	88	61	27	4	Y
Heroes of the Storm	2015	Blizzard Entertainment	MOBA	86	64	22	4	Y
Hitman 2 (PS4)	2019	Warner Bros. Interactive Entertainment	Action	82	85	-3	1	N
Horizon Zero Dawn (PS4)	2017	Sony Interactive Entertainment	Action	89	84	5	1	N
Injustice 2 (PS4)	2017	Warner Bros. Interactive Entertainment	Action	87	81	6	2	N
Knack 2 (PS4)	2017	Sony Interactive Entertainment	Action	69	76	-7	1	N
League of Legends	2009	Riot Games	МОВА	78	55	23	4	Y
Mad Max (PS4)	2015	Warner Bros. Interactive Entertainment	Action	69	78	-9	1	N
Madden NFL 15 (PS4)	2014	Electronic Arts	Sports	81	61	20	2	Y
Madden NFL 18 (PS4)	2017	Electronic Arts	Sports	82	36	46	2	Y
Madden NFL 19 (PS4)	2018	Electronic Arts	Sports	80	22	58	2	Y
Mafia III (PS4)	2016	2K Games	Action	68	52	16	2	N
Marvel: Ultimate Alliance Bundle (PS4)	2016	Activision	Action	61	58	3	1	N
Marvel's Spider-Man (PS4)	2018	Sony Interactive Entertainment	Action	87	86	1	1	N
Mass Effect: Andromeda	2017	Electronic Arts	Action	72	49	23	2	Y
Middle-earth: Shadow of Mordor (PS4)	2014	Warner Bros. Interactive Entertainment	Action	84	80	4	1	N
Middle-earth: Shadow of War (PS4)	2017	Warner Bros. Interactive Entertainment	Action	80	40	40	2	N
MLB The Show 17 (PS4)	2017	Sony Interactive Entertainment	Sports	85	69	16	2	Y
MLB The Show 18 (PS4)	2018	Sony Interactive Entertainment	Sports	82	63	19	2	Y

MLB The Show 19	2019	Sony Interactive Entertainment	Sports	86	79	7	2	Y
Mortal Kombat 11 (PS4)	2019	Warner Bros. Interactive Entertainment	Action	83	27	56	2	Y
Mortal Kombat X (PS4)	2015	Warner Bros. Interactive Entertainment	Action	83	78	5	2	N
Mortal Kombat XL (PS4)	2016	Warner Bros. Interactive Entertainment	Action	85	77	8	2	N
Moss (PS4)	2018	Sony Interactive	Action	85	80	5	1	N
NBA 2K17 (PS4)	2016	2K Games	Sports	88	64	24	2	Y
NBA 2K18 (PS4)	2017	2K Games	Sports	80	17	63	2	Y
NBA 2K19 (PS4)	2018	2K Games	Sports	82	25	57	2	Y
NBA Live 15 (PS4)	2014	Electronic Arts	Sports	59	56	3	1	N
NBA Live 16 (PS4)	2015	Electronic Arts	Sports	59	60	-1	2	Y
NBA Live 18 (PS4)	2017	Electronic Arts	Sports	72	60	12	1	N
NBA Live 19 (PS4)	2018	Electronic Arts	Sports	73	65	8	2	Y
Need for Speed	2015	Electronic Arts	Racing	66	70	-4	1	N
Need for Speed Pyback	2017	Electronic Arts	Racing	61	41	20	2	Y
Nex Machina: Death Machine (PS4)	2017	Sony Interactive Entertainment	Action	88	79	9	1	N
NHL 15 (PS4)	2014	Electronic Arts	Sports	60	37	23	2	Y
NHL 16 (PS4)	2015	Electronic Arts	Sports	78	54	24	2	N
NHL 18 (PS4)	2017	Electronic Arts	Sports	75	35	40	2	Y
NHL 19 (PS4)	2018	Electronic Arts	Sports	80	52	28	2	Y
Nioh (PS4)	2017	Sony Interactive Entertainment	Action	88	85	3	1	N
No Man's Sky (PS4)	2016	Sony Interactive Entertainment	Action	71	46	25	1	N
Overwatch	2016	Blizzard Entertainment	FPS	91	67	24	2	Y
Playerunknown's Battlegrounds	2017	Bluehole, Inc.	Action	86	46	40	2	Y
Prey (PS4)	2017	Bethesda Softworks	Action	79	78	1	1	N
Red Dead Redemption 2 (PS4)	2018	Rockstar Games	Action	97	80	17	2	N
Sekiro: Shadows Die Twice	2019	Activision	Action	90	79	11	1	N
Shadow of the Colossus (PS4)	2018	Sony Interactive Entertainment	Action	91	79	12	1	N
Shenmue I & II (PS4)	2018	SEGA	Action	75	79	-4	1	N
Sid Meier's Civilization	2016	2K Games	Strategy	88	70	18	1	N

SMITE	2014	Hi-Rez Studios	MOBA	83	82	1	4	Y
Sonic Forces (PS4)	2017	SEGA	Action	57	69	-12	1	N
Sonic Mania (PS4)	2017	SEGA	Action	86	83	3	1	N
South Park: The Stick of Truth	2014	Ubisoft	Action	85	86	-1	1	Ν
Spyro Reignited Trilogy (PS4)	2018	Activision	Action	82	81	1	1	N
Star Wars Battlefront (PS4)	2015	Electronic Arts	FPS	73	50	23	2	N
Star Wars Battlefront II (PS4)	2017	Electronic Arts	FPS	68	11	57	2	Y
Starcraft Remastered	2017	Blizzard Entertainment	Strategy	85	77	8	1	N
Steep (PS4)	2016	Ubisoft	Sports	71	64	7	2	Ν
The Crew (PS4)	2014	Ubisoft	Racing	61	53	8	2	Ν
The Crew 2 (PS4)	2018	Ubisoft	Racing	64	51	13	2	N
The Elder Scrolls Online	2014	Bethesda Softworks	Action	71	58	13	2	Y
The Evil Within 2 (PS4)	2017	Bethesda Softworks	Action	76	85	-9	1	N
The Last Guardian (PS4)	2016	Sony Interactive Entertainment	Action	82	80	2	1	N
The Sims 4	2014	Electronic Arts	Simulati on	70	40	30	1	N
The Witcher 3: Wild		Warner Bros. Interactive						
Hunt (PS4)	2015	Entertainment	Action	92	92	0	1	N
Titanfall (XONE)	2014	Electronic Arts	FPS	86	67	19	1	Ν
Titanfall 2	2017	Electronic Arts	FPS	86	82	4	2	N
Tom Clancy's Ghost Recon: Wildlands (PS4)	2017	Ubisoft	FPS	70	62	8	2	Y
Tom Clancy's Rainbow Six Siege	2015	Ubisoft	FPS	79	71	8	2	N
Tom Clancy's The Division (PS4)	2016	Ubisoft	Action	80	70	10	2	Y
Total War: Attila	2015	SEGA	Strategy	80	73	7	1	N
Total War: WARHAMMER	2016	SEGA	Strategy	86	74	12	1	N
Total War: WARHAMMER II	2017	SEGA	Strategy	87	75	12	1	N
Undertale (PS4)	2017	Sony Interactive Entertainment	Action	92	66	26	1	N
Unravel (PS4)	2016	Electronic Arts	Action	78	82	-4	1	N
Unravel Two (PS4)	2018	Electronic Arts	Action	77	76	1	1	N
Valkyria Chronicles	2014	SEGA	Action	85	82	3	1	N
Valkyria Chronicles	2016	SEGA	Strategy	Q <i>1</i>	Q1	2	1	N
Vanguish	2010	SEGA	Action	78	89	-11	2	N
Warhammer 40,000: Dawn of War III	2017	SEGA	Strategy	77	45	32	1	N
	2017		2		-10	52		

Watch Dogs (PS4)	2014	Ubisoft	Action	80	64	16	1	N
Watch Dogs 2 (PS4)	2016	Ubisoft	Action	82	77	5	2	N
What Remains of Edith Finch (PS4)	2017	Sony Interactive Entertainment	Action	88	81	7	1	N
Wipeout: Omega Collection (PS4)	2017	Sony Interactive Entertainment	Racing	85	82	3	1	N
World of Warcraft: Battle for Azeroth	2018	Blizzard Entertainment	Action	79	31	48	3	N
XCOM 2	2016	2K Games	Strategy	88	72	16	1	N
Yakuza 0 (PS4)	2017	SEGA	Action	85	84	1	1	N
Yakuza 5 (PS3)	2015	SEGA	Action	83	88	-5	1	N
Yakuza 6: The Song of Life (PS4)	2018	SEGA	Action	83	82	1	2	N
Yakuza Kiwami (PS4)	2017	SEGA	Action	80	81	-1	1	N
Yakuza Kiwami 2 (PS4)	2018	SEGA	Action	85	80	5	2	N

Appendix 2 – Ratings study, calculations

GENERAL FINDINGS

Total (1	52 games)
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Games with mone. type #1	72	Critic average	79
Games with mone. type #2	72	Consumer average	64
Games with mone. type #3	1	Average difference	15
Games with mone. type #4	7	S.D. for difference	17
Games with loot boxes	47		

Only games with equal of higher critic rating (126 games)

Critic average	79
Consumer average	65
Average difference	19
S.D. for difference	16

Games released 2014-2016	Games released 2017-2019			
Number of games	73	Number of games	79	
Loot boxes included	22	Loot boxes included	25	
Critic average	80	Critic average	79	
Consumer average	58	Consumer average	45	
Average difference	21	Average difference	34	
S.D. for difference	10	S.D. for difference	20	

MONETIZATION TYPE

Type #3 left out due to only one data sample

Monetization type #1		Monetization type #2		Monetization type #4	
Critic average	80	Critic average	79	Critic average	81
Consumer average	75	Consumer average	55	Consumer average	61
Average difference	4	Average difference	24	Average difference	20
S.D. for difference	10	S.D. for difference	17	S.D. for difference	13

Type #2 with loot boxes

Type #2 without loot boxes

Number of games
Critic average
Consumer average
Average difference
S.D. for difference

42	Number of games	32
79	Critic average	78
49	Consumer average	61
29	Average difference	17
18	S.D. for difference	14

Type #4 with loot boxes

Type #4 without loot boxes

Number of games	5	Number of games	2
Critic average 8	85	Critic average	73
Consumer average 6	65	Consumer average	53
Average difference 2	20	Average difference	20
S.D. for difference 1	0	S.D. for difference	20

PUBLISHER

2K Games (11 games)				SEGA (18 games)			
Games with		Critic		Games with	1	Critic	
mone. type #1	4	average	80	mone. type #1	2	average	81
Games with		Consumer		Games with		Consumer	
mone. type #2	6	average	58	mone. type #2	6	average	77
Games with		Average		Games with		Average	
mone. type #3	0	difference	22	mone. type #3	0	difference	4
Games with		S.D. for		Games with		S.D. for	
mone. type #4	1	difference	20	mone. type #4	0	difference	10
Games with loot				Games with loot			
boxes	4			boxes	0		
Activision (12 games)				Sony Interactive Entertainment (23 games)			
Games with		Critic		Games with	1	Critic	
mone. type #1	5	average	78	mone. type #1	9	average	82
Games with mone. type #2	7	Consumer average	57	Games with mone. type #2	4	Consumer average	77
Games with		Average		Games with		Average	
mone. type #3	0	difference	21	mone. type #3	0	difference	5
Games with mone. type #4	0	S.D. for difference	18	Games with mone. type #4	0	S.D. for difference	10
Games with loot boxes	7			Games with loot boxes	4		

Bethesda Softworks (7 games)				Ubisoft (19 games)			
Games with mone. type #1	4	Critic average	76	Games with mone. type #1	5	Critic average	76
Games with mone. type #2	3	Consumer average	66	Games with mone. type #2	1 4	Consumer average	65
Games with mone. type #3	0	Average difference	10	Games with mone. type #3	0	Average difference	11
Games with mone. type #4	0	S.D. for difference	13	Games with mone. type #4	0	S.D. for difference	9
Games with loot boxes	1			Games with loot boxes	3		

			Warner Bros. Interactive Entertainment (13 games)			
~	Critic	00	Games with	0	Critic	04
2	average	86	mone. type #1	8	average	81
	Consumer		Games with		Consumer	
1	average	57	mone. type #2	5	average	73
	Average		Games with		Average	
1	difference	29	mone. type #3	0	difference	8
	S.D. for		Games with		S.D. for	
2	difference	14	mone. type #4	0	difference	18
			Games with loot			
3			boxes	1		
	2 1 1 2 3	Critic 2 average Consumer 1 average Average 1 difference S.D. for 2 difference 3	Critic 2 average 86 Consumer 1 average 57 Average 1 1 difference 29 S.D. for 2 difference 14	Warner Bros. Interactive Entertainment (13 games)CriticGames withaverage86ConsumerGames withaverage57AverageGames withdifference29S.D. forGames withdifference14Games with lootboxes	Warner Bros. Interactive Entertainment (13 games)CriticGames withaverage86mone. type #18ConsumerGames withaverage57mone. type #25Average57mone. type #30S.D. forGames with0S.D. forGames with03Games with loot0	Warner Bros. Interactive Entertainment (13 games)CriticGames withCriticaverage86mone. type #18averageConsumerGames withConsumeraverage57mone. type #25averageAverage57mone. type #30differencedifference29mone. type #30differenceS.D. forGames withS.D. fordifference14mone. type #40difference3Jones1JonesJones

Electronic Arts (37 games)				Other (6 handpicked games)			
Games with mone. type #1	1 1	Critic average	76	Games with mone. type #1	0	Critic average	86
Games with mone. type #2	2 5	Consumer average	53	Games with mone. type #2	3	Consumer average	63
Games with mone. type #3	0	Average difference	23	Games with mone. type #3	0	Average difference	23
Games with mone. type #4	1	S.D. for difference	18	Games with mone. type #4	3	S.D. for difference	14
Games with loot boxes	2 1			Games with loot boxes	3		

COMBINED GAME GENRES

'Simulation' and 'Card Game' left out due to only one data sample not fitting for these categories

Action

First-Person Shooter

Number of games	77	Number of games	28
Number of games /w microtrans.	7	Number of games /w microtrans.	15
Critic average	80	Critic average	79
Consumer average	72	Consumer average	57
Average difference	8	Average difference	22
S.D. for difference	14	S.D. for difference	17

Racing

Number of games	7
Number of games /w microtrans.	1
Critic average	79
Consumer average	59
Average difference	20
S.D. for difference	18

Strategy

Number of games	8
Number of games /w microtrans.	0
Critic average	84
Consumer average	71
Average difference	14
S.D. for difference	8

Number of games	27
Number of games /w microtrans.	20
Critic average	77
Consumer average	51
Average difference	27
S.D. for difference	19

MOBA

Sports

Number of games	3
Number of games /w microtrans.	3
Critic average	83
Consumer average	62
Average difference	22
S.D. for difference	5