

THE IMPACT OF MICROTRANSACTIONS ON THE DEVELOPMENT OF COMPUTER GAME BUSINESS MODELS

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Abstract: *The paper deals with the impact of microtransactions on the development of new business models in the field of computer games, caused by various monetized offerings within computer games, as well as other platforms such as gaming consoles and smartphones. The paper also examines the reasons for the emergence of business models based on microtransactions in the video game industry and the influence of the industry's transition towards a consumer-oriented model. The central hypothesis of the paper is that microtransactions have a strong impact on the development of business models in the entire video game industry, and that over time, the value of products monetized in this way increases, despite consumers' efforts to prevent this development direction of the industry. The paper conducted research on a population of consumers of video game content, mainly students of the Faculty of Organization and Informatics at the University of Zagreb, as well as respondents from other EU countries. The conclusion is that the number of microtransactions and the number of business models based on microtransactions will continue to grow in the future, but there are ways to combat those forms of microtransactions that have negative effects on consumers, especially minors, and, in some situations, even illegal.*

Keywords: *business model, video games, microtransactions*

JET classification: *M21, M15, L86*

INTRODUCTION

Consumer video games first appeared in the 1970s. Over time, an increasing number of people have found relaxation, entertainment, and ways to spend their free time playing video games. In recent years, some individuals have even turned gaming into

concrete professions or occupations. With the development of technology, the gaming industry has reached annual profits several times larger than even the music and film industries. Mobile gaming has greatly contributed to the economic importance of the gaming industry. These mobile games are often monetized by incorporating an in-game shop where consumers or players can spend their money on various items, such as virtual cosmetics or virtual currencies that provide in-game advantages or enhance the appearance of the player's character. Such in-game purchases are known as microtransactions, and this paper will focus on their impact on the development of computer game business models as well as the gaming industry as a whole. In developing the topic, the paper relies on existing literature sources as well as the author's personal experience in the gaming industry. Research activities were carried out through two surveys. A survey, focused on the domestic Croatian market, was completed by students from the Faculty of Organization and Informatics, their friends, and members of their families. The second survey, conducted in English, was aimed at the author's friends and acquaintances who were familiar with certain games through gameplay. The heterogeneity of the respondents contributes to a better understanding of their survey responses and consumer opinions in general. Given that players in more developed European countries generally have greater purchasing power than students and average players in Croatia, it is assumed that they likely have different perspectives on microtransactions.

LITERATURE OVERVIEW

In the past, buying a video game involved only a few steps. The buyer would go to a store, choose the game, and purchase it, gaining access to everything the game had to offer. With the advent of the Internet, the same buyer no longer had to go out and buy the game; instead, they could buy and "download" it through an online store. Alongside the obvious benefits of this method of purchasing games, it also marked the beginning of in-game purchases, or microtransactions. Microtransactions are items that consumers can buy within a game, such as cosmetics, entertainment, and premium items, as well as virtual currencies, using real money (Vann, 2019). Gabe Duverge from Touro University identifies four types of microtransactions (Duverge, 2016):

- Virtual currencies: As the name suggests, this is a currency that only holds value within the corresponding game and can be used to purchase various in-game items,
- Purchase of random chance: Now more commonly known as "loot box" microtransactions, this offers a "box" filled with items, each with its own chance of being won by the player. These items can contribute to the player's strength in the game or provide special cosmetic enhancements,
- Virtual items: Free games often offer players in-game items that can often be better than other freely attainable items, providing an unfair advantage to the player,
- Expiration: Many games include something that expires or is quickly depleted by the player, such as "lives" for gameplay. After the player uses them up, they may have to wait for a certain period of time or pay a small sum of money to immediately refresh their "lives" and continue playing.

Each type of microtransaction is designed to influence certain aspects of human psychology, which game developers extensively exploit (Duverge, 2016).

Skipping ahead from the distant history of video games, the “golden period” begins in 2001 when Microsoft, already a huge corporation, shook the industry by launching their new gaming console, Xbox. Just one year later, Microsoft introduced the Xbox Live service, which required a subscription and enabled online gaming. Although companies like Sony offered similar services without a subscription, Microsoft provided better servers and other capabilities.

In 2004, the already well-known company Blizzard, which had gained player loyalty with games like StarCraft, released a game that forever changed the entire industry. That game was World of Warcraft, which will be analyzed in this paper both due to the emergence of microtransactions and the decline in its quality. Most similar games at the time only required one transaction, which was the purchase of the game itself. After purchasing, players could play as much as they wanted and had access to everything that the version of the game offered. Some games also offered downloadable content (DLC) that could be purchased for a certain amount of money. Buying DLC is considered a microtransaction, but it often offers a large amount of new game content for a reasonable price, thus not negatively affecting the development of game business models. Besides operating on such a business model, games at the time progressed at an unprecedented pace (at least in terms of graphics and technological innovations), and developers were highly motivated to produce high-quality products in order to attract as many consumers as possible. This motivation was instrumental in the emergence of games like Halo 2, World of Warcraft, the Call of Duty series, and other megahits.

Microtransactions, in the full sense of the word, appeared as early as 2005 when Microsoft offered cosmetic items for the game Kameo: Elements of Power for \$2.5 , new maps for Perfect Dark Zero, and new cars for Project Gotham Racing 3. None of these microtransactions were a big success, but other developers and publishers quickly found a way to monetize them (Williams, 2017). Bethesda, the creator of the extremely popular The Elder Scrolls series of video games, followed in Microsoft’s footsteps and, in April 2006, added the Horse Armour Pack for \$2-2.5, which changed the appearance of the player’s horse in the game. The players were shocked by the price and were very vocal in their anger toward Bethesda. Despite that, Bethesda continued to offer these types of microtransactions and earned a significant amount of money (Williams, 2017). Interestingly, players were shocked by the price of two dollars at the time. Today’s microtransactions often reach prices of hundreds or even several hundred euros, sometimes in games that consumers initially pay the full price of 60 euros (now that amount becomes 70 euros or more). Over time, the number of video games that incorporate microtransactions has increased rapidly. It is now very difficult to find a video game that does not include them, unless they are larger content expansions for the base game.

Microtransactions in mobile gaming

So far, the business model of games in the past and the emergence of microtransactions and their impact have been explained. However, the most significant reason for their spread throughout the industry was undoubtedly the widespread use of smartphones.

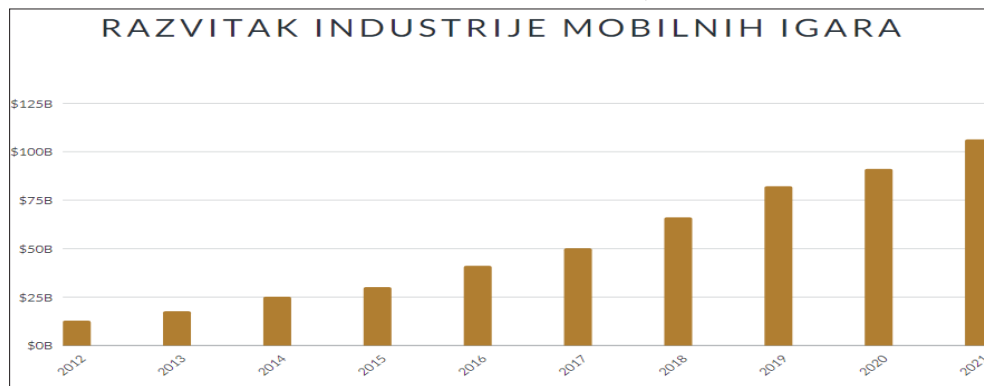
After the emergence and rapid development of the smartphone industry, it didn’t take long for games to start appearing on them. Finally, almost anyone could produce

video games without major costs. With the advent of smartphones, almost anyone could sell games on the App Store. Before that, video games were expensive, with most of them costing over \$30. In contrast, mobile games offered a wide selection of games in three forms (Prateek, 2017):

- Completely free (including advertisements),
- Freemium (containing microtransactions),
- Premium (simply paying for the game).

Today, mobile games often encompass all three forms simultaneously: the game is installed for free and contains advertisements; it includes microtransactions (purchasing virtual currencies and similar items); if a certain amount is paid, advertisements are no longer displayed, but microtransactions, of course, remain an option. The rapid advancement of mobile devices has proven to be an excellent foundation for the success of the mobile gaming industry (Statista Research Department, 2022). The fact that anyone can now have dozens of games in their pocket and access them whenever they want has led to the inevitable development of the industry, which has grown at an incredible pace over the past decade. The following image shows the growth in revenue of the mobile gaming industry from 2012 to 2021. In 2012, revenue amounted to only \$2.7 billion, and in 2021, it reached an amount exceeding \$106.2 billion.

Figure 1. Development of the mobile video game industry (in billions of U.S. dollars)



Source: (Statista Research Department, 2022)

Further technological advancements and increasing accessibility of mobile devices will undoubtedly contribute even more to the revenue of this industry. The mobile gaming industry accounted for more than half of the total gaming industry revenue in 2018 (Statista Research Department, 2022), so it is very clear that it will have a significant impact on computer and console games. Right from the beginning of the existence of mobile games, their developers realized how to exploit human psychology and generate substantial revenue through microtransactions. Consumers install a free game, thinking it will not cost them anything. The problem arises in the fact that, as mentioned earlier, games often include “expiration,” a mechanism that limits how long a player can play in a day or how many actions they can take simultaneously. Then, when that time expires, the game offers the player the option to replenish their “lives” or expedite game progression by making a real-money purchase. This monetization

method is just one of many, and another involves inserting disruptive advertisements into the game. A player can play for a while and at certain intervals, a large screen appears advertising a product or another mobile game. The mobile game developer earns revenue simply through the display of advertisements, and players are motivated to pay for the “premium” version of the game to eliminate the display of ads that interrupt their gameplay. The most controversial form of microtransactions in mobile games is the offer of “loot boxes”, virtual boxes that contain virtual items with random chances for the player to win them. This form of microtransaction is very similar to gambling, because the consumer pays for a chance to win something without knowing exactly what it will be. This form of microtransaction is controversial for several reasons. Firstly, a large number of mobile game players are minors for whom gambling is illegal. Furthermore, this form of gambling is completely unregulated by laws. The following sections will address the controversies surrounding microtransactions, especially this particular form, which is widely considered a form of gambling.

Negative consequences caused by microtransactions

This chapter will outline some of the numerous negative consequences caused by microtransactions, thus providing context for the negative impact of microtransactions on the development of the computer gaming business model. As already mentioned, consumers are generally dissatisfied with the direction in which game publishers choose to steer their business models. In addition, there is a form of microtransaction that borders on gambling, and there have even been lawsuits arising from video games that incorporate this form (Makuch, 2018b). In 2017, the publishing company Electronic Arts released the game *Star Wars: Battlefront 2*. Approximately a month before the game’s official release, Electronic Arts revealed that the game would feature a system of purchasing “loot boxes.” These virtual boxes were supposed to contain random items that would provide players with advantages, such as faster movement within the game. On the other hand, each box had the chance of granting the player a “useless” cosmetic item (Park, 2017). The fact that the game, upon release, cost between 60 and 80 euros and included a microtransaction system alone created numerous controversies. When players realised how the system was supposed to work, a significant revolt ensued. The way the system was intended to function meant that players who spent staggering amounts of money would have an unfair advantage over players who would have to play dozens or hundreds of hours to obtain the same or similar items. Furthermore, since the player could not know exactly what they were even spending money on, only that their chances of a favourable outcome increased the more they spent, weekly public protests against the video game emerged (Park, 2017). This event also prompted an investigation by Belgian authorities into whether the video game contained gambling or not. Kyle James (James, 2018), in an article for *The Goldwater*, states that the following year Belgium declared this form of microtransaction in video games as a form of gambling and that Koen Geens, the Belgian Minister of Justice, requested the removal of such microtransactions from games. Belgian gaming laws have also prompted other countries to consider gambling in video games, which are often targeted at children and minors (James, 2018). Another lawsuit against Electronic Arts was initiated in the state of California in the United States due to the misuse of dynamic difficulty adjustment technology to motivate players to spend money on microtransactions. Dynamic difficul-

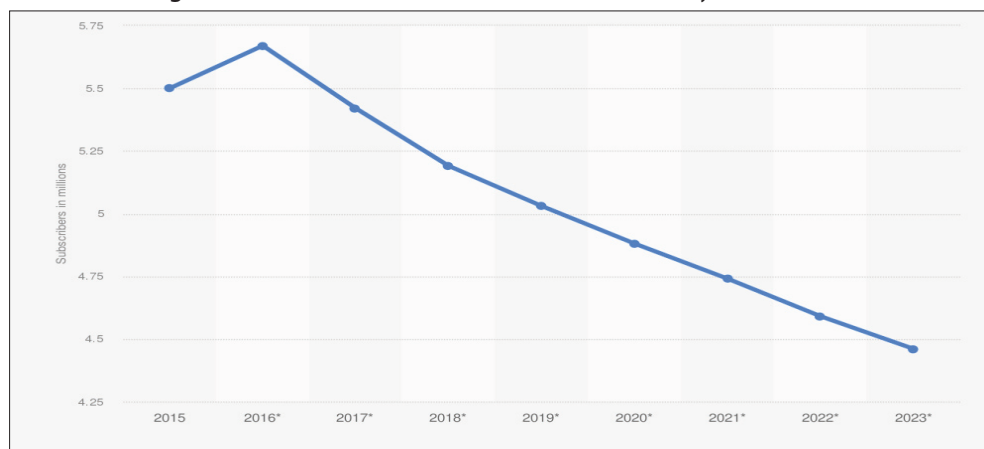
ty adjustment technology uses artificial intelligence to adapt to a player's abilities and make the game harder or easier. This technology has been around for a while, but Electronic Arts faced a lawsuit for using it in sports games such as Madden NFL, NHL, and FIFA in a way that made the game more challenging, thus motivating players to spend money on numerous microtransactions to strengthen their position within the game (Frish, 2020). Despite frequent lawsuits and controversies, Electronic Arts, as one of the largest video game publishing companies, continues to incorporate microtransactions into their games, setting an example for other publishers and negatively impacting the further development of the computer gaming business model.

The Contribution of Microtransactions to the revenue of individual video game developers

The previously mentioned game, World of Warcraft, began losing active players and subscription revenue as early as 2011. However, Activision-Blizzard reported increasing revenue from the game in the following years. The reason for this, of course, is microtransactions and additional monetization of the game. As mentioned before, World of Warcraft requires consumers to pay 40 euros or more upfront before they can even start playing the game. Additionally, each player pays a monthly subscription fee of around 13 euros (depending on the country, it can be higher or lower).

As stated by the Statista Research Department, in 2016, Activision Blizzard officially released the last subscriber count data in 2015 when the game had 5.5 million global subscribers. Since the game was released in 2004, having 1.5 million subscribers in 2005 was a significant success for the company. By the fourth quarter of 2006, that number reached nearly 6 million subscribers and just a year later, it reached 10 million subscribers. The peak of World of Warcraft's popularity was in the second half of 2010 when the game, according to estimates, had 12 million subscribers.

Figure 2. World of Warcraft: Number of subscribers over the years (in millions)



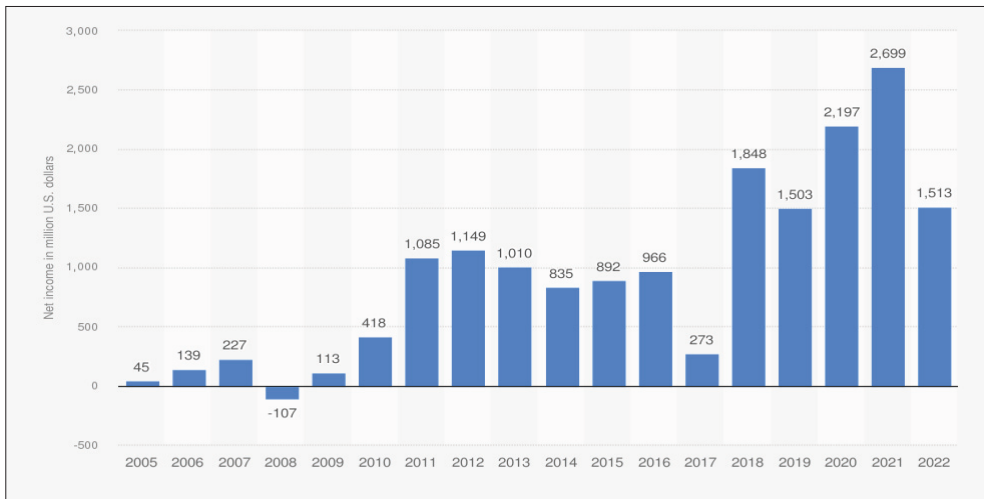
Source: (Statista Research Department, 2016)

After such success, the quality of the game started to decline, and industry trends shifted towards microtransactions, which led to an increased desire and intention by

Activision Blizzard to capitalize on the new business model development. In 2011, the number of subscribers began to decline and in the first quarter of 2014 dropped to levels seen in 2006 (Statista Research Department, 2016). The following image illustrates the growth and decline of the subscriber count in millions over the years.

The exact number of subscribers is unknown, but it is generally believed that the current number is around 4 million, which is attributed to several factors. Firstly, players are shifting to new genres of video games, such as Battle Royale. Additionally, the quality has been continuously declining due to poor time and resource management, likely driven by the game's high revenue despite the decrease in subscriber count. The high revenue is undoubtedly a result of increasing levels of monetization and the number of microtransactions in the game, shifting the focus from producing a good product to encouraging players to play longer and spend more on microtransactions. Furthermore, several lawsuits arising from suspicions of subscriber count manipulation and cases of sexual harassment within the company have become the latest reasons for the exodus of World of Warcraft players. The following graph illustrates Activision Blizzard's revenue from 2005 to 2022 in millions of dollars.

Figure 3. Activision Blizzard annual net income (in million U.S. dollars)



Source: (Clement, 2023)

Considering the trend in subscriber count shown in Figure 2 and the revenue trend shown in Figure 3 should be surprising. While World of Warcraft was experiencing a decline in subscribers, Activision Blizzard was reporting its highest revenue to date. Although these figures include revenue generated from other games such as the Call of Duty franchise, Activision Blizzard always emphasizes that World of Warcraft is their most lucrative property. Therefore, it can be concluded that World of Warcraft is more profitable today, despite having a significantly smaller subscriber base in the past. Other games considered in this graph also feature microtransactions, and one of their biggest properties, Call of Duty: Warzone is entirely based on a microtransaction-based business model. Regardless of how we look at Activision Blizzard's operations, it is evident that microtransactions play a significant role in their financial

success. This is supported by an official report from 2018, in which Activision Blizzard stated that microtransaction revenue in 2017 amounted to \$4 billion, half of which came from mobile games (Makuch, 2018a).

METHODOLOGY

In this research paper, secondary sources were used, including articles, publications, journals, and internet sources. The leading research method used was a survey, employing questionnaires as the primary research instrument. The targeted group of respondents received survey questionnaires using Discord platform, Facebook and WhatsApp. The responses were collected, processed, and visualized using the Google Forms tool and Excel. Based on responses, data, attitudes, and opinions about the subject of the research were collected.

To obtain better survey results, the authors decided to create two separate questionnaires and thus increase the sample size of the respondents. One questionnaire was conducted in the Croatian language, while the other was in English. The Croatian-language survey was completed by students from the Faculty of Organization and Informatics at the University of Zagreb, as well as their friends and family members. The English survey was filled out by friends and acquaintances of the authors who were familiar with playing some of the games mentioned in this study, such as World of Warcraft. The survey was conducted during June 2021.

EMPIRICAL EVIDENCE

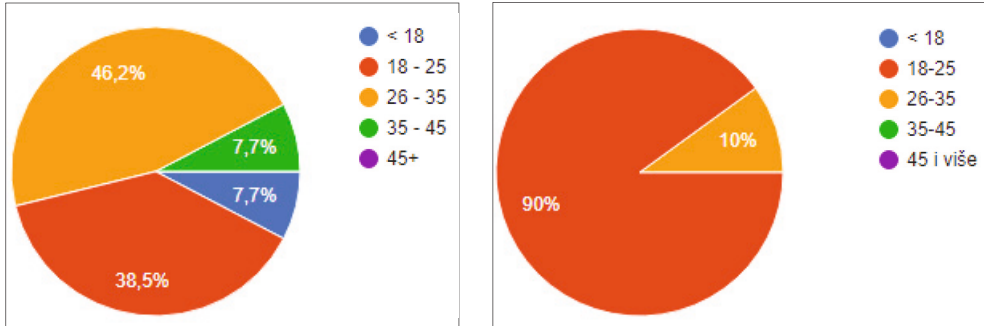
The English-language survey was distributed to video game players outside of Croatia through the Discord platform. Thirteen respondents completed the survey. The survey aimed at domestic respondents was distributed on Facebook and WhatsApp, and it was completed by 30 respondents. Since this survey was completed by individuals within a narrow age range and a monthly income bracket, it should be noted that it also had an impact on the results.

RESULTS AND DISCUSION

Among foreign respondents, 12 identified as male and 1 as female. This result is expected since the ratio of male to female players is significantly skewed towards males, although it is lower than 12:1 in reality. In contrast to foreign respondents, a higher percentage of female participants (33.3%) completed the survey in the Croatian language compared to male participants (66.7%).

Regarding the age question, among the foreign respondents, 1 participant indicated being a minor, 5 were between 18 and 25 years old, 6 were between 26 and 35, 1 was between 35 and 45 years old, and 1 was older than 45 years old. This is an expected result, as global research shows that most video game players fall within the age range of 18 to 35. Among domestic respondents, 90% of them were in the age group of 18 to 25, mainly representing the student population, while 10% were between 25 and 35 years old.

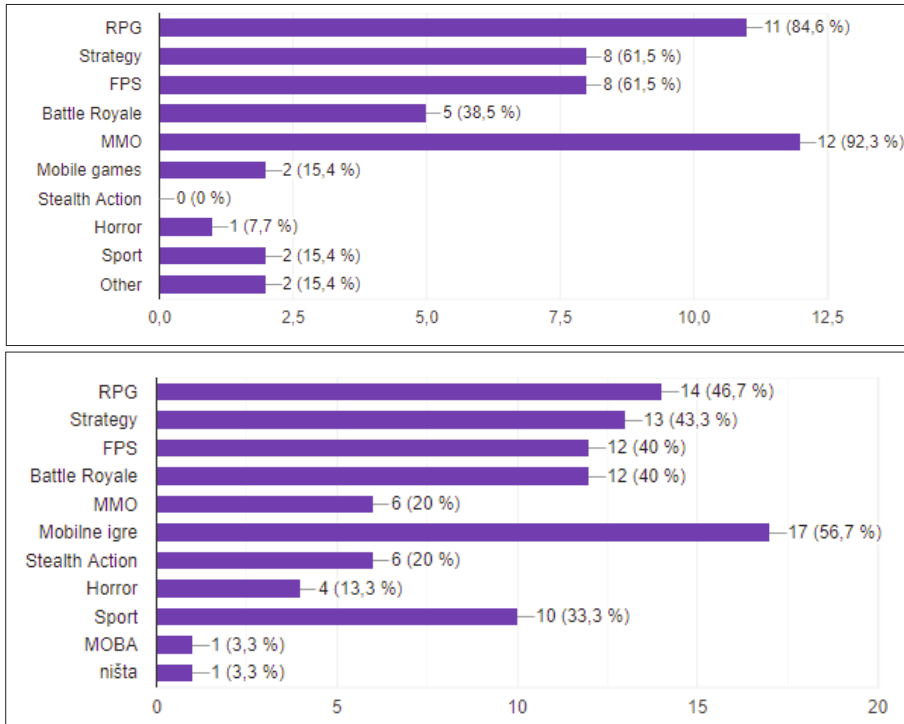
Figure 4. Age Structure of Respondents: Foreign respondents on the left, Croatian respondents on the right



Source: Survey responses from Google Forms

In response to the question about game genres, the majority of foreign respondents answered that they play RPG (role-playing games), accounting for 84.6%. However, the majority of Croatian respondents stated that they play mobile games. The second most common response for both groups of respondents was playing the Strategy and FPS (First-person shooter) genres, and the third most common response was Battle Royale, which confirms that these genres are among the main contributors to the inclusion of microtransactions and undoubtedly belong to the most popular genres today.

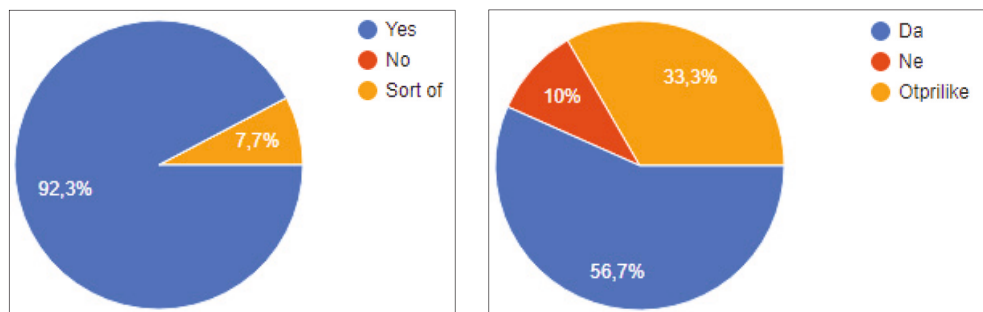
Figure 5. Game genres: Foreign respondents on the left, Croatian respondents on the right



Source: Survey responses from Google Forms

In response to the question about the respondents' familiarity with microtransactions, 12 foreign respondents answered that they know what microtransactions are, while only 1 respondent had a vague understanding. This result is expected, considering that these respondents frequently play video games and likely have encountered microtransactions frequently. On the contrary, a higher percentage of the average Croatian players in the survey showed a lack of knowledge or only a vague understanding of what microtransactions are actually, despite encountering them in various games.

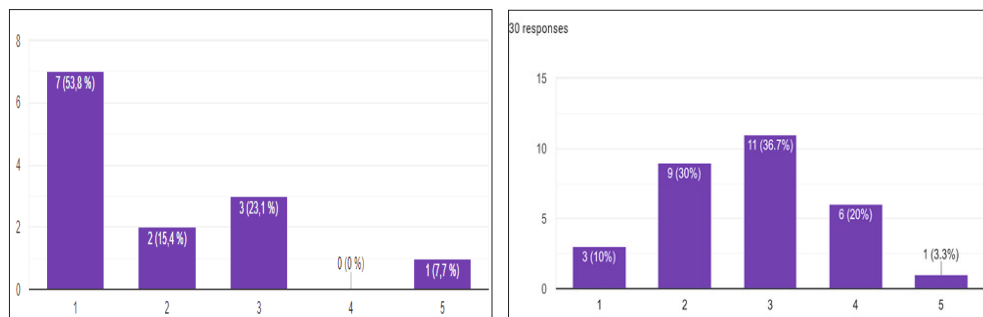
Figure 6. Familiarity of players with microtransactions: Foreign respondents on the left, Croatian respondents on the right



Source: Survey responses from Google Forms

When asked if microtransactions in free games bother them, the majority of foreign respondents responded that microtransactions in free games do not bother them at all, two respondents said that they bother them slightly, three respondents said that they bother them moderately, and one respondent said that they bother them a lot. As for Croatian respondents, almost 77% of them stated that microtransactions in free games do not bother them at all or bother them slightly or moderately, while only 23% of respondents answered that they bother them quite a bit or a lot. The result is not surprising, as optional microtransactions (as long as they do not provide unfair advantages) within free games are generally accepted because they allow players to play the game for free.

Figure 7. Resistance to microtransactions in free games: Foreign respondents on the left, Croatian respondents on the right

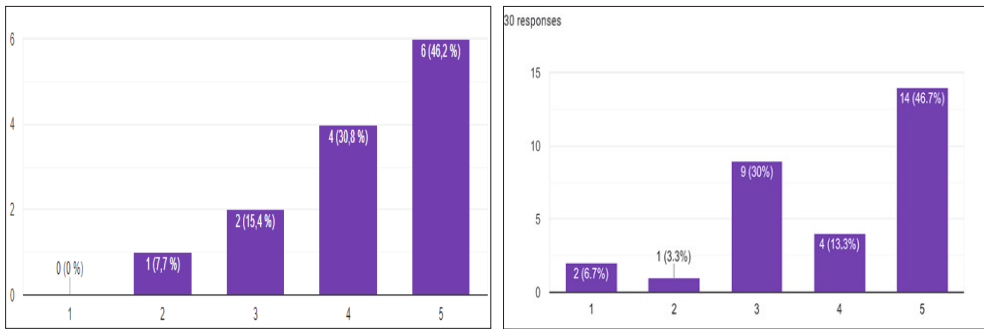


Source: Survey responses from Google Forms

However, in the next question regarding the resistance to microtransactions in games that are sold at full price (60 euros or more), among foreign respondents,

one person answered that microtransactions in full-priced video games bother them a little, two respondents said they bother them moderately, four respondents said they bother them a lot, and six respondents said they bother them extremely. The response structure is similar among the Croatian respondents. Only three of them answered that microtransactions do not bother them or bother them a little, while almost 90% of respondents stated that they bother them moderately, a lot, or very much. Once again, it can be observed that players are more bothered by microtransactions when the game has an initial purchase price.

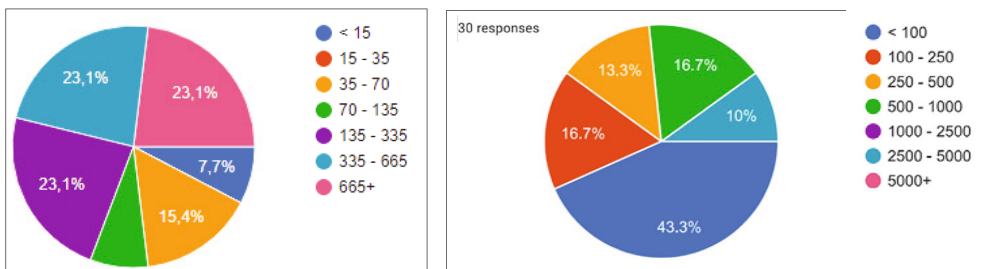
Figure 8. Resistance to microtransactions in full-priced games: foreign respondents on the left, Croatian respondents on the right



Source: Survey responses from Google Forms

As for the amount of money that respondents have spent on microtransactions so far, among foreign respondents, only one person answered that they have spent less than 15 euros, two respondents spent between 35 and 70 euros, one respondent spent between 70 and 135 euros, three respondents spent between 135 and 335 euros, three respondents spent between 335 and 665 euros, and three respondents spent over 665 euros. Almost 70 percent of respondents have spent at least 135 euros on microtransactions. This amount is greater than the full price of two games, which is evidence that microtransactions actually generate significant revenue for video game publishers. On the other hand, most Croatian respondents (73%) have spent less than 500 HRK (around 66 euros), while 16.7% of them have spent up to 1000 HRK (132 euros), and only 10% of them have spent up to 5000 HRK (665 euros).

Figure 9. Current spending during gameplay on microtransactions: foreign respondents on the left (EUR), Croatian respondents on the right (HRK)



Source: Survey responses from Google Forms

In response to the question of whether microtransactions that provide an unfair advantage in video games can discourage players from playing, all foreign respondents answered affirmatively, while 90% of Croatian respondents also responded positively, with only 10% stating that it would not discourage them from playing. This response is somewhat expected, as mentioned earlier in the study, such practices have sparked public outcry and even player lawsuits motivated by the inclusion of these types of microtransactions in games.

Lastly, it is worth noting the question regarding the future trend of microtransactions in the gaming industry, whether they will increase, decrease, or remain at the same level. All foreign respondents agreed that they will increase, while among Croatian respondents, 80% believed that they would increase and 20% believed that they would remain at the same level. Such a response is somewhat expected, considering the significance of microtransactions for present-day publishing companies.

Regarding additional comments, one respondent expressed the hope that the increased revenue generated by microtransactions would contribute to better quality in future games. However, the author's opinion is that the opposite will happen, and some games mentioned in this study serve as evidence. Furthermore, respondents agree that microtransactions are acceptable as a business model as long as they are not the core of the video game and do not offer an unfair advantage to those who purchase them. As for additional comments regarding microtransactions, respondents seem to have no issue with the presence of skins and similar cosmetic microtransactions, but consider other forms of microtransactions as a disgrace to the industry. A respondent specifically called out Electronic Arts, stating that they have ruined their sports games with microtransactions.

CONCLUSION

The aim of this research was primarily to create an overview of the gaming industry in the past in order to provide a clear context in which the emergence of microtransactions began to have a significant impact on the development of the business models in computer games industry. Microtransactions have always been an inevitable part of the gaming industry and their occurrence has only depended on time. As the production costs of today's video games increase, publishers incorporate microtransactions to earn revenue from video games for months and even years, after their release. Regarding the future of the industry, it is expected that the number of microtransactions will continue to rise, and the number of video games based on the microtransaction business model will reach higher figures. However, research has also shown that there is resistance from players, as well as ways to at least fight against those microtransactions that are simply negative or even illegal. According to the research, it is evident that the respondents are mostly familiar with microtransactions and they are particularly bothered by their presence in games that are initially paid for, especially if they provide unfair advantages to players. Similarly to the respondents, the authors believe that the number of microtransactions will continue to increase or remain at the current level. However, in order to preserve the positive direction of the gaming industry and other related industries, it would be better if the implementation of such business models with microtransactions was reduced in the future if not maintained at the same level.

LITERATURE

- Clement, J. (2022). *Gaming monetization - Statistics & Facts*. Retrieved from Statista: <https://www.statista.com/topics/3436/gaming-monetization/>
- Clement, J. (2023). *Net income generated by Activision Blizzard from 2005 to 2022*. Retrieved from Statista: <https://www.statista.com/statistics/272334/activision-blizzards-annual-net-income/>
- Duverge, G. (2016). *Insert More Coins: The Psychology Behind Microtransactions*. Retrieved from Touro University Worldwide: <https://www.tuw.edu/psychology/psychology-behind-microtransactions/>
- Frish, B. (2020). *A New Lawsuit Exemplifies an Existential Debate in Sports Video Games*. Retrieved from Slate: <https://slate.com/technology/2020/12/electronic-arts-fifa-madden-nhl-lawsuit-dynamic-difficulty-adjustment.html>
- James, K. (2018). *Belgium Declares Gaming Loot Boxes Illegal*. Retrieved from The Goldwater: <https://thegoldwater.com/news/24315-Belgium-Declares-Gaming-Loot-Boxes-Illegal>
- Makuch, E. (2018a). *Activision Blizzard made \$4 Billion On Microtransactions Last Year*. Retrieved from Gamespot: <https://www.gamespot.com/articles/activision-blizzard-made-4-billion-on-microtransac/1100-6456669/>
- Makuch, E. (2018b). *Microtransactions, Explained: Here's What You Need To Know*. Retrieved from <https://www.gamespot.com/articles/microtransactions-explained-heres-what-you-need-to/1100-6456995/>
- Park, G. (2017). *How a Star Wars video game faced charges that it was promoting gambling*. Retrieved from The Washington Post: <https://www.washingtonpost.com/news/comic-riffs/wp/2017/11/18/how-a-star-wars-video-game-faced-charges-that-it-was-promoting-gambling/>
- Prateek, A. (2017). *Microtransactions In Video Games*. Retrieved from Intelligent Economist: <https://www.intelligenteconomist.com/microtransactions/>
- Statista Research Department. (2022). *Mobile Games - Worldwide*. Retrieved from Statista: <https://www.statista.com/outlook/dmo/digital-media/video-games/mobile-games/worldwide>
- Statista Research Department. (2016). *World of Warcraft estimated subscribers from 2015 to 2023*. Retrieved from Statista: <https://www.statista.com/statistics/276601/number-of-world-of-warcraft-subscribers-by-quarter/>
- Vann, V. (2019). *What Are Microtransactions, and Why Do People Hate Them?* . Retrieved from How-to Geek: <https://www.howtogeek.com/449521/what-are-microtransactions-and-why-do-people-hate-them/>
- Vincente, V. (n.d.).
- Williams, M. (2017). *The Harsh History Of Gaming Microtransactions: From Horse Armor to Loot Boxes*. Retrieved from USgamer.Net: <https://www.usgamer.net/articles/the-history-of-gaming-microtransactions-from-horse-armor-to-loot-boxes>

