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FUNKCINIŲ, ASMENINIŲ IR SOCIALINIŲ INTERNETINIO ŽAIDIMO VERTYBIŲ ĮTAKA KETINIMUI PIRKTI PRIEDUS ŽAIDIMUOSE	**THE IMPACT OF FUNCTIONAL, PERSONAL AND SOCIAL VALUES OF AN ONLINE GAME ON THE PURCHASE INTENTION OF IN-GAME ITEMS**

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TABLE OF ABBREVIATIONS

MMOG – Massively multiplayers online games

MMOFPS – Massively multiplayers first-person shooter

MMORPG – Massively multiplayer online role-playing game

MMORTS – Massively multiplayers real-time strategy

MOBA – Multiplayer online battle arena

INTRODUCTION

The online game industry is evolving every year and by the end of 2023, it is expected to reach 3,38 billion gamers globally. The number is expected to increase to 3,79 billion by 2026. With the growth of gamers worldwide, the market share is constantly increasing and was expected to generate 184,0 billion dollars by the end of 2023 and reach 205.7 billion dollars in 2026 (Wijman, 2023). Several companies in the game industry use the freemium business model which is also known as a free-to-play model (Hamari et al., 2020). Companies using the freemium business model offer their basic service free of charge with a possibility to buy upgrades (Semenzin et al., 2012). In the case of free-to-play games, upgrades are typically offered through the in-game items (Firdaus and Rahadi, 2021). Hence, gamers are offered to purchase in-game items for appearance (e.g. clothing, skins) or additional skills or objects (e.g. weapons, cars, maps, in-game currency) (Park and Lee, 2011). The main revenue in free-to-play games comes from in-game purchases, therefore companies need to understand what factors motivate customers to purchase upgrades in free-to-play games (Hamari et al., 2020).

Previous studies on the intention to buy an upgrade mainly examined 1) willingness-to-pay for premium in the market of digital computer games (Rietveld, 2017); 2) the reasons teenagers purchase items in virtual worlds (Mäntymäki and Salo, 2015); 3) the impact of gaming habits on the perceived price fairness and loyalty (Liao et al., 2020); 4) how loyalty influences the intention to purchase items in mobile games (Hsiao and Chen, 2016); 5) what items and how do the gamers purchase in the free-to-play games (Park and Lee, 2011); 6) how perceived value affects the intention to continue using freemium service and purchase premium content in games (Hamari et al., 2020).

There are several studies on the intention to buy the upgrade or premium content, however, previous studies were focusing on different types of games, such as mobile games (Hsiao and Chen, 2016) or virtual worlds (Mäntymäki and Salo, 2015). Moreover, the analyzed factors motivating to pay for the upgrade were different, therefore the results of previous researches also differ. Some studies suggest that loyalty affects the intention to purchase in-game items (Hsiao and Chen, 2016). Other studies found that satisfaction does not necessarily increase the intention to buy upgrades in a game even though it has an impact on the gamers' habits and loyalty (Park and Lee, 2011; Hamari et al., 2020). According to Teng (2018), the factor that affects the intention to buy an upgrade is character growth expectancy.

Some researchers state that gamers' intention to purchase in-game items depend on gamers' demographical aspects, such as age, gender or social background (Cat et al., 2019; Cote, 2020; Kim, 2021). Some researchers claim that, stereotypically, male gamers are known to be the main audience in the game industry (Cote, 2020). On the other hand, female players are also commonly seen in the game industry and are actively targeted by certain game genres' creators (Cote, 2020). Other researchers state that purchase behavior depends on gamers' in-game behavior, gaming habits and engagement with the game (Cheung et al., 2015; Bae et al., 2019; Cat et al., 2019).

Perceived value factors have attracted researchers' attention and their impact on the intention to purchase in-game items was studied by several researchers. Researchers discovered various value factors that may have an influence on the purchase intention. However, they do not share same opinion on the types of perceived value factors. Some researchers claim that there are functional, hedonic and social value (Bae et al., 2016; Cai et al., 2019; Marder et al., 2019), whereas others suggest there are emotional; quality; economic and social value that have an impact on the intention to buy in-game items (Hamari et al.; 2020).

Although some studies were previously conducted on the intention to buy in-game items in online games, researchers do not share the same opinion on the perceived value factors of an online game on intention to buy upgrades in a free-to-play game. In addition, majority of the researches are focusing on the specific genre or specific game rather than all free-to-play online games. Moreover, there are not many conducted researches focusing on the influence of moderating variables on the intention to purchase in-game items. This study will bring some novelty by focusing on the impact of the perceived personal, social and functional value factors, engagement with the game, social influence and gaming habits on the intention to buy in-game items in the free-to-play online games.

Based on the prior studies conducted by Hamari et al. (2020), Marder et al. (2019); Cai et al., (2019) and others, the **problem of the paper** can be raised as how the perceived functional, personal and social value factors, social influence, engagement with the game and gaming habits affect the intention to buy in-game items.

The aim of the paper is to determine how the perceived functional, personal and social value factors of an online game and other interpersonal and social factors affect the intention to buy in-game items.

The objectives of the research are:

1) To analyze types of free-to-play online games and different types of the offered in-game items;
2) To examine gamers typology in free-to-play online games;
3) To examine which theoretical models are usually applied for the behavioral analysis in the context of online games;
4) To examine what perceived value of an online game and what other interpersonal and social factors affect the intention to buy in-game items;
5) To examine how perceived functional, personal and social value factors of an online game and other interpersonal and social factors affects the intention to buy in-game items;
6) To select an appropriate methodology to analyze how perceived functional, personal and social value of an online game and other interpersonal and social factors affect the intention to buy in-game items;
7) To collect and analyze data which is needed to examine how perceived functional, personal and social value factors of an online game and other interpersonal and social factors affects the intention to buy in-game items;
8) Based on the findings of the study, to provide suggestions, insights and work restrictions on how perceived functional, personal and social value factors of an online game and other interpersonal and social factors affects the intention to buy in-game items.

The paper consists of theory analysis of the effects of the perceived functional, personal and social value factors of an online game and other interpersonal and social factors on the intention to buy in-game items; research methodology, empirical research and the results of the study, conclusions and recommendations. The theory analysis was conducted based on the prospective research method and consists of six sub-topics: types of online games and their differences; types of virtual in-game items and their value for a player; online gamers typology in free-to-play online games; theoretical models for behavioral analysis; interpersonal and social factors on the intention to purchase in-game items; perceived value factors on the intention to purchase in-game items. Based on the theoretical findings, methodology for the research was developed. The aim of the research, research model, hypotheses , data collection methods, research instruments, research sample size and structure as well as the scope of the research is presented. In the third part of the thesis, the results of empirical research, analysis of hypotheses, characteristics of respondents are presented. Lastly, conclusions and recommendations for the future studies are presented.

1. THEORY ANALYSIS OF ONLINE GAMES FEATURES AND EFFECTS OF THE PERCEIVED FUNCTIONAL, PERSONAL AND SOCIAL VALUE FACTORS OF AN ONLINE GAME ON THE INTENTION TO BUY IN-GAME ITEMS

1.1. Types of online games and their differences

Online games can be explained as games that are mostly played on the internet and range from text-based games to high-quality graphic games, that can be played by millions of different people from various backgrounds, locations and cultures (Sambe and Haryanto, 2021). Although in the past games were mostly used for entertainment purposes and the industry was less developed and lucrative, now many businesses have developed an interest in the gaming industry for economic purposes, especially as it became common leisure activity (Sambe and Haryanto, 2021; Billieux et al., 2013).

With the rise of technology and more people having an access to the internet, the gaming industry kept developing and rising economically (Hamari, 2015; King et al., 2019). In 2023 gaming industry has reached 3,38 billion players worldwide were expected to generate around 184 billion dollars (Newzoo, 2023). By 2026, the gaming industry expects to reach 3.79 billion players and generate even higher revenues (Newzoo, 2023). Online games provide a possibility for players to communicate with other players, complete the given tasks, compete with each other, and play in a team or individually (Barnett and Coulson, 2010).

Online games can be divided based on how and on which devices they are played - PC games, mobile games, or social networking games. They can be further divided based on their business model: one-time pay, subscription-based, or free-to-play games (Flunger et al., 2017). One time pay model refers to the traditional model when the game is purchased by the player with one-time fee for a specific price (e.g. Starcraft 2, Grand Theft Auto), whereas users playing online games based on a subscription model need to pay periodically to be able to access and play the game (E.g. World of Warcraft) (Firdaus and Rahadi, 2021). The free-to-play business model, which is known as the freemium business model in other industries, is when players can access and play a game without having to pay at least for a basic game (e.g. Guild Wars II, Fortnite), but they are commonly offered to purchase in-game items, upgrades or additional content (Hamari, 2015; Flunger et al., 2017). A number of companies in the gaming industry has switched to the free-to-play business model, hence it became widely used in this industry and positively viewed by the developers (Hamari et al., 2020;

Alha et al., 2018). Free to play business model allows companies to attract more customers to try the game and hope that they will get interested in playing further (Hamari et al., 2020).

Nevertheless, it is also important for companies to make revenue, thus companies offer in-game upgrades and virtual goods that can be used in a game (Firdaus and Rahadi, 2021). In-game purchase is one of the main revenue streams in free-to-play games and brings the biggest revenue in this business model even if transactions are usually done in small amounts (King et al., 2019; Hamari et al., 2020). Thus, the feature of in-game items or upgrades is becoming more and more commonly seen not only in free-to-play games but also in traditional games (Petrovskaya and Zendle, 2021). For example, companies may offer an in-game season pass – package for additional in-game content or even release separate additional content which can be available only by making another transaction (E.g. EA games such as Start Wars: Battlefront) (Petrovskaya and Zendle, 2021). Although free-to-play games are very popular, they are sometimes viewed negatively from players' perspective as they do not like the fact of spending real money on a game that is introduced as free to play, and it is one of the reasons why consumers refuse to buy upgrades or in-game items (Hamari, 2015; Alha et al., 2018).

Moreover, some gamers complain that by purchasing in-game items, players "pay-to-win" as they can increase their powers and skills faster through microtransactions and it makes the game unfair (Gattig et al., 2017). To make players, at least, retain in the game, free-to-play games offer the possibility to earn in-game money in small amounts by spending more time playing and completing different challenges (Gainsbury et al., 2016). Hence, the amount of the players who convert to paying customers, and end up spending real money and making in-game purchases is relatively low and reaches around 5 percent of the total number of players (Hamari et al., 2020; Rayna and Striukova, 2014). Therefore, it is difficult for companies to make revenue from free-to-play online games, especially due to increasing competition and people having more choices of available free-to-play games (Firdaus and Rahadi, 2021). Thus, it became important to design free-to-play online games in a way that players feel encouraged, and feel the need to purchase updates through functional or non-functional in-game items and spend actual money in the game, yet do it voluntarily (Hamari, 2015; Hamari et al., 2020; Badrinarayanan et al., 2015; King et al., 2019; Alha et al., 2018).

Online games can be played with different motives – for fun, to escape from the real world or to learn and develop new skills (Barr, 2017). Players have different motives for playing games, therefore, industries need to adjust and offer different types of games to attract more users. Widely

known and played online game type is Massively multiplayer online games (MMOG) which can be divided into further categories - Massively Multiplayer Online Role-Playing games (MMORPG) (e.g. World of Warcraft, Dofus), massively multiplayer first-person shooter (MMOFPS) (e.g. World War II) and Massively multiplayer real-time strategy (MMORTS) (e.g. Conflict of Nations, Ogame) (Kircaburun et al., 2018; Kim et al., 2005; Nagygyörgy et al., 2013). Other types of games are: multiplayer online battle arenas (MOBA) (E.g. League of Legends), battle royale (e.g. Fortnite, Players Unknown Battleground - PUBG), social worlds (E.g. Second Life, Habbo Hotel, Imvu), social-networking games (e.g. Candy Crush Saga, FarmVille) (King et al., 2019; Hamari, 2015).

Game types are different based on their designs, in-game possibilities, and strategies. To be able to show gamers why there is a need to make in-game purchases, it is crucial to understand the differences between the game types and how to approach their players. In general, MMO games can be distinguished from another type of games because thousands of players can play together at the same time (Nagygyörgy et al., 2013). The games are normally accessible by the internet browser which might have one or a couple of servers, or via the installed application where players can play, communicate and build virtual societies (Bae et al., 2019). In MMO games, players can communicate with each other, and create friendships or even relationships (Barnett and Coulson, 2010). Such games do not have an ending, they are always accessible and continuous, therefore, gamers are given the possibility to create their identification – character, world, or even civilization, which they keep referring to and developing throughout the game (Bae et al., 2019; Guo and Barnes, 2007). Gamers develop their characters mainly by increasing their skills through the performance of tasks and belonging to the virtual community can often motivate them to perform better (Bae et al., 2019). Moreover, it becomes important to differentiate their character from other players and gain respect by increasing their levels and skills (Bae et al., 2019).

One of the most played types of MMOG is MMORPG type of games. They are well-known for the quality and richness of their graphical environment and virtual communities (Badrinarayanan et al., 2015; Guo and Barnes, 2007). In MMORPG games, players create their own avatars which they later level up by collecting valuable objects, completing tasks, and seeking achievements as well as communicating with other players (Stetina et al., 2011). Players of MMORPG can interact not only with so-called “non-player character” – character who is managed by computer but also with other players directly in the game and outside of the game (e.g. forums, chatboxes, vocals, etc.) (Badrinarayanan et al., 2015; Guo and Barnes, 2007). MMORPG offers the possibility for players to choose whether they want to compete by themselves or together with other players in a team, yet the

games are designed in a way that gamers might face difficulties by performing certain tasks on their own, thus the need for social interaction and teamwork appears (Kim et al., 2005). It is common practice to join in-game "guilds", that are formed from several players and have their structure (Stetina et al., 2011). Therefore, players often develop the feeling of need for belonging in certain virtual communities and gain acceptance and respect from their teammates (Bae et al., 2019; Badrinarayanan et al., 2015). MMOFPS, on the contrary, can be played on one's own or in a team, as in these games players often tend to compete against each other (Bae et al., 2019). Social virtual worlds are games that are based on the free form of communication between players rather than completing tasks and strengthening their character (Mäntymäki and Salo, 2015). MOBA games are strategy games where players create and develop their character/avatar and usually compete in teams against each other (Mora-Cantallops and Sicilia, 2018).

Hence, the gaming industry is constantly evolving and it became crucial for businesses to develop different types of games (Hamari, 2015). Players share different motives for playing online games, thus, to attract more players – a range of various games shall be offered. Although, game types may be different in their specifics, all of them have one thing in common – purchasable in-game items.

1.2. Types of virtual in-game items and their value for a player

Virtual goods are the main generator of revenue in free-to-play online games, hence companies offer various types of virtual in-game items for the players (Firdaus and Rahadi, 2021; Hamari et al, 2017). Virtual goods, also known as in-game items, are virtual assets that can be purchased in the game, such as clothing or skins that are used for the appearance of the character/avatar, or additional objects for improving skills and performance, such as weapons, cars, maps, or in-game currency (Park and Lee, 2011; Cai et al., 2019). Some of the games might additionally offer loot boxes and time-savers (Cai et al., 2022). Although, virtual goods are common in free-to-play games, they may also be offered in paid games, and the price for in-game items can range between one and a couple of hundred dollars (Firdaus and Rahadi, 2021).

According to prior studies, virtual items have social, emotional, and functional qualities (Firdaus and Rahadi, 2021). At first, the main functions of the virtual items were to increase the capabilities and performance of the player/character, satisfy the needs and wishes of the player, and unlock certain features, but with the time being, virtual items also started to be used for decorative functions (Sambe and Haryanto, 2021). Virtual items are known to be useful and logical to have, even

though they exist only online (Sambe and Haryanto, 2021). The type of virtual goods differs based on the game genre, which sequentially can be used for various reasons or motives (Firdaus and Rahadi, 2021).

According to Lehdonvirta et al. (2009), three main factors motive gamers to purchase virtual goods: functional driver, hedonic driver, and social driver. Functional driver refers to the performance, advancement and skills of the character in a game, the hedonic driver is related to aesthetic appeal and social driver can be explained as visual appearance (Mäntymäki and Salo, 2015). Hamari (2015) suggest that some gamers buy in-game items because they like certain objects and want to use them for their characters, whereas others might need them to achieve desired results during the play.

Generally, in-game items can be divided into two categories – functional and non-functional goods (Flunger et al., 2017). Lin and Sun (2007) agrees with categorizing items into two separate groups, but names them as functional and decorative items. Other researchers also categorize in-game items as weaponry and decorative goods (Yoo, 2015). Hence, the similarities in the categorization of items can be seen. Functional/weaponry items refer to the goods that can strengthen a player's virtual character and improve their power and performance in the game, for example, by adding some strength, functions (e.g. a gun) or skills (Yoo, 2015; Flunger et al., 2017; Park and Lee, 2011, Firdaus and Rahadi, 2021). Non-functional/decorative goods are used for the avatar, and appearance of the character, such as clothing, or other decorative objects in the game known as "skins" in the virtual gaming community (Yoo, 2015; Flunger et al., 2017; Park and Lee, 2011). Some of the items can have both purposes in the game – functional and decorative. For example, weapons can be used for adding skill/strength to the character but they can be also used for the decorative purpose (Flunger et al., 2017). Some of the researchers claim that there is a third group of items – social items – goods that can be given as a gift to another player rather than used for their character (Park and Lee, 2011). Moreover, games often provide the possibility to purchase virtual currencies in a game which later can be used for purchasing in- game items or selling them for other players (Firdaus and Rahadi, 2021; Guo and Barnes, 2007). In addition, researchers classify in-game items based on their monetary value and divide them into two groups – probability-based and non-probability-based items (Cai et al., 2022). Probability-based items have a value equal to the amount of money paid by the players, whereas non-probability items can have a bigger or smaller value compared to the money paid for the item (Cai et al., 2022). Probability items are often called as Loot boxes, card packages, etc., depending on the game, and refer to the items that are unknown to the player until they purchase them (Cai et al., 2022).

Although gamers can purchase in-game items of their own will, often they are put in a situation where they have to buy certain items to enjoy the game more or to be able to conduct certain actions (Yoo, 2015). For example, they might need to buy weapons or clothing to be able to fully participate in the virtual world or unlock hidden features that are difficult to achieve by themselves (Yoo, 2015; Cai et al., 2022). Thus, the pay-to-win concept appears, as people are paying for in-game items that are improving their characters and helping to compete against others (Alha et al., 2018). Moreover, some of the features cannot be achieved with time or effort spent in the game, thus, the player needs to spend real money to get them, for example, certain characters of the game who are limited or additional content that can be accessed only by purchasing it (Cai et al., 2022). Besides, in-game items that are offered in the game may differ based on the game genre. For instance, items offered in MMOG games might differ from the items that are offered in virtual worlds. In-game items that can be purchased in such games as MMORPG, MMOFPS or MMORTS frequently are guns, weapons, protection, and skills that can help to increase the performance or strength of the character and heal faster (Yoo, 2015). MOBA games often offer non-functional items such as skins, champions, accessories, or clothing that can differentiate the character from other players as well as allow gamers to create their own identity through the game character (Hamari, 2015; Kordyaka et al., 2017). In virtual worlds, players are offered decorative items: appearance-related items, decorative objects, pets, and vehicles. (Yoo, 2015; Hamari et al., 2020).

By purchasing virtual items, gamers not only develop their virtual character but they also tend to have fun and enjoy the game more (Yoo, 2015). Studies suggest, that virtual goods bring additional value for gamers, such as functional, social, and decorative values, and add cognitive, affective and functional values to the game itself (Bae et al., 2019). Therefore, when encouraging gamer to actually purchase functional or non-functional in-game items, it is also important to show the value that such an upgrade will bring to the gamer (Yoo, 2015).

1.3. Online Gamers typology in free-to-play online games

There are a number of different types of games in the gaming industry and the purchase behaviors of the users may differ across them (Cai et al., 2019). Nevertheless, businesses need to find a way to encourage players to purchase in-game items. The need to understand the specifics of the game genres is important, but the understanding of gamers' types is also crucial. When a company understands the differences and specifics of people who are playing their games, players' behaviors and habits, they can think of strategies for developing new customer base and ways of retraining

current players (Cheung et al., 2015). Distinguishing customers who are willing to make in-game purchases is also important as companies can develop new techniques on how to motivate current payers to keep purchasing and how to encourage non-paying players to convert (Hamari, 2015). Thus, the typology of gamers was studied broadly based on different aspects such as demographics, time gamers spend in a game, gaming preferences and attitudes, and gaming intensity.

Although, free-to-play games attract a lot of curious users to try the game, it is still important for companies to build a solid consumer base, and not only to make customers retain in the game but also convert to paying users (Lassila, 2022; Cheung et al., 2015). According to previous studies, various aspects can affect a player's gaming and purchase decisions. Purchase behavior might differ based on the demographical aspects of gamers, such as age, and gender, and based on their relationship with the game itself (Cai et al., 2019). In the gaming industry, men were always seen as the main customer and many types of games released were designed to target young male audiences (Cote, 2020). However, with the development of IT industry and different game genres being offered, gamers are now more diverse than ever. Previous studies claim, that games which are played by men and women are different (Kim, 2021). For example, women often tend to play more casual games, whereas men play more complex games that require more gaming time and skills (Kim, 2021). Hence, casual game developers mainly were targeting female audiences (Cote, 2020). Previously, women usually did not identify themselves as "gamer" due to the raised stereotype of a gamer being a young male, yet they still enjoyed playing the games (Cote, 2020). Although women enjoy playing casual games such as Candy Crush, recent studies also showed that women now do identify themselves as gamers and enjoy playing the same games as men, such as MMORPG or shooters (Cote, 2020). Studies suggest that female players were playing for "therapeutic refreshment", whereas male players were playing due to their interest (Cole and Griffiths, 2007). Moreover, the audience of certain game types can differ not only by gender but also by age or social/educational characteristics (Nagygyörgy et al., 2013). Some studies suggest that in general, free-to-play games are typically played by young men with wealthier social backgrounds who additionally work or study, rather than women, older people and people with poor social backgrounds (Costes and Bonnaire, 2022). On the other hand, it is also stated, that free-to-play games were not associated with one specific gender, as both, men and women tend to play them (Costes and Bonnaire, 2022). However, studies show that even though both genders tend to play free-to-play online games, young males, especially students, tend to spend more money for in-game items (Costes and Bonnaire, 2022). Even though researchers agree that younger players tend to spend more time playing and also show more willingness to purchase in-game items

compared to older players, they claim that these characteristics might differ in various game genres (Cai et al., 2019; Costes and Bonnaire, 2022). For example, MMOFPS games are more commonly played by young male gamers who tend to have a less educational background or are students (Nagygyörgy et al., 2013). The first group of players spend a significant amount of time playing but barely spend money for in-game purchases, whereas students tend to play less but spend real money for in-game goods (Nagygyörgy et al., 2013).

Some research was done to study habits of players. Habits can be explained as "the learned sequences of acts that become automatic responses to specific situations" (Liao et al., 2020). People tend to develop new habits in different areas of life, including gaming. For example, they might always play games in the same place, at the same time, or the same way (Liao et al., 2020; Hsiao and Chen, 2016). Based on gaming habits in terms of the genres played and time spent in a game, Manero et al. (2016) have classified gamers into four different types: full gamers - the ones who are likely to play regularly but different types of games; hardcore gamers - gamers who show the most interest in MMOFPS or sports games; casual gamers – users who play social or thinking games, also known as brain games, for an average amount of time, and non-gamers (Liao et al., 2020; Monero et al., 2016). Other studies suggest, that players can be classified into six categories based on the games they choose and how often they play. Six categories that can be distinguished are power gamers, occasional gamers, incidental gamers, social gamers, leisure gamers, and dormant gamers (Klézl and Kelly, 2022). Power gamer can be explained as a gamer who plays regularly and tries to make their character full of power; occasional players are the ones who play from time to time but do not put too much effort or time into gaming; incidental gamers play only when they do not have anything else to do; social players are socializing with others through the game environment; leisure gamers play games as their hobby; and dormant gamers are users who do not have enough of time or chances to play (Klézl and Kelly, 2022). The typology of gamers based on their personalities and attitudes was studied by various researchers. Generally, gamers can be classified differently based on their characters, their game preferences or their attitude in the game. In MMOG games, some researchers classified players into four groups according to their character: achievers, explorers, socializers, killers (Sambe and Haryanto, 2021; Billieux et al., 2013). Players that are named as achievers are often seen in MMORPG games, where players have many tasks and challenge to complete and achievers are the ones who try to achieve the goals in the game, accept and complete the challenges and pursue their status by doing that (Sambe and Haryanto, 2021). Explorers refer to a type of players who enjoys exploring and discovering new areas, strategies. Explorers are a common type of players in MMORTS games, where the strategic

approach is important and players are expected to make strategies and manage their own created world (Sambe and Haryanto, 2021). Socializers are players who are very communicative and prefer to bond with other players by socializing rather than competing with them, thus, this type of players is commonly met in social games (MMOSG) (Sambe and Haryanto, 2021). The last category of gamers is killers - players who want to defeat other players in the game and are looking for various ways to do so, they also enjoy the war motives in the games. This type of players is common in MMOFPS – shooter games (Sambe and Haryanto, 2021). Klézl and Kelly (2022) also mention gamer types such as competitors, explorers, collectors, storytellers, achievers, jokers, artists, directors and performers. Xu et al. (2012) classifies players into five categories: achievers, active buddies, social experience seekers, team players, and freeloaders.

Furthermore, some studies suggest, that players can be divided based on the time and money players spend in the game (Bae et al., 2019). The types of gamers that can be distinguished are: Heavy players and non-heavy players (Bae et al., 2019). Heavy players, also called premium players, are the ones who bring the most revenue to the company as they not only spend a lot of time in the game but also make constant in-game purchases (Bae et al., 2019). Therefore, often companies take into consideration gamers' preferences and gaming habits, especially heavy players', as they may affect gamers' purchase behaviours (Bae et al., 2019; Cai et al., 2019).

The time spent in a game can also be considered one of the attributes which shapes players' habits and encourages players to purchase in-game items. (Cai et al., 2019). The amount of time that is spend playing games can differ based on the game types. Studies show that MMORPG gamers tend to spend more time playing compared to other players, and although significant amount of players plays 4-6 hours per day, some users play more than 6 hours daily (Stetina et al., 2011; Nagygyörgy et al., 2013). Cole and Griffiths (2007) suggest, that male players weekly spend more time playing compared to female players, and it was indicated that some of the players spend more than 60 hours playing weekly. Spending of real money in free-to-play games is often associated with gaming frequency, time spent playing, and also whether users play on weekends or weekdays, however, researchers do not always have the same opinion on the effect of playtime for spending money on the game (Costes and Bonnaire, 2022). Some of the researchers stated, that players who play more frequent and spend more hours in a game, are more likely to be heavier spenders and make in-game purchases (Hamari, 2015; Cai et al., 2019; Cheung et al., 2015; Bae et al., 2019). On the contrary, other studies have found that in-game spending does not depend on hours that gamers spend playing, but the over-all length of stay, and attachment to the game was one of the predictors (Cai et al., 2019;

Bae et al., 2019). While previous studies agree that time spent playing a game or with a game generally does have a positive effect on the actual in-game purchase behavior, there are also opinions, that users who play less regularly tend to spend more money in-game compared to heavy players who play regularly (Cai et al., 2019). It is also suggested, that gamers tend to spend more money when they just start playing the game, but the spending decreases with the time being (Costes and Bonnaire, 2022).

Gamers can be categorized not only by their demographics or habits but also based on the amount of money they tend to spend for in-game items. Lovell (2011) has divided gamers into four different groups based on monthly in-game spending: Whales, Dolphins, Minnows and Freeloaders. The biggest revenues are coming from the smallest group of players, the so-called "whales", which brings around 20-euro revenue on average, however some of them spend much higher amounts of money on the game (Dreier et al., 2017). Dolphins spend approximately 5 euro; Minnows spend only 1 euro whereas freeloaders do not spend any real money on free-to-play online games (Dreier et al., 2017).

To sum up, it is essential to understand that gamers' demographical differences (age, gender), gaming habits and attitudes may have an impact on overall intention to purchase in-game items (Cai et al., 2019). Once companies understand their players, players' gaming motives and in-game behavior, they have bigger chances to find a way to motivate non-paying players to switch to paying players and purchase in-game items (Hamari, 2015).

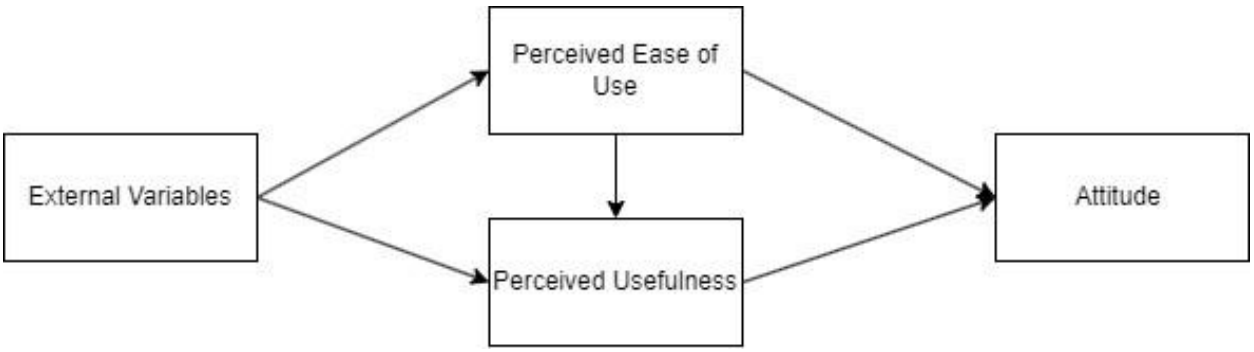
1.4. Theoretical models for behavioral analysis

There are number of different theoretical frameworks that can be used for analyzing consumer behavior, behavioral intention, technology acceptance and use of it. Purchase intention in video games is commonly studied through the adaptation of variables from different theoretical frameworks and by adding variables created by authors themselves rather than using just one specific theoretical framework (Hamari and Keronen, 2017; Hamari and Keronen, 2016). Some of the commonly used theoretical frameworks for analyzing players' behavior and intention to purchase paid content were technology acceptance model (TAM), Theory of Reasoned Action (TRA) and Unified Theory of Acceptance and Use of Technology (UTAUT) (Hamari and Keronen, 2017; Hamari and Keronen, 2016). However, the combination of few different frameworks was the most frequently used option (Hamari and Keronen, 2017). In addition, some authors have used framework of perceived value (PERVAL) for analyzing the behavioral intention in video games (Teng, 2018).

The TAM is used for studying user technology acceptance and was actively applied in studies related to computers, internet, social media or internet shopping (Bassiouni et al., 2019). Originally, the model was developed on the basis of Theory of Reasoned Action (TRA) which was developed by Davis et al. (1989) in order to simplify TRA and analyze what factors have an impact on the use of technology (Zhu et al., 2012; Bassiouni et al., 2019). The TAM is also used for analyzing behavioral intention, attitude, and satisfaction of technology usage (Pantouw and Aruan, 2019). The TAM is mainly focusing on behavioral beliefs such as perceived usefulness and perceived ease of use (Zhu et al., 2012; Bassiouni et al., 2019). Perceived ease of use can be explained as: "the extent to which a person when using a particular system does not require more or easier effort" (Pantouw and Aruan, 2019). Perceived usefulness refers to the ability of the certain technology to improve the performance of the consumer (Pantouw and Aruan, 2019). Although the main variables of the model – perceived ease of use and perceived usefulness – are believed to have an impact on one another, they might also be affected by the external factors (Zhu et al., 2012). In order to analyze technologies used for the entertainment purposes (e.g. video games), some scientists extend the model by adding additional hedonic factors, such as enjoyment (Bassiouni et al., 2019; Laumer et al., 2012; Linares et al., 2021).

Figure 1

TAM model based on the theory of Davis et al. (1989)



Source: Compiled by the author based on the theory of Davit et al. (1989)

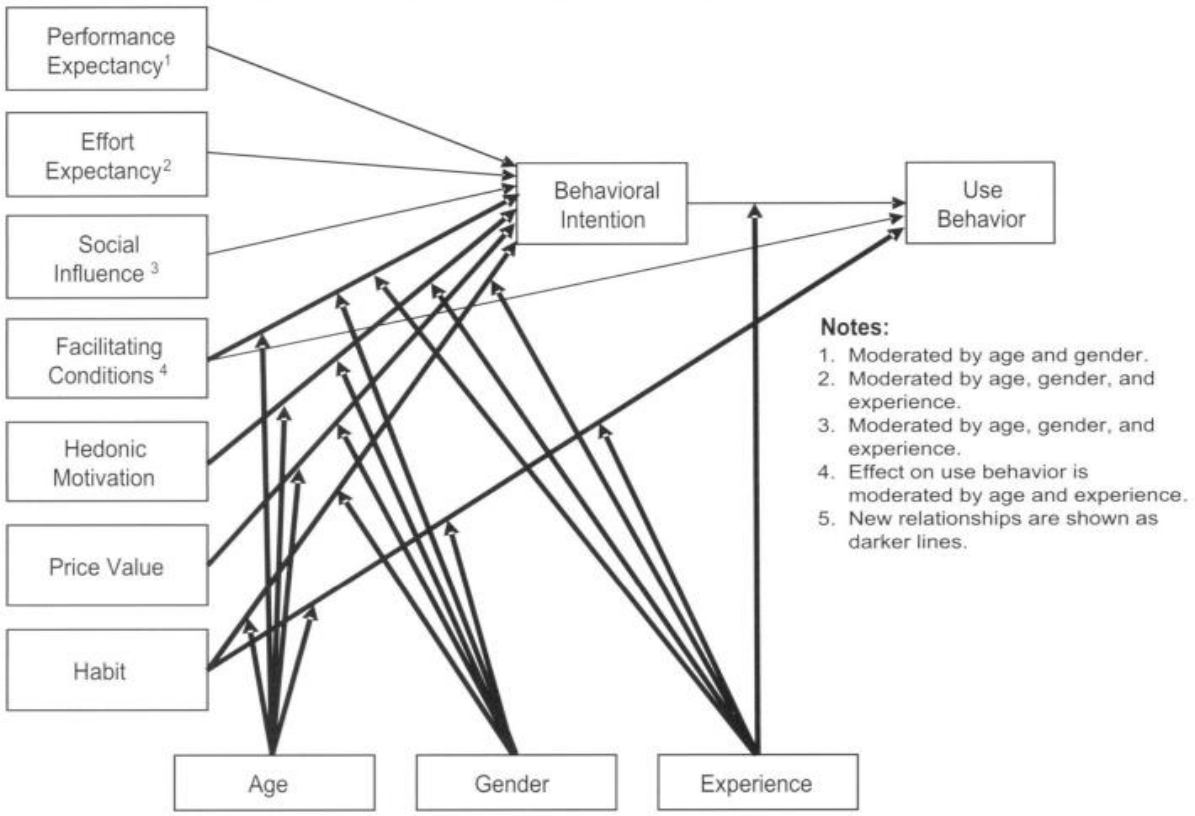
The Unified Theory of Acceptance and Use of Technology (UTAUT) is frequently used for analyzing and explaining technology acceptance and use, users behavioral intention, including purchase intention, and actual behavior. Venkatesh et al. (2003) has developed the UTAUT based on eight different models exploring intentional and planned behavior, reasoned actions and technology

acceptance. After reviewing the previous theories, four main variables having direct impact on the behavioural intention were determined (Venkatesh et al., 2003). Thus, the UTAUT is primarily focusing on four main factors - performance expectancy, effort expectancy, social influence and facilitating conditions (Venkatesh et al., 2003; Duttagupta and Poddar, 2020; Ericska et al., 2022; Bleize and Antheunis, 2017). The relationship between core factors and behavioral intentions are additionally moderated by gender, age, experience and voluntariness of use (Venkatesh et al., 2003). Performance expectancy refers to the user's belief of how a system will positively affect their performance (Venkatesh et al., 2003). In online game, it can refer to the positive impact of in-game items on the game performance (Bleize and Antheunis, 2017). Effort expectancy explains whether it is easy to use the system, for example, in video games, it can evaluate whether it is easy to purchase in-game items (Venkatesh et al., 2003; Bleize and Antheunis, 2017). Social influence explains if the opinion of others' on usage of the system is important for user or not (Venkatesh et al., 2003; Bleize and Antheunis, 2017). Facilitating conditions can be explained as "the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system." (Venkatesh et al., 2003).

To analyze consumer behavior more precisely, the UTAUT model was extended to UTAUT2 by adding additional constructs such as hedonic motivation, price value and habit (Bile Hassan et al., 2022; Venkatesh et al., 2012). Hedonic motivation is related to the enjoyment and pleasure that user feels from using the technology and is found to be an important factor affecting the intention to use technology (Venkatesh et al., 2012; Chang, 2012). Price value refers to the benefits user receive compared to the price they pay for using it (Venkatesh et al., 2012). Habit refers to the actions that are performed by people automatically as a response to certain actions or situations (Liao et al., 2020).

Figure 1

UTAUT2 model developed based on the theory of Venkatesh et al., (2012)

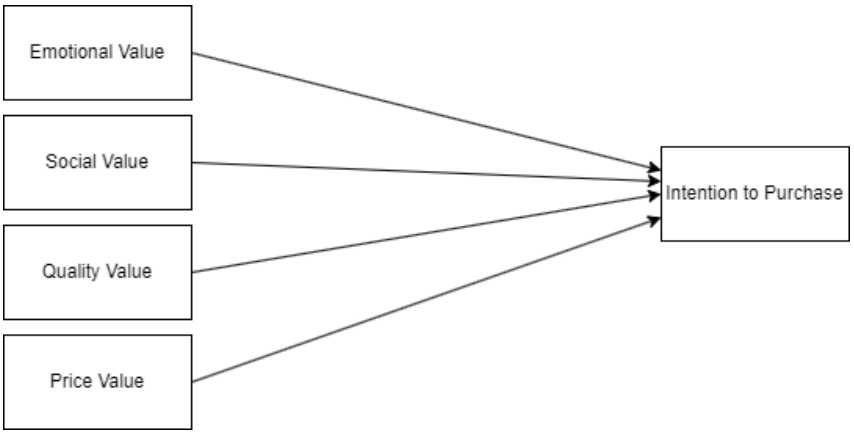


Source: Venkatesh et al. (2012)

Perceived value is another important factor that can be considered when studying consumer behaviour. According to Hsiao and Chen (2016), perceived value can be explained as "the consumer's overall assessment of the utility of a product or service, determined by a consumer's perception of what is received and given". The framework of perceived value (PERVAL) was developed in order to analyze users perception of value and their effect on purchase behavior of goods (Sweeney and Soutar, 2001; Rezaei and Ghodsi, 2014). PERVAL was developed based on the framework introduced by Sheth et al. (1991) which included five core value factors: emotional, social, epistemic, functional and conditional values (Sheth et al., 1991; Rezaei and Ghodsi, 2014). PERVAL focuses on emotional value, social value, performance/quality and price value (Sweeney and Soutar, 2001; Winata et al., 2022). It includes not only the price and quality dimensions which are important aspects for the consumer but also emotional and social aspect that has an impact on consumers decision making (Rezaei and Ghodsi, 2014; Hamari et al., 2020). Therefore, it is often used in studies analyzing consumer's perception of value, purchase attitude and behavior, especially in the digital context (Winata et al., 2022).

Figure 3

PERVAL model created based on the theory of Sweeney and Soutar (2001)



Source: Compiled by the author based on the theory of Sweeney and Soutar (2001)

Although there are number of different theoretical frameworks that can be used for analyzing purchase intention of in-game items, this study will use the combination of TAM, UTAUT2 and PERVAL models. Firstly, this study will focus on perceived value factors as perceived value is proposed to be one of the main reasons for purchasing paid content in video games (Winata et al., 2022). Perceived emotional, social, quality and price values will be adapted from PERVAL framework. Perceived ease of use and perceived usefulness will be adapted from TAM model. Social influence factor will be adapted from UTAUT as social influence is known to have a great influence on decision making of people. Also, variable of habit will be adapted from the UTAUT2 model. Lastly, the additional external factor – engagement – will be added to the model.

1.5. Interpersonal and social factors on the intention to purchase in-game items

Various internal and external aspects may have an impact on the gamer's intention to purchase in-game items. The reasons and motivations for purchasing in-game items were studied by many various researchers and they have identified and analyzed different factors, such as psychological factor, quality, experience, perceived value factors and etc. (Cai et al., 2022). For example, some studies suggest, that intention to buy in-game items and the choice of them can depend on the players' mood and psychological well-being, where players who feel stressed may purchase decorative items and people who feel bored and want more action are more interested in purchasing functional goods (Cai et al., 2022). Psychological engagement and social aspects such as social influence are also important factors impacting the player's intention to purchase in-game items.

A player's engagement with a game is one of the attributes that play an important role in studying in-game purchase-related behavior. Engagement can be developed by repetitively doing certain action or through repetitive connection with an object, e.g. engagement with the game can be developed by repetitively playing the game (Laurence et al., 2023). Researchers find different types of engagement that might have an impact on the purchase intention. According to Cheung et al. (2015), players that are engaged with the game either psychologically or behaviorally, are more likely to keep playing and buy in-game items to explore the features of the game. On the other hand, it is believed, that gamers who do not develop engagement with the game are more likely to stop playing the game in general (Laurence et al., 2023). Psychological engagement is often developed through game satisfaction (Stetina et al., 2011). Game satisfaction is closely related to the enjoyment of the in-game experience (Firdaus and Rahadi, 2021). Prior studies suggest that players feel satisfied with the game when their needs are fulfilled and virtual items are one of the ways to fulfill their expectations and reach satisfaction with the game, which consequently leads to a higher level of engagement (Sambe and Haryanto, 2021). Gamers that start to feel psychological engagement with the game, gradually develop behavioral engagement which means that gamers spend more time and effort in the game (Cheung et al., 2015). Hence, gamers' behavioral engagement, which is mediated by psychological engagement, sequentially leads to higher chances of making an in-game purchase (Cheung et al., 2015; Stetina et al., 2011).

In addition to psychological and behavioral engagement, previous studies have found that affective engagement, manifested through the dimensions of emotional investment, such as enthusiasm and dedication to the game, might also have an impact on players' purchase intention (Abbasi et al., 2020). It is believed, that players are more likely to develop affective engagement with the game if their emotional needs are fulfilled (Abbasi et al., 2020). Other researchers claim that engagement can be analyzed through three dimensions which are related to the players state of mind towards the game - dedication, absorption and vigor (Huang et al., 2017). According to Huang et al. (2017), absorption refers to the pleasant state and involvement in the game which helps players to forget about their problems outside of the real world by focusing on the virtual, fantasy world. Vigor is related to players' willingness to spend more time and effort playing the game due to their enthusiasm to play the game (Huang et al., 2017). Similarly to the findings of Cheung et al. (2015), Huang et al. (2017) claims that players tend to spend more time playing if they feel engaged with the game. Dedication, on the other hand, could appear through players' enthusiasm, commitment to the game, and pride, which is similarly to psychological engagement, is closely related to satisfaction

(Huang et al., 2017). Satisfaction, besides having an impact on the enjoyment value, also can affect the gamers commitment and dedication to the game, which sequentially increases chances that gamer will purchase in-game items (Huang et al., 2017).

According to the study conducted by Jin et al. (2017), engagement can be also linked to the psychological state manifested through the wish of belonging to the game community and close connection with the fellow players. Abbasi et al. (2020) states, that players might get emotionally engaged not only with the game but also with its' community. In addition, it is assumed that players who have amplified stronger engagement with the game, are more interested in creating close social bonds in the game (Jin et al., 2017). Hence, players show higher tendency to spend more time playing and purchasing in-game items in order to have more chances to engage in the game and create social bonds (Jin et al., 2017). By spending more time, effort and constantly interacting with other players in the game, consecutively gamers become more attached and engaged with the game (Jin et al., 2017).

Yoo (2015) suggests that personal and social experiences have an effect on the playing time but also increase overall involvement in the game. The more user is involved in the game, the more they spend time playing (Yoo, 2015). Researchers agree that engagement with the game and user's experience has an effect on the playing time and also positive and negative experiences are associated with in-game purchasing (Costes and Bonnaire, 2022; Huang et al., 2017). Some studies also suggest that the act of purchasing in-game items itself is enriching the overall user's experience by allowing them to complete the challenges and progress in the game, sequentially increasing the amount of time spent playing the game (Yoo, 2015; Cheung et al., 2015). Furthermore, researchers suggest that players that are engaged with a game may lose the track of time and also amount of money they have spent on a certain game yet the purchases have a positive effect on their experience (Yoo, 2015; Cheung et al., 2015).

Social influence can be described as "the influence of others to perform a certain behavior " (Firdaus and Rahadi, 2021). Researchers suggest that social influence is one of the main factors that affect human behavior in an online environment (Fang et al., 2019). Studies imply that people are influenced by their peers when it comes to the usage of IT and general purchase behavior (Hsu and Lin, 2016). For example, prior studies claim that social influence was affecting positively people's willingness to play online games (Dindar, 2018). Studies also presume that social influence and buying behavior of other people, for example friends or family, may have a positive impact on one's purchasing behavior because it can be seen as a signal of quality or values (Cheung et al., 2014).

Researchers assume that consumers' purchase behavior can be affected by their perception of how their friends or family will react to their decision and how will it affect their image (Hsu and Lin, 2016). In the game environment, players may be motivated to purchase in-game items by their own will or they may be motivated to purchase in-game items due to external factors, such as social influence. In the online game environment, social influence can be projected by the perceived feelings from the communication with other players online (Sambe and Haryanto, 2021). According to Guo et al. (2022), two types of social influence can affect other players: social influence related to the time spent in a game and social influence related to the money spent in a game.

Studies suggest, that one's time spent in a game can have an influence on other player's willingness to play the game but not necessarily intention to purchase virtual goods - on the contrary, other user might decide not to spend money in the game at all, same as the first user (Guo et al., 2022). On the other hand, players can be influenced to spend more time playing the game based on the peer's in-game spending (Guo et al., 2022). The motivation to purchase in-game items affected by social influence depends on player's personal characteristics (Guo et al., 2022). Moreover, social influence can be perceived differently based on the game type, thus, studies suggest that social influence is an important aspect in multiplayers games where users constantly interact with other players (Firdaus and Rahadi, 2021). Players are more motivated to purchase in-game items when they need to compete against other players and to perform better, they may need some additional goods, therefore social interaction and competitiveness may influence the intention to purchase virtual goods (Guo et al., 2022).

Hamari (2015) notes that players who have more friends in a game and are more socially active, may purchase in-game items more as they are more likely to be impacted by opinions of their friends. Players also may spend more money in a game when they see the progress of their friends in a game (Fang et al., 2019). However, purchase decisions of players with fewer friends are more affected by the perceived enjoyment of the game (Hamari 2015). At the same time, it is implied that people who spend more money in a game, can be more interesting for other players to make friends with due to their powerfulness and richness in a game (Fang et al., 2019). Studies suggest, that players that can spend more money and buy virtual goods, can increase the power and skills of their in-game character which successively makes it easier to win against other players, thus, such players tend to have more friends and stronger social status (Fang et al., 2019). Fang et al. (2019) recognize that social influence can be divided into two types based on the type of friends – influence by actual friends and influence by common friends. New players or members of the community can feel the stronger

social influence in making a decision to purchase in-game items as they want to interconnect with other players and they believe that communication with other players can be done through virtual items (Sambe and Haryanto, 2021). Some studies suggest, that players felt stronger enjoyment and deeper engagement when they could feel the social influence in the online environment (Sambe and Haryanto, 2021). Thus, prior researches suggest that social influence does have a positive influence on the intention to purchase virtual goods in a game (Sambe and Haryanto, 2021; Guo and Barnes 2007). They assume, that players who feel social influence tend to purchase in-game items as in their opinion it would help them to interact and bond with other players easier (Sambe and Haryanto, 2021).

On the contrary, Guo and Barnes (2011) could not confirm that social influence has an impact on in-game purchase decisions due to the fact that gamers are free to decide themselves in the virtual world and do not feel an obligation to purchase virtual goods. Moreover, some studies suggest the negative impact of the social influence in online games, as they imply that players can feel social pressure to spend real money in a game which might consequentially reduce their play time (Guo et al., 2022).

Thus, it may be claimed that gamers' purchase intention may be impacted by both: internal and external factors. Prior studies have analyzed the connection between one's engagement with the game and purchase intention and have determined that players' engagement with the game leads to the willingness to purchase in-game items (Cheng et al., 2015; Stetina et al., 2011). However, researchers do not share same opinion on the impact of external factors, such as social influence, on the purchase intention of in-game items.

1.6. Perceived value factors on the intention to purchase in-game items

1.6.1. The impact of perceived value on the intention to purchase in-game items

Perceived customer value is an important aspect impacting intention to purchase in-game items and can be seen through different perspectives and attributes; thus, it became an important subject for businesses and researchers (Cai et al., 2022; Park and Lee, 2011). Perceived value can be explained as the "consumer's overall assessment of the utility of a product or service, determined by a consumer's perception of what is received and given" (Hsiao and Chen, 2016). In the beginning, researchers were mainly focusing on economic value – the ratio of quality and price of the product (Hamari et al. 2020; Hsiao and Chen, 2016). However, it was realized that there are more ways to obtain the values (Hamari et al., 2020).

Sheth et al. (1991) have suggested five different value factors: emotional, functional, social, epistemic, and conditional values. Functional value is related to the price, durability and reliability of the product or service; social value brings the feeling of belonging to a certain social group; emotional value explains the feelings and emotions that are felt from using the service or playing the game; epistemic value is obtained when players satisfy their knowledge needs or curiosity (Wang et al., 2020). Conditional value is explained as the possibility to "provide temporary functional or social value in the context of a specific and transient set of circumstances or contingencies" (Wang et al., 2020). This framework was further studied in order to understand how customers' values are formed. Hsiao and Chen (2016) suggested that the intention to buy in-game items is impacted by emotional, performance, and social values, value for money, and game loyalty.

The number of researchers came to an agreement that there are three main types of values derived from gaming and purchasing in-game items – functional, hedonic and social value (Cai et al., 2019; Marder et al., 2019; Bae et al., 2019). On the other hand, some studies presume that there are four types of values: social, quality, emotional, and economic value (Hamari et al., 2020). Guo and Barnes (2011) divided types of values in two groups: extrinsic and intrinsic values. Extrinsic values refer to the effort and performance of the purchase itself and intrinsic values refer to the enjoyment and customization of the in-game character (Mäntymäki and Salo, 2015). Nevertheless, it can be agreed that some values offered by different researches are more common and are repeating in all of the studies.

Prior studies suggest, that perceived value factors have an influence on gamer's purchase intention (Park and Lee, 2011; Cai et al., 2022). Purchase intention is one's thought about buying certain products or services, which has bigger chance to be turned into a plan and actual purchase behavior (Sambe and Haryanto, 2021). In online game environment, purchase intention is related to gamer's wish to purchase virtual in-game items by making an actual transaction (Sambe and Haryanto, 2021). According to Marder et al. (2019) and Hsiao and Chen (2016), gamers make purchase decisions only when it brings value for them and virtual goods are seen as objects that bring some kind of value to the player in and outside of the game (Marder et al., 2019).

Perceived values that motivate making in-purchase decisions most commonly are – emotional, social, quality and price, however, perceived value from the purchased in-game items may differ across the different game types and gamers themselves (Hsiao and Chen, 2016; Wang et al., 2020). According to Yoo (2015), game items normally provide hedonic/emotional value to the gamer and

require the gamer to be involved emotionally, rather than expect utilitarian/economic value. Emotional value involves emotions that players feel during the game and it is often associated with the enjoyment of the game (Hamari et al., 2020). Although items that bring hedonic or emotional value do not benefit players in terms of their chances to win the game, it is also often associated with a primary motivation to play the game, engagement to the game, bigger enjoyment of the game and even the possibility for self-expression (Hamari, 2015; Hamari et al., 2020; Kordyaka and Hribersek, 2019). According to Hamari (2015), hedonic value is not the only motivator for willingness to purchase in-game items, social value can also motivate players to spend real money in the game. Players often want to create and maintain their social identity, gain respect and belong to a certain virtual community (Hamari et al., 2020). On the other hand, some researchers claim that values such as price value, quality value, perceived usefulness and perceived ease of use are also important factors when it comes to purchasing intentions (Hsiao and Chen, 2016; Winata et al., 2022; Hamari et al., 2020; Kim, 2012). Players might feel more motivated to purchase paid content if they find the deal beneficial and logical and if it would improve their performance (Teng, 2018; Marder et al., 2019; Wang, 2020; Kim, 2012).

Nevertheless, some studies claim that consumer is most motivated to complete the purchase of virtual goods when they feel more than one value, yet not all of the values are important when it comes to free-to-play games (Wang et al., 2020; Teng, 2018). Enjoyment value, social value and self-expression, quality value, price value and components of TAM model, perceived ease of use and perceived usefulness, are seen as common components in perceived value factors when it comes to free-to-play online games and intention to buy upgrades or in-game items, therefore, they will be studied more broadly. These factors can be also divided into three categories – personal value (Enjoyment value), social value (social value and self-expression) and functional value (quality value, monetary value, perceived usefulness and perceived ease of use).

1.6.2. The impact of enjoyment value on intention to buy in-game items

Enjoyment value is often associated with positive gamer's emotions when playing a game, such as fun, excitement, or pleasure (Wang et al., 2020). It is commonly referred to the intrinsic motivation to perform certain activity and the perception of the activity as being enjoyable by itself regardless of the results (Park et al., 2014). Many studies suggest that it is one of the main factors that motivates gamers to make in-game purchases (Wang et al., 2020; Hamari et al., 2020). It is believed, that players who develop expectations of purchased in-game items to provide certain level of

enjoyment, are more willing to purchase in-game items (Jin et al., 2017). However, researchers cannot find unanimous agreement if the enjoyment of the game motivates gamers to spend real money for virtual goods. Some studies suggest, that on the contrary, enjoyment can decrease the willingness to purchase in-game items (Hamari et al., 2020; Lassila, 2022). It is thought that in case users enjoy the game free of charge, they will not see the reason or need to purchase virtual goods (Hamari et al., 2020; Lassila, 2022). Therefore, some researchers believe, that companies can purposely decrease the possibility for gamers to enjoy the game to increase their willingness to buy virtual goods (Hamari et al., 2020). Additionally, some studies suggest that players are more willing to buy virtual goods if they enjoy the game less but want to keep playing it (Hamari et al., 2017). Thus, developers need to design the game in a way that players could enjoy it enough to want to retain to the game, yet they would feel the need to purchase virtual goods to enjoy it even more (Hamari et al., 2020; Lassila, 2022). Generally, it is thought that there is a connection between enjoyment of the game and engagement with the game, as the more gamers enjoy the game, the more engaged they are, sequentially they spend more time and have hope motivators to purchase virtual goods (Lassila, 2022). Some studies also suggest, that opposite to enjoyment, negative emotions can also increase motivation to buy in-game items to decrease negative emotions or turn them into positive emotions and enjoyment (Costes and Bonnaire, 2022).

The understanding of enjoyment value can differ across the genres of free-to-play games. Some researchers presume, that players are enjoying the game more when there is a competition in which they have an advantage (Wang et al., 2022). Wang et al. (2022) agree that players enjoy the game more when they can defeat other players easier and that can be achieved by purchasing functional in-game items. For example, gamers in MOBA games feel enjoyment when they win against the other team (Wang et al., 2020). To win against another team, they need to have more skilled, stronger characters, and functional in-game items are ways to strengthen their character. Sequentially, their performance is better and they can enjoy the game more (Wang et al., 2020). MMORPG games are mainly played for the entertainment and enjoyment obtained through playing the game, due to the game settings and tasks which take place in a fantasy world (Tan and Yang, 2022). To complete the tasks offered by the game and discover the game more, MMORPG players show higher willingness to purchase in-game items if it means the over-all process will increase their pleasure of playing (Tan and Yang, 2022). Gamers in Social Virtual Worlds tend to buy virtual goods for amusement purposes which also increases their enjoyment and creates a positive in-game experience (Mäntymäki and Salo, 2015). In the case of social networking games, researchers do not

have the same opinion when it comes to the enjoinment value's effect on the willingness to pay and purchasing on in-game items. According to Shin and Shin (2011) social networking games provide entertaining content and enjoyment value is an important aspect, therefore it has impact on the overall use of social networking games. Nevertheless, there are different opinions when it comes to the purchase intention in social networking games. Some studies claim that users of social networking games do not want to purchase in-game items as they already enjoy free version of the game (Hamari 2015; Gainsbury et al., 2016). Other studies found that people tend to spend real money in social networking games to increase their level of the enjoyment of the game and they did not find game fun without virtual goods (Gainsbury et al., 2016). Players also tend to enjoy games more when they could progress in a game more with the help of upgrades or virtual goods (Gainsbury et al., 2016). Studies also suggest that in some free-to-play games, players are more willing to purchase non-functional, decorative virtual goods which brings pleasure aesthetically. Therefore, it is also important to provide a wide range of the decorative attributes for players to increase their intention to purchase virtual goods (Marder et al., 2019).

1.6.3. The impact of self-presentation on intention to buy in-game items

Self-presentation and Self-expression is other important attribute that contributes to the general enjoyment of the game and motivates players to consider purchasing virtual items in online games. Self-presentation can be explained as "a process of attempting to influence the perceptions of other people about oneself" (Kordyaka et al., 2017). Some studies suggest that there are two main reasons why people seek for self-presentation: they want to have an impact on other users or meet the expectations of others or they want to express their own identity (Kordyaka et al., 2017). The need for self-presentation can differ based on the personality of the player and the level of desire for being accepted by others (Kordyaka and Hribersek, 2019). According to prior studies, extroverted players who are more open, communicative and outgoing feel the need to express their identity more compared to less talkative players (Kordyaka and Hribersek, 2019). Virtual items in the game environment can help gamers to achieve their wish for self-presentation as virtual goods can be used for creating and presenting their identification, customizing their character based on their imagination and wishes (Cai et al., 2019). Items used for self-presentation normally are decorative/ non-functional items, which are used mainly for the aesthetic and decorative purposes but do not really bring any functional benefit (Cai et al., 2019). Moreover, some players find it important to demonstrate their

success in a game through the self-expression, for example, by purchasing and demonstrating certain items that could be seen by the other players in game (Cleghorn and Griffiths, 2015).

Studies related to MOBA games suggest that virtual goods are one of the main attributes that can allow gamers to create an impression on themselves in the way they desire (Kordyaka and Hribersek, 2019). There are also more specific studies related to MOBA games which confirm the findings. For example, a couple of studies on a popular MOBA game League of Legends found that gamer's purchase intention can be affected by their wish for identification and self-presentation to others (Kordyaka and Hribersek, 2019; Cai et al., 2019). Studies also suggest that the majority of players purchase in-game items in League of Legends due to items' visual aesthetics as those items do not bring benefits such as winning the game to the user (Kordyaka et al., 2017; Kordyaka and Hribersek, 2019). Thus, players are trying to create and portray their identity and the meaning of their identity through the purchases of virtual items (Kordyaka et al., 2017). Similar results were found also in social virtual worlds – users are more willing to buy in-game items when they want to present themselves in a certain way (Kim et al. 2011; Mäntymäki and Salo, 2015). In MMOG games users can present themselves and be noticed by others through their avatars in a game which can be seen by other users, therefore, studies suggest that gamers feel better psychologically when they can create their avatars, with the help of in-game items, based on their desires (Cleghorn and Griffiths, 2015). On the other hand, MMOG games are relatively anonymous and players get a chance to create any online identity they wish, for example, female players can choose a male character in the game and male players can choose a female avatar instead (Barnett and Coulson, 2010).

Kordyaka et al. (2017) suggest that gamers often compare their own character to the characters of other players and want to have a "socially desired identity" so that other players would compare and align to their avatars/characters, therefore self-expression becomes important in a game. Marder et al. (2019) state that gamers will purchase decorative items only when gamers find those items aesthetically appealing. Aesthetically appealing products are attractive product attributes that are representing one's personal preferences (Firdaus and Rahadi, 2021). Thus, it is suggested that users are more willing to purchase non-functional items when it makes them look better, but also either superior or similar to a certain virtual community (Marder et al., 2019). In some cases, self-representation can be also used in order to influence others by players' portrayed identity and often players want to be positively evaluated by others by following social norms (Kordyaka et al., 2017). Therefore, self-expression value is often correlated with social value. On the other hand, some studies suggest that players intend to buy in-game items to look unique and different compared to other

players, rather than to match with them or belong to a certain community (Cai et al., 2019). Thus, players who purchase decorative items want to bring attention to their unique individuality which they portray by developing the appearance of their avatar rather than improving their skills (Cai et al., 2019). Some games offer the possibility to buy limited or exclusive in-game items, which can be bought only through a certain period of time of by certain levels or characters (Cleghorn and Griffiths, 2015). Players who want to look unique or different from others, feel more motivated to purchase such items (Cleghorn and Griffiths, 2015). Moreover, certain in-game items allow players not only look unique compared to other players in a game, but also to show their social status and differentiate them from regular users, who do not have any upgrades and do not purchase any in-game items (Mäntymäki and Salo, 2015). Thus, self-expression gives an opportunity to create their own identity and either differentiate themselves from other users and stay unique or the opposite, follow the social norms and match with certain groups of other players. Therefore, there is a close connection between self-expression and social value.

1.6.4. The impact of social value on intention to buy in-game items

Social value is considered to be one of the main values that motivate people to purchase premium content in social networks and other freemium services (Hamari et al., 2020; Mäntymäki and Salo, 2015). This is also the case discussing the purchasing intentions in free-to-play online games. Studies found that social value is an important motivator for encouraging players to purchase virtual goods in online games (Hamari 2017). According to Sweeney and Soutar (2001), social value refers to social gains, such as creating and maintaining social bonds with other players, gratification, achievement of social needs (Wang et al., 2020). Prior studies have further analyzed social value components and found that social factors such as socializing, relationships and teamwork can have an influence on gamers' intention to purchase virtual goods in a game (Cai et al., 2019). Marder et al. (2019) suggest that users feel the need to purchase in-game items when they want to create a better, superior, similar, or even distinct image. However, researchers do not have the same opinion about the influence of social value on the intention to purchase in-game items. Although some studies show that social value is one of the most influential factors when it comes to the intention to purchase in-game items, other researchers have a different opinion, and claim that social factors are not that important when it comes to the purchases of virtual goods (Cleghorn and Griffiths, 2015). Nevertheless, there are several prior studies on different social aspects that can be considered part of social value and might have a positive or negative influence.

Prior studies found that social interaction influence on players' motivation to purchase in-game items (Cai et al., 2019). Social interactions in the virtual world are different from real-world's interactions, as players often stay anonymous which may weaken the social bond, therefore it becomes important for players to find way to connect with other (Shi et al., 2015). Shi et al. (2015) define two types of social interaction in a virtual game environment – communication with other players who belong to the same group – a team that competes together as a team against other players or conducts other tasks, and communication with players online who belong to the same group of friends.

Belonging to a social community of the game became an important factor for many players as it helps to achieve their goals and compete against others easier (Shi et al., 2015; Stetina et al., 2011). When gamers use purchased virtual goods to compete against each other or play in a team, they have a stronger feeling of belonging to the group (Yoo, 2015). Prior studies found that belonging to certain communities can influence players' purchase decisions and they may want to follow and adopt the norms of the members of the community to which they belong (Shi et al., 2015). Moreover, players may be motivated to play games and spend real money on a game when they want to play with their friends or want to create a joke among their real, not virtual friends (Hamari et al., 2017; Cleghorn and Griffiths, 2015; Shi et al., 2015). Hamari et al., (2017) suggest that players often try to keep up with their friends' gaming levels even if it requires purchasing various in-game items (Cai et al., 2019). Prior studies also state that in-game friends give feeling of social preferences and can observe and evaluate a gamer's avatar (Shi et al., 2015). Therefore, gamers want to create a positive self-image that can be later compared to other players, thus, gamers might feel motivated to purchase virtual items to create an individual self-image (Shi et al., 2015). Studies suggest that, the more friends the gamer has, the bigger the chances that one will decide to purchase virtual goods (Hamari, 2015). Earlier studies found that social interaction in MMORPG games was one of the most important aspects and some gamers preferred their relationships in online games rather than relationships in real life (Stetina et al., 2011). Furthermore, Cai et al. (2019) suggest, that some players buy virtual goods when they want to follow the trends with other players. Moreover, prior researchers agreed that sending or receiving in-game items as a gift is one of the main social factors that motivates players to spend money (Cai et al., 2019; Hamari et al., 2017; Marder et al., 2019). By sending virtual gifts to other players, one can help other players in a certain context and strengthen their relationship with other players in a social virtual community (Hamari et al., 2017; Cai et al., 2019). According to a study conducted by Gainsbury et al. (2016), in social networking games such as Candy Crush Saga, players are willing to spend real money to send gifts to their friends.

Acceptance of the team members or community players belong to, and wish to keep to other player's expectations to gain social status has an effect on the perceived value factor (Shi 2015). Thus, gamers may have an intention to purchase functional items which can help to improve their character and gain better social status in a team (Shi et al., 2015). Gamers who purchase virtual goods for self-expression and visual aesthetics, may also expect to receive some respect from other players through the appeal of virtual items to other players (Cleghorn and Griffiths, 2015).

For some players, compliance with social norms, acceptance and receiving an evaluation by other players is a motivating factor to buy virtual items (Kordyaka and Hribersek, 2019). Studies suggest, that this is especially the case with new players/team members who are just starting to socialize with other team members and want to assimilate with other players in the group (Shi et al., 2015). Players feel insecure that they might be not accepted by the team, therefore, new players try to perform better to be accepted and rewarded, and better performance can be achieved through purchases of functional items (Shi et al., 2015). In some game types, decorative goods can be also purchased to satisfy players' need for belonging (Mäntymäki and Salo, 2015). For example, in the social virtual world game Second Life, players constantly communicate with each other, start virtual romantic relationships, and create their characters and own environment, therefore, players tend to purchase virtual goods to express themselves and belong to a community (Mäntymäki and Salo, 2015).

However, researchers do not have a single opinion regarding the actual effect of virtual goods on their social status. Shi et al. (2015) suggest that players are motivated to purchase in-game items when there is status competition in a game and gamers want to be superior in the team. It is suggested, that gamer with higher social status will feel more powerful, admired, and respected in the game, but it will also satisfy their ego outside the game (Shi et al., 2015). Thus, it is assumed, that players who have lower social status may make more transactions in a game, to achieve a higher status (Shi et al., 2015). Other studies suggest that social status itself does not always have an impact on the intention to purchase (Cleghorn and Griffiths, 2015). Mäntymäki and Salo (2015) suggest that virtual in-game items can even affect the game negatively, as players who purchase in-game items can be placed or feel superior. Although social status among users is still considered important, in some game types such as Social Virtual Worlds, virtual goods can separate players into two groups and have an impact on the whole in-game social environment (Mäntymäki and Salo, 2015). For example, in the game Habbo Hotel, users buy upgrades to differentiate themselves from non-paying users and get an opportunity to make more virtual friends (Mäntymäki and Salo, 2015). Nevertheless, the social environment of the game can have an impact on the gamers' purchase decision (Mäntymäki and Salo,

2015). In MOBA games, virtual items contribute to the in-game social status of the gamers, thus, players intend to purchase virtual items to progress their character and become more competitive in the game (Wang et al., 2020). Moreover, gamers tend to buy decorative in-game items to create their social image and gain status and respect in the game (Wang et al., 2020). For example, in the MOBA game League of Legends, belonging and identification with a certain social group was an important aspect in motivation to buy virtual goods where people are playing in teams (Marder et al., 2019; Cai et al., 2019).

1.6.5. Perceived price value on the intention to buy in-game items

Perceived price value, also known as economic or monetary value can be explained as perceived value that someone obtains from product or service based on its quality and it's features' complexity (Loa and Berlianto, 2022). Although every consumer is willing to pay different amount of money for certain service or product, price can still measure what monetary sacrifice the consumer is willing to make to purchase it (Hsiao and Chen, 2016). According to Hsiao and Chen (2016), the price value will be considered high if customers are satisfied with their purchase and believe that it was worth the paid price.

In the context of games, perceived price value can be explained as: "the utility derived from the paid items due to the reduction of its perceived short- and long-term costs" (Wang, 2020; Hsu and Lin, 2015). Other authors define price value as: "the exchange between the perceived benefits and the costs of obtaining the use of a technology" (Akbar et al., 2018). In free-to-play games, businesses normally offer to purchase premium content (e.g. in-game items) in order to generate revenue as the core game is completely free for players (Wang, 2020; Teng, 2018). Thus, it is crucial for companies to offer certain value for money for the end-user in order to motivate them to purchase the premium content (Wang, 2020). Players show a higher tendency to purchase in-game items if the price for the offer is reasonable and cost-effective, especially if it is cheaper than they expect (Wang, 2020; Yoo, 2015; Hsiao and Chen, 2016).

At the same time, high price is often associated with the high quality of the product and might also impact intention to purchase the product (Choi et al., 2018). Moreover, some authors claim that high price makes gamer feel more unique, special, and even stand out from other players, thus, it increases gamers' perception value and positively impacts intention to buy paid content in a game (Chen and Sun, 2014) . On the other hand, some authors argue that in case the price for in-game items

is high, gamers perceive the value of it negatively and their willingness to purchase paid content is decreasing, often due to the monetary pressure (Fu and Liang, 2022; Choi et al., 2018).

Price value can differ based on the type of items player is purchasing: functional or decorative items and weather it brings utilitarian or hedonic benefits (Marder et al., 2019). Decorative items bring more of the hedonic value for the gamer and are often used for enjoyment, thus, some authors claim that the price utility is considered to have smaller impact on the purchase intention (Choi et al., 2018). However, price value is important when player is purchasing functional items, such as weapons or skills that can improve one's performance in the game (Marder et al., 2019). Functional in-game items provides gamers with advantages against other players by giving them additional skills or enhancing their social status by improving their character, thus, increasing a perception of the price value and motivate to purchase in-game items (Wang, 2020; Teng, 2018; Akbar et al., 2018). Researchers also claim that games with higher amounts of active players show tendency for a bigger demand for in-game items and stronger perceived price value of the items (Wang et al., 2012). However, the intention and willingness to purchase in-game items might decrease if gamers believe that their gaming experience will not change using paid content and they can have same experience using items offered by the game for free (Fu and Liang, 2022). Thus, it is crucial for gamers to receive the benefits of the in-game purchases that would make a positive difference in their game experience, increase their performance in the game and which, in their opinion, are greater than the cost they pay (Teng, 2018; Marder et al., 2019).

Moreover, when the price for the in-game item is relatively low, gamers believe that their decision to purchase in-game items is smart and logical and even considered as investment allowing them to trade items for a higher price later (Wang, 2020). In addition, discounts for the sales of in-game items can bring additional monetary value for the gamer (Teng, 2018).

All in all, price value might be perceived differently depending on the type of in-game items and even the price itself. Price value considered to be more important when purchasing functional items compared to the hedonic items. Moreover, players perceive higher price value when they benefit from their purchase and when items are not more expensive than their expectations.

1.6.6. Perceived quality value on intention to buy in-game items

Some authors explain *quality* as expected and perceived attributes and features rather than referring to quality as 'good' service or product, which often appear to be a subjective opinion of an

user (Schumann et al., 2016). Choi et al. (2018) distinguishes two types of quality features that can affect the perception of quality excellence – intrinsic and extrinsic characteristics. Intrinsic features are related to the product or service characteristics that are difficult to change, whereas extrinsic features are additional characteristics that are related to the product (Choi et al., 2018). In the game context, quality refers to the functional advantage that user can obtain from the performance and which is expected by the consumer (Hamari et al., 2020). According to Liang (2012), quality value is related to the one's satisfaction with the service, or in this case, game settings. Perceived quality is an important game feature related to gamer's wish to play online games and purchase in-game content (Winata et al., 2022; Hamari et al., 2020). Gamer's retention to the game and overall intention to play certain game highly depends on the quality of the game and satisfaction which often associated with the quality itself (Winata et al., 2022; Hamari et al., 2020).

People often expect quality of the game depend on the price of the game and believe that high price means the high quality of the product (Chen and Sun, 2014; Choi et al., 2018). Therefore, consumers often doubt the quality of free-to-play online games and expect them to be of lower quality (Hamari et al., 2020; Choi et al., 2018). Gamers show the tendency to change number of games until they find game which satisfies their quality expectations and needs (Hamari et al., 2020). Thus, it is crucial for game developers to find a way to provide good quality core game for the consumers in order for them to keep playing the game, but at the same time it should be limited enough in order to make them pay for the additional content, such as in-game items (Winata et al., 2022; Hamari et al., 2020).

Game quality can be measured by a number of different game features related to game performance, aesthetics, system features, reliability and gratification (Kim et al., 2015). Quality features such as stability or technical quality are considered to be essential attributes for service to function properly, therefore these quality features are expected in all games, including free to play games (Hamari et al., 2020). Therefore, it is claimed that technical quality of the game has an impact on the intention to play the game (Hamari et al., 2020). On the other hand, Hamari et al. (2020) believes that quality features are less important when it comes to purchasing premium content, especially if they are related to the progress or performance in the game. In addition, additional features to consider are service quality and accessibility to the game, when gamers can play anytime and the amount of time to play is not limited (Hsiao and Chen, 2016; Metzger et al., 2022) This feature is related to the high quality and reliability of the game platform (Hsiao and Chen, 2016).

However, besides technical aspects, there are more attributes to consider in order to evaluate the quality of the game. Artistic game design, graphics, sound, music, light effects, and virtual item shops are also considered as game features that are contributing to the perceived quality value of the game (Kim et al., 2015; Schumann et al., 2016; Metzger et al., 2022). Thus, game producers shall focus on these features in order to provide good and engaging gaming experience for the gamer (Schumann et al., 2016). For example, a good game design can emotionally appeal the gamer and contribute to user's over-all experience of the game by making it more fun and engaging (Schumann et al., 2016). The content of the game and in-game activities can focus on the player's wishes, needs and provide a freedom to make their own game narrative (Schumann et al., 2016).

The perception of game quality can be affected not only by the functional or systematic features but also by users. By offering the game free of charge, companies make a possibility for everyone to have an access to the games, including flooders, bullies, bot users, offenders, cheaters, scammers (Lin and Sun, 2007). Although, such users can easily violate community rules and norms, they are difficult to control and are not risking receiving any punishment for their actions (Lin and Sun, 2007). Even if their account gets deleted, they can easily access the game again by creating a new account free of charge (Lin and Sun, 2007). Thus, ordinal gamers can change their quality evaluation of the game after facing such users.

All in all, the assessment of game quality depends on the user's expectations and perception of the quality (Schumann et al., 2016). Quality perception is subjective and can differ from one person to another depending on how they perceive certain features and qualities of the game (Schumann et al., 2016). Thus, the more game is matching expectations of the gamer, the bigger perceived value will be.

1.6.7. The impact of perceived ease of use and perceived usefulness on purchase intention of in-game items

Perceived usefulness is one of the main factors in Technology acceptance model (TAM) that is used for analyzing acceptance and behavioral intentions to use the technology, systems or products, including games (Park et al., 2014; Pando-Garcia et al., 2016). Researchers state that perceived usefulness has a strong positive impact on the intention to use the technology and the more people find it useful, the more they are willing to accept and use it (Bourgonjon et al., 2010). Davis (1989) explains perceived usefulness as: "the extent to which a person believes that using a particular system will improve its performance" (Hokroh and Green, 2019; Saber Chtourou and Souiden, 2010). Kim

(2012) interprets perceived usefulness as: “the extent to which a user perceives that using a service or a product provides benefits in performing certain activities”. Therefore, it can be assumed that usefulness is mainly measured by changes in one’s performance. Perceived usefulness is considered to be extrinsic motivation for behavioral intentions, thus it is crucial for users of technology or system to have their performance increasing (Altin Gumussoy, 2016). In addition, previous studies found that users are more open and willing to use system if it would benefit and satisfy theirs needs (Vahdat et al., 2020). Besides, it is believed that users who are enjoying using the system, also show higher tendency to consider the system useful (Tokel and İsler, 2013). Some authors have additionally analyzed the relation between the perceived usefulness and intention to buy. It is argued, that intention to buy increases if the system or item is perceived as useful, positively impacts user’s productivity and job performance (Rahmiati and Yuannita, 2019; Wang et al., 2021).

Usefulness in the context of game explains what is the usefulness for the person of playing the game and how it could improve certain part of player’s life (Rafdinal et al., 2020; Kim, 2012; Almuhanna et al., 2019). Fan et al. (2012) explains the perceived usefulness in the game context as “to pursue relaxation, gain pleasure, and make friends with others”. These goals can be achieved even easier with the help of in-game items offered in the game. The usefulness of in-game items can explain how in-game items might benefit performance of certain activities by making them easier and not requiring a lot of effort in the game itself (Rafdinal et al., 2020; Kim, 2012). Thus, in-game items may be perceived as useful component of the game.

Perceived usefulness might impact the motivation and intention to purchase in-game items if that would allow users to achieve their goals faster and easier (Kim, 2012). Consequentially, the perceived usefulness is often related to the achievement of goals (Kim, 2012). For example, in games such as Habbo or Second Life, people might purchase premium content in order to make friends and socialize with other players easier, and in such way improve their gaming performance or status among other members (Mäntymäki and Salo, 2013). Such customization of gaming experience is achieved with the help of in-game items, thus, they are considered to be useful and positively impact purchase intention (Mäntymäki and Salo, 2013).

To conclude, perceived usefulness may have a strong impact on the intention to play the game and to purchase and use in-game items. If player feels that in-game items positively affects their performance in the game by strengthening their character, improving social status or allows to make

more friends in the game, they might perceive in-game items as more useful and show a higher purchase intention.

Perceived ease of use is another important factor used in Technology acceptance model (TAM) in order to analyze behavioral intentions and acceptance of technology (Park et al., 2014; Pando-Garcia et al., 2016). Perceived ease of use refers to the extent the usage of certain technology of product is effortless, not requiring a lot of mental or physical effort (Park et al., 2014; Hokroh and Green, 2019; Saber Chtourou and Souiden, 2010). However, researchers do not always share same opinion on the actual impact of the perceived ease of use on behavioral intentions and claim that it might differ based on the technology type and even newness of it (Bourgonjon et al., 2010). Moreover, perceived ease of use might change based on the increasing familiarity and knowledge of the system or product (Domina et al., 2012).

Vahdat et al. (2020) stated that perceived ease of use explains the belief of an user whether the system or certain technology is easy to use or not. Other researchers claim that perceived ease of use is rather individual as it often portrays personal beliefs on the ease of use, experience, ability and knowledge of using certain technology, system or product, in this case functions of the game and in-game items (Linares et al., 2021; Domina et al., 2012). In addition, researchers state that perceived ease of use is related to the intrinsic motivation rather than extrinsic motivation (Altin Gumussoy, 2016). Hence, user show tendency to enjoy using the system more if it does not require a lot of effort (Altin Gumussoy, 2016; Tokel and İsler, 2013). On the other hand, some researchers state that users misjudge difficulty of the technology usage and consider it easy to learn or use than it might be, if they enjoy using it (Tokel and İsler, 2013; Laumer et al., 2012).

Previous studies has also found that the perception of use might differ between hedonic (e.g. experience of fun) and utilitarian systems (e.g. task or performance increase) (Tokel and İsler, 2013; van der Heijden, 2004). It is claimed that perceived ease of use has a higher impact on the behavioural intentions when system or technology (e.g. games, WEB) is used for hedonic purposes such as entertainment (van der Heijden, 2004; Tokel and İsler, 2013). However, it might have lower impact if the technology used for utilitarian tasks (van der Heijden, 2004).

In the game setting, perception of the ease of use depends whether the playing the game requires any physical or mental effort and how familiar with the game player is (Almuhanna et al., 2019). Researches argue that perceived ease of use is a crucial factor impacting the over-all intention to play games (Ha et al., 2007). For example, perceived ease of use is believed to have a significant

impact on the behavioral intentions in virtual worlds, where game avatars are being used to navigate in the virtual environments (Mäntymäki and Salo, 2011). It is argued, that people enjoy games more if they are easier to use in technical aspect and claim that users might even stop using a system or play a game if it requires too much time to understand it (Altin Gumussoy, 2016; Ha et al., 2007). Other researchers state that on the contrary, users prefer more complicated games which are not too easy but also are not too difficult (Bourgonjon et al., 2010).

According to the previous studies, easily understandable and effortless qualities of the game, such as user friendly interface, are contributing to the positive user experience and intention to purchase and use premium content, such as in-game items (Mäntymäki and Salo, 2013). However, it is still crucial to offer dynamic gaming environment in order to keep users playing the game (Mäntymäki and Salo, 2013). Furthermore, intention to purchase in-game items might be positively impacted if users consider payment system to be easy to use and safe (Zhou et al., 2011). Moreover, users might feel stronger motivation to purchase in-game items if the shop for virtual items is clear, easy to use and understand and works properly (Rahmiati and Yuannita, 2019).

Previous studies found that ease of use has an impact on the perceived usefulness and can predict it in hedonic and also utilitarian contexts (Mäntymäki and Salo, 2011; Altin Gumussoy, 2016). It is claimed that users show tendency to consider systems as useful if they find it easy to use (Tokel and İsler, 2013). In the game settings, usefulness might be affected by the extent to which game is not requiring effort to play (Park et al., 2014; Hokroh and Green, 2019; Ghani et al. 2019; Pando-Garcia et al., 2016). Scientists claim, that the easier it is to use the certain technology, or play the game, the more useful it will seem to be for the user (Liu et al., 2010). For example, in games with more social interaction, such as social games or virtual worlds, users use in-game items to personalize their characters or decorate their places/rooms in the game in order to meet other players by inviting to visit it (Mäntymäki and Salo, 2011). These possibilities and additional provided activities allows players to create social circle in the game easier and are found more useful when they do not require a lot of mental effort in order to achieve it (Mäntymäki and Salo, 2011).

To conclude, perceived ease of use in an important factor to consider when it comes to the usage and acceptance of technology including games. Players tend to show bigger motivation to play games which are technically simpler and faster to understand and learn playing. In addition, players have stronger motivation to purchase in-game content if it will make game easier to play and if the purchase process is simple and easy.

Summing up, researchers agree that perceived value factors have an impact on over-all gamers' intention to purchase in-game items, even though they suggest different types of perceived values (Park and Lee, 2011; Cai et al., 2022; Hamari et al., 2020). Prior studies argue, that players are more willing to purchase in-game items when they receive value from it (Marder et al., 2019). Hedonic values such as enjoyment, self-expression, social value, and utilitarian values such as perceived usefulness, perceived ease of use, perceive price and quality values may be perceived from different in-game items, and influences gamers in different ways, however, the interconnection between these values can be seen.

2. RESEARCH METHODOLOGY FOR MEASURING THE EFFECTS OF THE PERCEIVED FUNCTIONAL, PERSONAL AND SOCIAL VALUE FACTORS OF AN ONLINE GAME AND OTHER INTERPERSONAL AND SOCIAL FACTORS ON INTENTION TO BUY IN-GAME ITEMS

2.1. Purpose of the research, research model and hypotheses

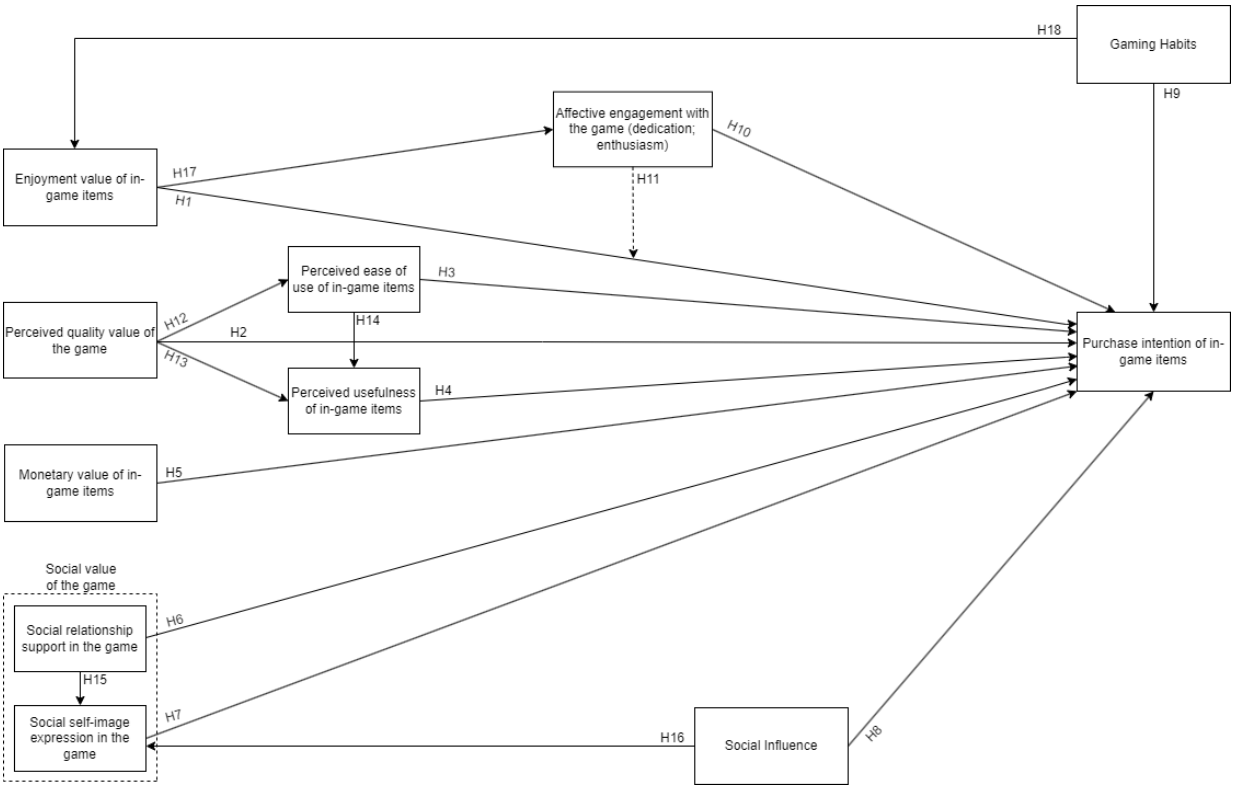
In this part of the paper, the methodological part of the research, based on the previous findings, is presented. The aim of the research is to measure and analyze how the intention to buy in-game items is affected by the perceived value factors of an online game and other interpersonal and social factors, such as affective engagement with the game, gaming habits and social influence. The research model was developed based on the analysis of previously conducted studies on the intention to buy in-game items.

Researchers claim that perceived enjoyment value and social value are one of the main factors impacting intention to buy in-game items (Lassila, 2022; Hamari et al., 2020, Shi et al., 2015). Social value is often perceived through self-expression and relationships in the game as it is important for players to create friendships in a game, belong to a community and make a good impression on other players (Kordyaka et al., 2017; Shi et al., 2015; Ho and Wu, 2012). Monetary value is expected to have a positive impact on the intention to purchase in-game items especially when in-game items could increase their game performance (Wang, 2020; Teng, 2018; Akbar et al., 2018). Researchers argue that gamers who perceive stronger quality value are more likely to continue playing the game and purchase in-game items (Winata et al., 2022, Hamari et al., 2020). In addition, it was found that gamers are more willing to purchase premium content if it would improve their performance in the game and the purchase process would not require a lot of effort, thus, perceived ease of use and perceived usefulness might have an impact on the intention to purchase (Mäntymäki and Salo, 2013; Rahmiati and Yuannita, 2019). According to the previous researches, affective engagement is another important factor to measure as it is believed that gamers who are enjoying the game, feel more engaged with it and might be more willing to purchase in-game items (Stetina et al., 2011; Sambe and Haryanto, 2021). Previous researches proved that external factors such as social influence might impact not only the intention to purchase in-game items, but also other value factors, especially perceived social value (Guo et al., 2022; Fang et al., 2019). Moreover, according to previous studies, gamers who have developed gaming habits, are more willing to purchase in-game items (Bae et al., 2019; Cai et al., 2019). Thus, the mentioned factors were selected to measure in the research.

In the model it can be observed that the dependent variable is purchase intention of in-game items which is affected by independent variables. Independent variables are enjoyment value of in-game items, perceived quality value of the game, monetary value of in-game items, and social value of the game, which is manifested through two factors – social self-image expression in the game and social relationship support in the game. In addition, the connection between two factors of social value is expected. Perceived ease of use of in-game items and perceived usefulness of in-game items is impacted by the perceived value of the game, yet are expected to have an impact on the purchase intention of in-game items. It is also expected that perceived ease of use has an impact on the perceived usefulness. The moderating variable, affective engagement with the game, has a positive impact on the relationship between enjoyment value of in-game items and purchase intention of in-game items. However, it is also being influenced by the independent variable - enjoyment value of in-game items. It is expected that social influence has an impact on the social relationship support in the game, and purchase intention of in-game items. Gaming habits are expected to have an effect on the enjoyment value of in-game items and purchase intention of in-game items.

Figure 2

Conceptual Model



Source: Created by the author based on the theoretical findings

To achieve the aim of the research, the conceptual model will be used. The model shows the relationships among indicated variables and the impact of the independent variables on the dependent variable. The relationship among the variables is indicated by the arrows portraying the impact on one another. Moreover, the indicators of hypotheses are indicated next to the arrows that shows which hypotheses are stated in order to explain the relationship between the variables.

Hypotheses were composed based on the conducted literature review and proposed conceptual model. To begin with, different perceived value factors can have an impact on players' purchase intention of in-game items. Enjoyment value of in-game items is known to be one of the main motivators to purchase in-game items (Wang et al. 2020). While some studies argue that there is a negative relation between the enjoyment and purchase intention, others state the opposite – players who experience positive emotions, such as fun and excitement while playing, are more willing to purchase in-game items (Hamari et al., 2017; Wang et al. 2020). In-game items allow players to progress faster in the game and increase the strength of the character which leads to the higher enjoyment of the game (Gainsbury et al., 2016). Thus, it is expected that there is a positive impact of the enjoyment value on intention to buy in-game items.

H1: *Enjoyment value of in-game items has a positive impact on the purchase intention of in-game items*

According to the previous studies, perceived quality of the game is considered to be an important factor related to the behavioral intentions, such as intention to play the game or purchase in-game items (Winata et al., 2022; Hamari et al., 2020). However, researchers do not always share same opinion on its impact on the purchase intention. Some researchers believe that quality does not have a strong impact on the intention to purchase paid content (Hamari et al., 2020). Other researches claim that players tend to change games easily if they are not satisfied with the quality of the game, thus it is important for companies to find a middle point between quality of the core game and limitations for increasing their intention to buy paid content in the game (Winata et al., 2022; Hamari et al., 2020). By purchasing in-game items, they can increase over-all satisfaction with the game which sequentially will impact their quality perception (Winata et al., 2022). Thus, it is expected that perceived quality of the game might have a positive impact on the intention to purchase in-game items. The following hypothesis was developed:

H2: *Perceived quality value of the game has a direct positive on the intention to purchase in-game items*

Perceived usefulness and perceived ease of use are the main factors of TAM used for analyzing technology acceptance and behavioral intentions related to the technology usage (Park et al., 2014; Pando-Garcia et al., 2016). Perceived usefulness is related to the performance improvement and productivity increase, thus, it is argued that perceived usefulness increases purchase intention if the purchase will lead to the improved performance and a higher possibilities for goal achievement (Kim, 2012). In this case, in-game items purchased by the gamer would be seen as more useful. Perceived ease of use is related to the effortless usage of the system (Park et al., 2014; Hokroh and Green, 2019; Saber Chtourou and Souiden, 2010). Gamers might be more motivated to purchase in-game items if in-game items will contribute to the growth of their game performance or social status without requiring a lot of mental or physical effort (Mäntymäki and Salo, 2011; Mäntymäki and Salo, 2013). Moreover, they are more willing to purchase and use in-game items if the virtual shop and payment system is easily understandable and clear (Rahmiati and Yuannita, 2019; Zhou et al., 2011). Therefore, the following hypotheses were developed:

H3: *Perceived ease of use of in-game items is expected to have a positive influence on purchase intention of in-game items*

H4: *Perceived usefulness of in-game items has a positive impact on the purchase intention of in-game items*

Monetary value is another important factor to consider when analyzing intention to purchase. Researchers claim that perceived monetary value is higher when the purchased items provide some benefit for the gamer, such as increased game performance or higher social status, and when a gamer is happy and satisfied with his or her purchase (Teng, 2018; Marder et al., 2019; Hsiao and Chen, 2016). Moreover, researchers argue that gamers show higher tendency to purchase in-game items if they find the offer cost-effective and reasonable (Wang, 2020; Yoo, 2015; Hsiao and Chen, 2016.) Thus, it can be expected that perceived monetary value has an impact on the purchase intention of in-game items.

H5: *Monetary value of in-game items has a positive impact on the purchase intention of in-game items*

Social relationship support in the game is an important component of social value which refers to the creation of social bonds, socializing, feeling of belonging to a community or even gaining acceptance by other players (Shi et al., 2015; Wang et al. 2020). It is believed that to create stronger

in-game bonds and gain acceptance and evaluation from the fellow players, one needs to have a strong and powerful character (Wang et al., 2020). To improve the performance of the character and gain admiration, players tend to purchase functional in-game items which might help them to increase the level of the character faster (Shi et al., 2015). Thus, it can be claimed that social relationship support in the game has a positive impact on the purchase intention as players tend to purchase in-game items to create stronger character to impress other players.

H6: *Social relationship support in the game has a positive impact on the purchase intention of in-game items*

Social self-image expression in the game is another important factor motivating players to purchase in-game items. According to the previous studies, players seek for self-expression as they want to express their identity, show in-game success or seek to impress other players by being different, or on the contrary – by meeting social norms (Kordyaka et al., 2017). These goals can be achieved by creating one's in-game character or avatar, and virtual items became an important attribute when player wish to differentiate from other players (Cai et al., 2019). In-game items, especially decorative ones, often are purchased in order to adjust their character based on one's needs and wishes (Cai et al., 2019.). Therefore, it can be argued that wish to express oneself has a positive impact on the purchase intention of in-game items.

H7: *Social self-image expression in the game has a positive impact on the purchase intention of in-game items*

Previous studies by Sambe and Haryanto (2021) and Guo and Barnes (2007) claim that social influence has a direct positive influence on the intention to buy in-game items. Players feel stronger motivation to make in-game transactions when there is a social presence and players are communicating with other players (Firdaus and Rahadi, 2021). It is especially common among new players who are trying to gain social status and create social bonds (Shi et al., 2015). Thus, the following hypothesis was conducted:

H8: *Social Influence has a direct impact on the purchase intention of in-game items*

Based on the previous researches, players who spend more time playing and play repeatedly, frequently become heavy spenders and are more willing to purchase paid content in a game (Hamari, 2015; Cai et al., 2019; Cheung et al., 2015; Bae et al., 2019). Players who develop a habit to spend a lot of time playing, often have certain goals in the game which can be achieved by improving the

skills of their character (Gainsbury et al., 2016). To improve the skills or characteristics of the in-game character, gamers tend to express stronger willingness to purchase in-game items (Yoo, 2015; Flunger et al., 2017). Therefore, it can be assumed that gaming habits have an impact on the purchase intention of in-game items.

H9: *Gaming Habits have a positive impact on the purchase intention of in-game items*

Engagement is claimed to be an important predictor of behavioural intentions such as purchase intention. Cheung et al. (2015) states, that gamers who feel psychological engagement developed through feeling of fun and joy, tend to spend more time playing and buying paid content in order to explore the game more. Players are more invested into completing challenges and missions which often are completed easier with the help of in-game items (Yoo, 2015; Cheung et al., 2015). In addition, the positive emotions received from the feeling of accomplishment are even stronger when players feel strong engagement with the game (Sambe and Haryanto, 2021; Yoo, 2015). Therefore, we can assume that affective engagement with the game has a direct positive impact on the purchase intention and positively impacts the relation between the enjoyment value of in-game items and the purchase intention of in-game items.

H10: *Affective engagement with the game has a direct impact on the purchase intention of in-game items*

H11: *The relationship between the enjoyment value of in-game items and the purchase intention of in-game items will be stronger with increasing affective engagement with the game*

Based on the previously conducted studies, it is believed, that gamers consider in-game items as more useful and easy to use if the quality of the game is better (Wang et al., 2016). Games of advanced quality often have well designed virtual shops and in-game items in order to simplify the purchasing process and usage of them, thus players might be more willing to use in-game items and consider them useful and ease to use (Wang et al., 2016; Kim et al., 2015; Schumann et al., 2016). Therefore, it is expected that perceived quality value is a predictor of the perceived usefulness and perceived ease of use (Wang et al., 2016). Hence, the following hypotheses were developed:

H12: *Perceived quality value of the game has an influence on the perceived ease of use of in-game items*

H13: *Perceived quality value of the game has a positive impact on the perceived usefulness of in-game items*

According to the previous studies, people are more likely to believe that certain system or technology is useful if they do not have to put a lot of mental effort into using it (Tokel and İsler, 2013; Liu et al., 2010). Consequently, gamers perceive the game and in-game items more useful if it is easy and not requiring great amount of mental effort to play or purchase and use in-game items (Park et al., 2014; Hokroh and Green, 2019; Ghani et al. 2019; Pando-Garcia et al., 2016). Sequentially, it is claimed that perceived usefulness might be impacted by perceived ease of use (Mäntymäki and Salo, 2011; Altin Gumussoy, 2016). Hence, the following hypothesis is developed:

H14: *Perceived ease of use of in-game items positively affects perceived usefulness of in-game items*

According to the study conducted by Kordyaka (2017), wish to create a relationship with fellow players has a positive impact on player's online self-expression. Social relationship support may be perceived by identifying with a virtual society or meeting social norms (Kordyaka et al., 2017). Players seeking to belong to the game's society often try to present themselves according to the expectations in order to be accepted by the fellow players (Marder et al., 2019; Kordyaka et al., 2017). Thus, it is expected that social relationship support in the game has an impact on the social self-expression in the game.

H15: *Social relationship support in the game is positively related to the social self-image expression in the game*

Social influence is an important factor that has an impact on human behavior (Guo, 2011). People often make their decisions under the influence of society. In free-to-play online games, players commonly try to comply with social norms or seek to be positively evaluated by fellow players (Kordyaka and Hribersek, 2019). With the help of purchased in-game items, players try to create their in-game character, which would meet the expectations of others (Kordyaka et al., 2017). Therefore, the following hypothesis is developed:

H16: *Social Influence is closely related to the social self-image expression in the game*

Based on the previous studies, affective engagement commonly occurs through the enjoyment (Abbasi et al., 2020). It is claimed, that gamers who feel enjoyment and fun while playing the game, are more keen to develop the feeling of engagement with the game (Sambe and Haryanto, 2021; Stetina et al., 2011). Engagement with the game is associated with the motivation to play and achieve results in the game (Hoffman and Nadelson, 2009). To help achieving set goals, explore the game and fulfill the enjoyment, gamers frequently use in-game items (Cheung et al., 2015; Sambe and Haryanto,

2021). Usage of in-game items increases over-all enjoyment of the game, which contributes to the engagement with the game (Sambe and Haryanto, 2021). Thus, it can be claimed that the enjoyment value of in-game items has an impact on the affective engagement with the game, which is measured through enthusiasm and dedication (Abbasi et al., 2020).

H17: *Enjoyment value of in-game items is positively related to the affective engagement with the game*

According to the previous studies, players tend to develop an automatic gaming behavior in terms of playing time, types of games they play or how much money they spend in a game by purchasing in-game items (Liao et al., 2020). Gamers who spend a lot of time playing and trying to achieve gaming goals, often tend to purchase in-game items which help them to improve their character to easier achieve the goals (Bae et al., 2019; Cai et al., 2019). Goal achievement leads to a higher enjoyment of in-game items. Thus, it is expected that gaming habits have a positive impact on the perceived enjoyment value of in-game.

H18: *Gaming habits have a positive impact on the enjoyment value of in-game items*

Table 1

Research Hypotheses

Hypotheses
H1: *Enjoyment value of in-game items has a positive impact on the purchase intention of in-game items*
H2: *Perceived quality value of the game has a direct positive on the intention to purchase in-game items*
H3: *Perceived ease of use of in-game items is expected to have a positive influence on purchase intention of in-game items*
H4: *Perceived usefulness of in-game items has a positive impact on the purchase intention of in-game items*
H5: *Monetary value of in-game items has a positive impact on the purchase intention of in-game items*
H6: *Social relationship support in the game has a positive impact on the purchase intention of in-game items*

H7: *Social self-image expression in the game has a positive impact on the purchase intention of in-game items*
H8: *Social Influence has a direct impact on the purchase intention of in-game items*
H9: *Gaming Habits have a positive impact on the purchase intention of in-game items*
H10: *Affective engagement with the game has a direct impact on the purchase intention of in-game items*
H11: *The relationship between the enjoyment value of in-game items and the purchase intention of in-game items will be stronger with increasing affective engagement with the game*
H12: *Perceived quality value of the game has an influence on the perceived ease of use of in-game items*
H13: *Perceived quality value of the game has a positive impact on the perceived usefulness of in-game items*
H14: *Perceived ease of use of in-game items positively affects perceived usefulness of in-game items*
H15: *Social relationship support in the game is positively related to the social self-image expression in the game*
H16: *Social Influence is closely related to the social self-image expression in the game*
H17: *Enjoyment value of in-game items is positively related to the affective engagement with the game*
H18: *Gaming habits have a positive impact on the enjoyment value of in-game items*

Source: Compiled by the author based on the theoretical analysis

2.2. Data collection methods and research instruments

To test the hypotheses, quantitative research will be applied and data will be collected using a questionnaire. Questionnaires were commonly used in previous researches on the impact of the perceived value factors on the intention to purchase in-game items (Wang, 2020; Ho and Wu, 2012; Cai et al., 2019; Kordyaka and Hribersek, 2019). Questionnaire will allow to collect more data inexpensively. In addition, it will allow to target bigger sample from different locations as the study is not focusing on a specific location. Survey will be filled in anonymously by people who are playing various types of free-to-play online games. It will be conducted online and participants will be

recruited using multiple online platforms, such as social media, forums and public groups. The questionnaire will be developed in English language to be available for broader audience. The anonymity will allow to collect more trustworthy and reliable data as the participants will be more willing to answer the questions honestly.

To collect data, the survey was developed. The survey consists from closed-end questions. The items of the survey will be measured using 7-point Likert type scale, rating items from 1 (strongly disagree) to 7 (strongly agree). In the beginning of the survey, respondents are asked one screening questions – if they have played online games over the last year. If they have not played any of online games over the last year, they will be asked to finish the survey immediately. Respondents are asked to evaluate variables of the enjoyment value of in-game items, quality value of the game, monetary value of in-game items, social self-image expression in the game, social relationship support in the game, perceived usefulness of in-game items, perceived ease of use of in-game items, social influence, gaming habits, affective engagement with the game (dedication and enthusiasm) and purchase intention of in-game items. In addition, demographical features such as age, gender, education and income will be collected. The questionnaire will be same for all of the respondents.

The questionnaire was developed based on the carefully selected and adjusted variables from previously conducted researches. Participants were asked to evaluate 11 different constructs based on the 7-point Likert chart from 1 meaning strongly disagree, to 7 meaning strongly agree. Constructs and their statements adapted to this research are presented and explained in the table (see annex nr. 1). To evaluate perceived enjoyment of in-game items, the construct developed by Wang (2020) was used. It contains 4 statements for enjoyment value measurement. This construct was selected because it was used for a research analyzing consumption value of the MOBA game, which is closely related to the current research. Other considered constructs were declined as they were more related to the game loyalty rather than the current research (Teng, 2018; Wu et al., 2010). Construct for measuring monetary value of in-game items was also adapted from the same study of Wang (2020). Construct developed by (Hsiao and Chen, 2016) was also considered for analysis of price value. However, some of the statements could have caused misleading results, hence it was decided not to use the construct. The purchase intention of in-game items construct was adapted from Ho and Wu (2012) study focusing on the factors which affect the intention to purchase in-game items in online games. Other studies analyzing the intention to purchase were related to the purchase intention in the mobile app or mobile games, and were focusing on the recommendation to make a purchase for others or continuing purchases, thus the statements of the constructs were less relevant for the current study (Hsu and Lin,

2015; Hsu and Lin, 2016). The construct of quality value of the game was adapted from Loa and Berlianto (2022) study focusing on continuous intention to use and purchase premium content in a game "Mobile Legends" which is also based on free-to-play business model. Construct proposed by Nan et al. (2022) was not considered as the study was primarily focusing on the intention to use game consoles, thus, it was less suitable for this study. Constructs of perceived ease of use and perceived usefulness were developed by Vahdat et al. (2020). Study of Vahdat et al. (2020) was originally analyzing purchase intention based on TAM model and other social factors. Even though, the study was focusing on usage of app to shop online, the construct was reliable and could have been adapted to the current study as it was focusing on purchase intention. Constructs developed by Yoon et al. (2013) and Kim et al. (2019) were not considered as the studies were focusing on the usage intention rather than purchase intention, thus, it was less relevant for this research. Social self-image expression in the game and social relationship support in the game constructs were adapted from Ho and Wu (2012) study. In the previous study, Ho and Wu (2012) have analyzed the impact of social value on the intention to purchase through the framework of social self-image expression and social relationship support. These constructs were relevant for the current study as it included statements related to the usage of in-game items and their impact on player's needs and wishes in terms of expressing oneself, impressing others and building relationships. Hamari et al. (2020) construct evaluating social value was not considered, as the statements did not fully meet the needs of this research and were closely matching different variable which could lead to the misleading results. Adapted construct for measuring social influence was developed by Venkatesh et al. (2012). Although the study was initially analyzing the social influence on the use of the mobile internet, it could be successfully adapted and adjusted to the current study as it is measuring the influence of other people on certain behavior. Alternative construct by Gattig et al. (2017) was not considered as it was primarily focusing on the specifically cosmetic items and was measured by gifting, social distinction and visual authority dimensions. The constructs developed by Hsu and Lin (2016) were also not suitable as they were focusing on social norms. Gaming habits construct which was adapted in this study, was developed by Liao et al. (2020). The construct was chosen based on its reliability and suitability for the content. The study conducted by Liao et al. (2020) was focusing on the effect of gaming habits on the loyalty and perceived price fairness, thus it was considered to be relevant for the current research. Alternative construct by Ramírez-Correa et al. (2019) was declined because it was less reliable compared to the chosen one and was mainly focusing on the mobile devices. Lastly, the affective engagement construct was adapted from Abbasi et al. (2020) study which was analyzing

how consumer video game engagement affects their consumption behavior. The construct consists of two dimensions – dedication and enthusiasm. The constructs developed by Rather and Sharma (2016) and Hapsari et al. (2017) were not considered due to the lack of validity and their focus on different area such as hotels and airlines.

It is important to mention, that the reliability of chosen constructs was checked based on the Cronbach Alpha coefficient. All of the selected constructs had a Cronbach alpha coefficient between 0.76 and 0.96. Enjoyment value of in-game items, monetary value of in-game items, quality value of the game, perceived usefulness of in-game items, perceived ease of use of in-game items, social self-image expression in the game and social relationship support in the game constructs are composed from 4 questions. Purchase intention of in-game items, social influence and gaming habits consists of 3 questions and two dimensions of affective engagement – dedication and enthusiasm - consists of 5 questions. Thus, respondents had to evaluate 11 constructs which in total consists of 47 questions. In addition, prior to data collection, pilot study was conducted in order to clarify whether all of the questions are clear and understandable.

2.3 Research sample size and structure

This section of the methodology describes which sampling method and data collection method is applied in the current study. First of all, the sample population is defined. There were no specific requirements for the population in terms of gender or age of the respondents. Moreover, respondents are suitable for the participation in the survey if they have played free-to-play online games over last year. Thus, all respondents who have played online games over last year are considered to be a population of the study. The data was collected using a non-probability convenience sampling technique. The sample size was calculated using comparable researches technique evaluating the sample sizes of the closest studies to the current research. It is presented in the table below. Evaluating the sample size of the closest previous researches and taking in consideration the conditions and closeness of the research topics, an average sample size of 351 participants was determined.

Table 2

Sample size of the closest previous researches

No.	Author	Type of Questionnaire	Sampling	Number of respondents

1	Ho and Wu (2012)	Survey	Non-probability	523
2	Yoo (2015)	Survey	Non-probability	378
3	Kordyaka and Hribersek (2019)	Survey	Non-probability	236
4	Cai et al. (2019)	Survey	Non-probability	215
5	Cheung et al. (2015)	Survey	Non-probability	377
6	Guo and Barnes (2011)	Survey	Non-probability	262
7	Stetina et al. (2011)	Survey	Non-probability	468
			Average	351

Source: Compiled by the author based on the theoretical findings

The goal of the research is to achieve at least 351 respondents. It is also important to keep the similar diversity of gender among the participants. The survey will be completed by respondents who are actively playing or have played free-to-play online games at least once over last year. The invitation to complete the questionnaire will be shared on gaming forums and groups related to free-to-play online games. It would allow to reach the target population easier and get more relevant results.

2.4. The scope of the research

The research will be analyzing specifically free-to-play online games that offers a possibility to purchase in-game items. The impact of the perceived value factors (enjoyment value of in-game items, social value of the game, perceived quality of the game, monetary value of in game items, perceived usefulness, perceived ease of use) and additional factors (gaming habits, social influence and engagement with the game) on the intention to purchase in-game items will be analyzed, thus it is important that the game is using free-to-play business model and offers basic game out of charge.

The model was developed based on the conducted literature analysis and adjusted to the research by adding additional factors which might influence the intention to purchase in-game items. The constructs used in the research were adapted and adjusted from the former researches on the online video games. Data will be collected through the online survey where participants will be asked to evaluate questions using Likert scale.

The survey will be focusing on people who have played online games over last year. There will be no geographic or demographic restrictions applied, thus the questionnaire will be presented in

English language. The invitation for completing the survey will be shared on the social media, groups and forums related to online games in order to reach the needed population.

A couple of limitations applies or the current study. Firstly, it is important that survey is completed by gamers who have played online games over last year. Moreover, the study will be focusing only on free-to-play online games, thus the results cannot be applied for all the games.

The results of the study will help to analyze gamer's needs and motivations to purchase in-game items in the free-to-play online games. Thus, businesses will be able to apply the results in their communication and reconsider offers of in-game items in the game. Although the results might differ from genre to genre, this study will help to see the universal results. Thus, the factors which have the strongest impact on the intention to buy, could be applied for the free-to-play online games regardless the genre of the game.

3. RESEARCH ANALYSIS OF THE EFFECTS OF THE PERCEIVED FUNCTIONAL, PERSONAL AND SOCIAL VALUE FACTORS OF AN ONLINE GAME AND OTHER INTERPERSONAL AND SOCIAL FACTORS ON INTENTION TO BUY IN-GAME ITEMS

3.1. Demographical characteristics of the respondents

Questionnaire was conducted using „Qualtrics“ survey software. In total, questionnaire was filled-in by 433 people. After reviewing the data, 16 answers were deleted because the questionnaires were not fully filled in. Out of remaining 417 responses, 34 respondents did not match requirements of the selected sample as in the screening question, respondents selected answer “no“ for the question if they played online games during last year, thus they were not suitable for the sample size. For this research, expected sample size was 351 people, however, after reviewing received responses, we had 383 suitable responses for the analysis. Selected data was analyzed using IBM SPPS programme.

Firstly, distribution of respondents can be analyzed based on their gender. In the research, similar percentage of female (46%) and male (52%) respondents took part. Only 2% of respondents selected “other”.

Table 3

Distribution of respondents based on the gender

Gender	Count	Percentage
Female	178	46%
Male	198	52%
Other	7	2%

Source: Compiled by the author based on the SPSS results

In the age category, respondents are distributed in 5 different age categories. More than half respondents (58%) belongs to the age category 25-34 years old, making it the biggest category group in this research. Second biggest age category was 18-24 years old with 29% of respondents. 10% of respondents belonged to the category of 35-44 year old. The questionnaire could have been answered by people under 18 years old, thus, 2% of respondents belongs to this group. Lastly, one respondents belongs to the 45-54 age category, however, percentage wise it represents 0%.

Table 4

Distribution of respondents based on age category

Age category	Count	Percentage
Under 18	9	2%
18-24	112	29%
25-34	223	58%
35-44	38	10%
45-54	1	0%

Source: Compiled by the author based on the SPSS results

Almost half of the respondents indicated having Bachelor's degree (46%). Slightly less respondents indicated that they have Master's degree (27%). Smaller amount of respondents have high school diploma (16%) or professional degree (10%). Only 1% of respondents have Doctorate degree.

Table 5

Distribution of respondents based on education

Education	Count	Percentage
High School Diploma	60	16%
Professional Degree	40	10%
Bachelor's Degree	177	46%
Master's Degree	102	27%
Doctorate Degree	4	1%

Source: Compiled by the author based on the SPSS results

Lastly, respondents were distributed based on the monthly income after taxes. Biggest group of respondents (46%) were earning 1001-2000 eur per month. Slightly more than one fifth of respondents (23%) earns 501-1000 eur. Similar amount of respondents earns 0-500 eur (13%) and 2001-3000 eur (14%). Moreover, 4% of respondents earns 3001 eur and more.

Table 6

Distribution of respondents based on the income

Monthly income	Count	Percentage
0-500 EUR	50	13%

501-1000 EUR	87	23%
1001-2000 EUR	178	46%
2001-3000 EUR	54	14%
3001 EUR and more	14	4%

Source: Compiled by the author based on the SPSS results

We can conclude, that the biggest amount of respondents are both: female and male, of age 25-34 years old who already have Bachelor's or Master's degree and earns between 1001-2000 eur per month. In the theoretical part it was discussed, that although industries tend to focus more on male players, nowadays woman identify themselves as players more commonly (Cote, 2020). Moreover, it was claimed that both women and men tend to play free-to-play online games and our results confirm this statement (Costes and Bonnaire, 2022). In addition, it was stated that people with wealthier social backgrounds are more commonly playing games and purchasing in-game items (Costes and Bonnaire, 2022). This statement could also be confirmed as over 70% of respondents have master's or bachelor's degree.

3.2. Reliability of Scales

In order to check if the collected data is suitable for the regression analysis, factor analysis was conducted. This study used the principal component analysis method with varimax rotation to extract factors from the 47 statements used in the questionnaire. The results of Bartlett's test of sphericity indicated that the correlation matrix was not random, $x2(1035)=14822,298$ $p<0.001$ and the KMO statistic was 0.899, well above the minimum standard for conducting factor analysis. Therefore, it was determined that the correlation matrix was appropriate for the factor analysis. One statement was deleted from the analysis, leaving 46 statements for further distribution among the factors.

The analysis yielded a 12 factor solution. First factor, would have 5 statements (0.835-0.746) related to dedication which is used to measure affective engagement with the game. Second factor would have 4 statements related to perceived usefulness of in-game items (0.907-0.826). Third factor is used for measuring how in-game items support gamer's social relationship in the game and has 4 statements (0.861-0.721). Fourth factor has 4 statements (0.886-0.835) related to perceived enjoyment value of in-game items Factor five has 4 statements (0.854-0.771) related to perceived quality of free-to-play online game. Factor six is used for measuring ease of use of in-game items and has 4

statements (0.858-0.766). Factor number seven has 4 statements (0.810-0.749) used for measuring monetary value of in-game items. Eighth factor consists of 4 statements (0.791-0.724) for analyzing social self-image expression in the game using in-game items. Factor nine will be used for evaluating gamers' habits and consists from 3 statements (0.889-0.823). Factor number 10 has three statements (0.872-0.834) for analyzing purchase intention of in-game items. Factor eleven is related to affective engagement which is measured through enthusiasm. This factor will have 4 statements (0.738-0.659). Last factor is related to social influence and has three statements (0.832-0.797) (see annex nr.3).

Before conducting regression analysis, it was important to measure reliability of each factor to be sure that it is suitable for further analysis. Factor is considered suitable for the analysis if Cronbach alpha is more than 0,6. Results of conducted reliability test (see annex nr.4) for each factor showed that all factors are reliably and suitable for further analysis as the Cronbach alpha was ranging from 0.869 to 0.951.

Table 7

Reliability of constructs

Construct	Number of statements	Cronbach Alpha
Perceived enjoyment	4	0.914
Social self-image expression	4	0.889
Social relationship support	4	0.924
Affective engagement (dedication)	5	0.904
Affective engagement (enthusiasm)	4	0.869
Perceived Quality	4	0.915
Monetary Value	4	0.891
Perceived usefulness	4	0.933
Perceived ease of use	4	0.887
Gaming Habits	3	0.917
Social Influence	3	0.918
Purchase Intention	3	0.951

Source: Compiled by the author based on the SPSS results

The affective engagement will be analyzed through two dimensions – enthusiasm and dedication. Therefore, it was decided to compute both variables into one – Affective engagement. Before computing both variables into one, reliability check was conducted. Hence, total of 11 variables will be used for the regression analysis.

Table 8

Reliability of Affective engagement construct

Construct	Number of statements	Cronbach Alpha
Affective engagement	9	0.899

Source: Compiled by the author based on the SPSS results

3.3. Analysis of the research hypotheses

In order to check the relation between independent and dependent variables, multiple and linear regression will be used together with moderation analysis. The data used for analysis is interval type of data as respondents were evaluating statements using Likeart scale.

For conducting multiple regression, it is important to have sufficient amount of respondents. It is recommended to use the formula suggested by Green (1991) – $N > 50 + 8m$, where m represents the number of predictors. We will analyze the direct impact of 10 independent predictors on the dependent variable, using multiple regression. Thus, we will need to have 130 respondents. The questionnaire was completed by 383 people, hence the number of answers is sufficient for the analysis.

Before starting regression analysis, the test of normality was conducted in order to see if the dependent variable is suitable for the further analysis. Based on the significance of Kolmogorov-Smirnov and Shapiro-Wilk tests, we already see that variable is suitable for the analysis as the significance $p<0,001$. As we have more than 300 respondents, we additionally check for skewness and kurtosis to confirm that variable fits normal distribution curve.

The direct impact of 10 independent variables (enjoyment value of the in-game items, affective engagement with the game, quality value of the game, monetary value of in-game items, social self-image expression in the game, social relationship support in the game, social influence, gaming ghabits, perceived usefulness of in-game items and perceived ease of use of in-game items) on the dependent variable (purchase intention of in-game items) was analyzed using multiple regression analysis (see annex nr.5).

Firstly, the correlation between variables will be checked. It can be observed that all independent variables have correlation with independent variable as the significance value is p<0,001, which is less than 0,05. In addition, the problem of multicollinearity is checked based on the Pearson Correlation. As there is no higher value than 0,8, we do not have a problem of multicollinearity, thus we can proceed with the analysis.

Table 9

Correlation table

	PE	**SSE**	**SR**	**PQ**	**MV**	**Gaming Habits**	**Social Influence**	**Affective engagement**	**PU**	**PEOU**
Purchase Intention	**<0,001**	**<0,001**	**<0,001**	**<0,001**	**<0,001**	**<0,001**	**<0,001**	**<0,001**	**<0,001**	**<0,001**

Source: Compiled by the author based on the SPSS results

Sequentially, we check the significance in ANOVA table to see if the analysis can be proceed. As the significance is p<0,001, which is less than 0,05, analysis can be continued.

Table 10

ANOVA table

ANOVA			
	df	**F**	**Sig.**
Regression	10	28.345	<0,001

Source: Compiled by the author based on the SPSS results

Based on the results of analysis, the value of coefficient of determination (R Square) is accepted as it is equal to $R^2 = 0.432$, which is more than $R^2 < 0.20$. Moreover, based on the Durbin-Watson test, we can confirm that autocorrelation does not exist as the value is equal to 2.20, which is between 1,5 and 2,5: 1,5< 2.20 < 2.50 .

Table 11

Model summary

Model Summary			
	R	**R square**	**Durbin-Watson**
Model	0,658	0,432	2,200

Source: Compiled by the author based on the SPSS results

The impact of independent variables on dependent variables can be observed in the table nr.12. Based on the significance, it can be concluded that Perceived enjoyment of in-game items (P=0.174), social relationship support in the game (p= 0.606), affective engagement with the game (p=0.535) and perceived usefulness of in-game items (p=0.082) has no direct impact on the purchase intention of in-game items as the significance value is higher than 0.05. On the other hand, social self-image expression in the game (p=0.001), monetary value of in-game items (p<0,001), gaming habits (p<0,001), social influence (p<0,001) and perceived ease of use of in-game items (p=0,009) has an impact on purchase intention of in-game items. Although perceived quality of the game (p<0,001) has an impact on purchase intention of in-game items, the relation is negative, unlike it was expected. Moreover, we can confirm that the problem of multicollinearity does not exist as VIF value is lower than 4.

Table 12

Coefficients of regression analysis

	Unstandardized Coefficients		**Standardized Coefficients**			**Collinearity Statistics**	
Model	**Unstandardized B**	**Coefficients std. Error**	**Beta**	**t**	**Sig.**	**Tolerance**	**VIF**
(Constant)	-0.176	0,378		-0,466	0,641		
PE	0,070	0,052	0,061	1.363	0.174	0.762	1.312
SSE	0,211	0,064	0,184	3.291	0.001	0.487	2.055
SR	-0,032	0,062	-0,029	-0.516	0.606	0.487	2.055
PQ	-0,232	0,068	-0,172	-3.392	<0.001	0.592	1.689
MV	0,285	0,060	0,231	4.718	<0.001	0.635	1.575
Habit	0,298	0,049	0,282	6.019	<0.001	0.693	1.44
Social Influence	0,323	0,056	0,290	5.812	<0.001	0.615	1.627
Affective engagement	0,048	0,078	0,035	0.621	0.535	0.488	2.048
PU	-0,082	0,047	-0,077	-1.741	0.082	0.489	1.268
PEOU	0,144	0,055	0,116	2.620	0.009	0.777	1.287

Source: Compiled by the author based on the SPSS results

Although we had 4 influential cases and Cook's Distance was equal to 0,106, after conducting additional analysis, it was confirmed that they do not have any impact on the preciseness of equitation as the value is far from 1 (see annex nr. 6).

To conclude, 6 out of 10 predictors have a direct impact on the intention to purchase in-game items R^2= 0.432, F (10)= 28.345, p<0,001. However, perceived quality value of the game has a negative impact unlike expected (t=-3.392, p<0,001). Thus, 5 out of 10 hypotheses are accepted, whereas 5 hypotheses are rejected.

H1 is rejected. Enjoyment value of in-game items does not have a positive impact on the purchase intention of in-game items (t=1.363, p=0.174).

Hypothesis is rejected because enjoyment value of in-game items does not have an impact on the purchase intention. Previous studies have frequently claimed that gamers are more willing to purchase in-game items if it means that they will experience more positive emotions and joy (Wang et al. 2020). However, some authors did not agree with this statement and claimed the opposite (Hamari et al., 2017). Thus, results of the current study are more similar to the results of the study conducted by Hamari et al. (2017), where the impact of enjoyment was rejected. It can be assumed, that gamers who already enjoy the game, might show less interest in purchasing in-game items and might not see the need for it. Therefore, the hypothesis was not confirmed.

H2 is rejected. Perceived quality value of the game has a negative an impact on the intention to purchase in-game items (t=-3.392, p<0,001).

Although some authors believe that perceived quality value might positively impact the purchase intention of in-game items, the analysis shows the opposite results. According to Winata et al., (2022), quality might impact the purchase intention if the in-game items are perceived as a component increasing the overall quality of the game. However, based on the results of the analysis, perceived quality value has a negative impact on the purchase intention, which means that the more gamers are satisfied with the quality of the game, the less interest in purchasing paid content they show. Couple of previous studies found that gamers are more open to change the game if they are not satisfied with its quality (Winata et al., 2022; Hamari et al., 2020). Hence, it can be assumed, that gamers are less willing to purchase paid content if they are already satisfied with the quality of the game and otherwise they might simply find different the game to play.

H3 is accepted. Perceived ease of use of in-game items has a positive influence on purchase intention of in-game items (t=2,620, p=0,009).

Former studies have found that perceived ease of use is a common factor contributing to the behavioral intentions. It is believed, that people are more willing to conduct certain actions or use systems if they are not requiring too much of effort (Park et al., 2014; Hokroh and Green, 2019; Saber Chtourou and Souiden, 2010). Thus, it is claimed that people show higher tendency for purchase intentions if the payment system and virtual shops are easy to use (Rahmiati and Yuannita, 2019; Zhou et al., 2011). Taking into consideration theoretical data and results of the current study, it can be claimed that people are more motivated and are more willing to purchase in-game items if they are easy to use and would not require a lot of effort.

H4 is rejected. Perceived usefulness of in-game items does not have a positive impact on the purchase intention of in-game items (t=-1.741, p=0.082).

H4 is rejected because perceived usefulness of in-game items does not have a positive impact on the purchase intention of in-game items. Researchers have previously claimed that people are more likely to perceive a system or product useful if it contributes to the performance improvement or goal achievement, thus, it was assumed that in-game items will be perceived useful as they could contribute to the increased performance in-the game (Kim, 2012). Sequentially, it was found that people are more willing to purchase products if they are considered useful (Rahmiati and Yuannita, 2019; Wang et al., 2021). However, the hypothesis was rejected. This could have happened as the current research is focusing on all free-to- play online games rather than one specific genre or game. However, reasons for using in-game items and their function in the game can differ based on the genre. In-game items can be used not only for performance increase in the game but also for decorative reasons. Hence, there is a possibility that gamers would not consider them useful in terms of playing more effectively, thus it was not the reason impacting their intention to purchase in-game items.

H5 is accepted. Monetary value of in-game items has a positive impact on the purchase intention of in-game items (t=4.718, p<0,001).

The impact of the monetary value of in-game items on the purchase intention of in-game items was proved during the empirical research. The hypothesis was developed based on the former researches. Previous studies claimed that gamers are more willing to purchase in-game items if they feel like it would be a good value offer and they would benefit from it, thus, their money would be

spend for a good and logical reason (Teng, 2018; Marder et al., 2019; Hsiao and Chen, 2016). Both – theoretical and practical analyses confirm that monetary value affects the purchase intention of in-game items. Accordingly, when players consider price for in-game items reasonable, they feel more satisfied with the purchase as it means they are not wasting their money and so are more willing to purchase in-game content. These findings are important as it shows the importance of perception of monetary value of in-game items, especially as in-game items are the main profit generator in free-to-play game business model.

H6 is rejected. Social relationship support in the game does not have a positive impact on the purchase intention of in-game items (t=-0,516, p=0.606).

H6 is rejected because the study did not confirm positive impact of the social relationship support in the game on the purchase intention of in-game items. Former studies have previously found that gamers are more likely to purchase in-game items if they would contribute to the growth of their character, which sequentially would impress fellow players and help to increase social bonds or join the community (Wang et al., 2020). However, our research did not prove this statement. It could have happened as previous researches were mainly focusing on games such as MMORPG or MOBA games, where creation of social bonds is very important and could be often achieved through the good performance of their character. Whereas current research was focusing on all subgenres of free-to-play online games, which means some of the respondents could have not considered in-game items as an important attribute for creating social relationships in the game.

H7 is accepted. Social self-image expression in the game has a positive impact on the purchase intention of in-game items (t=3.291, p<0,001).

The empirical research has proved that social self-image expression in the game has a positive impact on the purchase intention of in-game items. According to the theory, gamers often wish to express themselves and create their own unique character in the game (Kordyaka et al., 2017; Cai et al., 2019). It is believed that in-game items is one of the main attributes contributing to the self-expression or differentiation, thus, gamers are more likely to have higher intentions to purchase them (Cai et al., 2019). Although previous researches analyzing social factors were mostly focusing on such games as virtual words, current research has also confirmed previous findings and proved that social self-image expression in the game motivates players to purchase paid items regardless the exact game genre. It can be assumed, that players who believe that using in-game items would improve

their self-image and improve the perception of other players about their character, would be more willing to buy in-game items, especially decorative ones.

H8 is accepted. Social Influence has a direct impact on the purchase intention of in-game items (t=5.812, p<0,001).

The research has confirmed theory claiming that social influence has an impact on the purchase intention of in-game items (Sambe and Haryanto, 2021). Previous studies have found that social influence has a strong impact on behavioral intentions, especially if completed actions would cause certain reactions of friends or families (Hsu and Lin, 2016). When it comes to gaming environments, researchers had different opinions about the impact of social influence on purchase intentions as some researchers believe that social influence could cause the opposite reaction and decrease the intention to buy in-game items (Guo et al., 2022). Moreover, some researches claimed that the perception and impact of social influence might differ among different game genres depending on the level of social interaction in the game (Guo et al., 2022; Firdaus and Rahadi, 2021). Therefore, findings of these research are important as the study covers different genres under the free-to-play games. It can be assumed, that social influence has stronger impact in the games with more social interaction and when people create social bonds in the game. Thus, opinion of the fellow players and game friends becomes important for the gamer and consecutively increases intention to purchase in-game items, if they are recommended by other players.

H9 is accepted. Gaming Habits have a positive impact on the purchase intention of in-game items (t=6.019, p<0,001).

The empirical research has proved the theoretical assumptions on the impact of gaming habits on the purchase intention of in-game items. Gaming habits refer to the actions that are performed automatically in the game because people become used to perform certain actions frequently. Previous researchers analyzed the relationship between two mentioned factors and found that gamers are more likely to purchase in-game items if they become heavy players and spenders (Hamari, 2015; Cai et al., 2019; Cheung et al., 2015; Bae et al., 2019) We can assume, that if people spend more time playing and trying to achieve goals, more likely they will be interested to purchase in-game items in order to complete tasks faster and easier. If these actions will be repeated frequently, person will develop gaming habits which will trigger further purchase intentions as these actions will be considered a norm.

H10 is rejected. Affective engagement with the game does not have a positive impact on the intention to buy in game items (t=0.621, p=5.35).

H10 has been rejected as the affective engagement appeared not to have a direct impact on the purchase intention of in-game items. Previous studies have claimed that players who develop feeling of engagement with the game are more open to purchase in-game items (Cheung et al., 2015). It is especially the case if in-game items are used for completing missions and goals in the game, as people feel more engaged with the game when they succeed (Yoo, 2015; Cheung et al., 2015). However, our research has not confirmed this statement. The research results have shown that people who feel engaged with the game through dedication and enthusiasm are not necessarily interested in purchasing paid content. We can assume, that players can enjoy the game and spend a lot of time playing and achieving goals without the help of in-game items. In addition, gamers might feel more satisfied when they complete the goals themselves.

To confirm the results, regression analysis is repeated (see annex nr.7) using only predictors that appeared to have a direct impact (positive and negative) on the dependent variable. Firstly, the ANOVA table is checked for significance. As p<0,001, the analysis can be conducted. R^2= 0.424, which means that predictors can explain 42% of the dependent variable and is still sufficient for the study (R^2>0.2).

Table 13

Summary of regression analysis

Summary				
	R Square	**Df**	**F**	**Sig.**
Regression	0,424	6	46,186	<0,001

Source: Compiled by the author based on the SPSS results

The significance of all 6 predictors is less than 0.05, which means that all of them have an impact on the intention to purchase in-game items. Moreover, the value of VIF is less than 4, which means there is no multicollinearity. Although we still have 3 influential cases, they do not have an impact on the preciseness of the equitation.

Table 14

Coefficients

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model	**Unstandardized B**	**Coefficients std. Error**	**Beta**	**t**	**Sig.**	**Tolerance**	**VIF**
(Constant)	-0.95	0,340		-0,279	0,780		
SSE	0,211	0,053	0,193	4.186	<0.001	0.719	1.391
PQ	-0,202	0,060	-0,150	-3.343	<0.001	0.762	1.313
MV	0,259	0,057	0,210	4.497	<0.001	0.702	1.424
Habit	0,314	0,044	0,298	7.209	<0.001	0.898	1.114
Social Influence	0,311	0,053	0,279	5.859	<0.001	0.675	1.481
PEOU	0,122	0,054	0,099	2.281	0.023	0.817	1.223

Source: Compiled by the author based on the SPSS results

Therefore, the final equitation is made: PI = -0.095 +0.221*SSE+ (-0.202)*PQ + 0.259 * MV + 0.314*Habit + 0.311*SI + 0.122*PEOU

Moderation analysis was conducted using PROCESS for SPSS to determine whether the affective engagement strengthens the relation between perceived enjoyment value of in-game items and the purchase intention of in-game items. Coefficient of determination is $R^2 = 0.1418$ while the significance of ANOVA test is p=0,0000 (see annex nr. 8).

Table 15

Model Summary of Moderation analysis

Model Summary						
R	**R square**	**MSE**	**F**	**df1**	**df2**	**p**
0.3766	0.1418	2.4828	20.8782	3.0000	379.0000	0,0000

Source: Compiled by the author based on the SPSS results

The Int_1 (multiply values of enjoyment and affective engagement) is p=0.3962, which is more than 0,05. Hence, there is no moderating effect between the variables. **H11 is rejected**. **The relationship between the enjoyment value of in-game items and the purchase intention of in-game items will not be impacted by increasing affective engagement with the game (t=0.8494, p=0.3962).**

Table 16

Moderation analysis results

	Coeff	Se	t	p	LLCI	ULCI
Constant	3.8762	0.0822	47.1518	0.0000	3.7146	4.0379
PE	0.2096	0.0566	3.7054	0.0002	0.0984	0.3208
Engagement	0.4007	0.0683	5.8636	0.0000	0.2663	0.5350
Int_1	0.0327	0.0385	0.8494	0.3962	-0.0430	0.1085

Source: Compiled by the author based on the SPSS results

The relationship between enjoyment value of in-game items and the purchase intention of in-game items is not affected by the increasing affective engagement with the game. It was assumed that people who are enjoying the game will be more willing to purchase in-game items as it would increase their satisfaction, joy and over-all positive emotions in the game even more (Cheung et al., 2015; Sambe and Haryanto, 2021, Yoo, 2015). As people who are more happy with the game tend to develop engagement feeling with the game, it was assumed that feeling of engagement will make the relation between both factors stronger. However, the relation was not confirmed. It can be assumed, that affective engagement does not affect the relation because players who are happy with the game, are not showing interest in purchasing in-game items. Even though enjoyment makes the feeling of engagement stronger, players might not necessarily feel a need to purchase in-game items.

Linear regression analysis was used in order to analyse 7 remaining hypotheses.

Regression analysis was used to analyze impact of the perceived quality value of the game on the perceived ease of in-game items (see annex nr.9). Firstly, it can be claimed that relation does exist as significance value is p<0,001.

Table 17

ANOVA table

Anova			
	df	**F**	**Sig.**
Regression	1	57,316	<0,001

Source: Compiled by the author based on the SPSS results

The coefficient of determination is R^2=0,131, thus the impact exist but is very low. It can also be observed that there is no problem of multicollinearity as VIF is lower than 4. Although there is one

influential case, it does not have an impact as Cook's distance is 0.095 which is less than 1. Thus, it can be claimed that **H12 is accepted. R^2 = 0,131, F(1) = 57,316, p<0,001. Quality value of the game (t=7.571, p<0,001) positively affects the perceived ease of use of in game items.**

Table 18

Coefficients

	Unstandardized Coefficients		**Standardized Coefficients**			**Collinearity Statistics**	
Model	**Unstandardized B**	**Coefficients std. Error**	**Beta**	**t**	**Sig.**	**Tolerance**	**VIF**
(Constant)	3.370	0,252		13,381	<0.001		
PQ	0,394	0,052	0,362	7,571	<0.001	1.000	1.000

Source: Compiled by the author based on the SPSS results

It was proved that perceived quality value of the game has an impact on the perceived ease of use of in-game items. Previous scientists have mentioned the possible connection between two factors, as game of the higher quality tend to offer more user friendly and understandable qualities of the game, such as game interface or the shop of virtual items (Mäntymäki and Salo, 2013; Rahmiati and Yuannita, 2019). At the same time, understandable properties of the game that are working properly, might also contribute to the overall perception of ease of use. Therefore, it was assumed that perception of the quality of the game might positively impact perceived ease of use of in-game items. Hence, it was important to see and confirm the actual connection between perceived quality value of the game and ease of use of the in-game items.

The relation between perceived quality value of the game and perceived usefulness of in-game items was analyzed using linear regression analysis (see annex nr.10). Significance value is p<0,001, hence, analysis can be conducted (p<0,05). Significance of ANOVA is also p=0,002 which means there is an impact.

Table 19

ANOVA table

Anova			
	df	**F**	**Sig.**
Regression	1	10,114	0,002

Source: Compiled by the author based on the SPSS results

However, the coefficient of determination is $R^2 = 0.026$, which means predictor can explain only 2% of dependent variable. Thus, the impact is very low. Multicollinearity does not exist as VIF<4. Nevertheless, the **H13 is accepted . R^2 = 0,026, F(1)=10,114 p =0.002. Quality value of the game has a positive impact on perceived usefulness of in-game items (t=3.180, p=0.002)**.

Table 20

Coefficients

	Unstandardized Coefficients		**Standardized Coefficients**			**Collinearity Statistics**	
Model	**Unstandardized B**	**Coefficients std. Error**	**Beta**	**t**	**Sig.**	**Tolerance**	**VIF**
(Constant)	3.381	0,309		10,932	<0.001		
PQ	0,203	0,064	0,161	3,180	0.002	1.000	1.000

Source: Compiled by the author based on the SPSS results

The results of the analysis have confirmed, that perceived quality value of the game has a positive impact on the perceived usefulness of in-game items. According to the study conducted by Wang et al. (2016), it was expected that perceived quality value is a predictor of the perceived usefulness. However, the results of current study are important as previous studies were focusing on perceived usefulness as a mediating variable between perceived quality and behavioral intentions, such as intention to use the system (Wang et al., 2016). On the other hand, current study confirmed that perceived quality value has a direct impact on the perceived usefulness and it can be assumed that gamers perceive in-game items more useful if the quality of the game is higher. However, it is important to mention that the impact appeared really low, thus, the impact could also be negative.

The relation between perceived ease of use of in-game items and perceived usefulness of in-game items was analyzed using linear regression analysis (see annex nr.11). Significance value is p<0,001, hence, analysis can be conducted (p<0,05). Significance of ANOVA is also p<0,001 which means there is an impact.

Table 21

ANOVA table

Anova			
	df	**F**	**Sig.**
Regression	1	34.341	<0,001

Source: Compiled by the author based on the SPSS results

However, the coefficient of determination is $R^2 = 0.083$, which means predictor can explain only 8% of dependent variable. Thus, the impact is very low. Multicollinearity does not exist as VIF<4. **Nevertheless, the hypothesis H14 is accepted. R^2=0.083, F(1)=34.341 p<0,001. Perceived ease of use of in-game items positively affects perceived usefulness of in-game items (t=5.860, p<0,001)**

Table 22

Coefficients of the analysis

	Unstandardized Coefficients		**Standardized Coefficients**			**Collinearity Statistics**	
Model	**Unstandardized B**	**Coefficients std. Error**	**Beta**	**t**	**Sig.**	**Tolerance**	**VIF**
(Constant)	2.593	0,307		8,454	<0.001		
PEOU	0.334	0,057	0,288	5,860	<0.001	1.000	1.000

Source: Compiled by the author based on the SPSS results

H14 is confirmed proving the positive relation between perceived ease of use of in-game items and perceived usefulness of in-game items. Perceived ease of use and perceived usefulness are main factors from TAM model and the relation between two factors was broadly analyzed and proved. However, the results of current study are important finding as previous studies were not focusing on the usage of in-game items in free-to-play online games. Previous studies claim that players might consider in-game items as more useful if the usage of them is simple and does not require a lot of effort (Tokel and İsler, 2013). Therefore, it can be assumed that the easier it is to apply in-game items and use in the game, the more useful gamers will consider them and will more likely feel as they are improving their gaming performance. Thus, conducted empirical research confirms findings of previous studies that perceived ease of use influences perceived usefulness, however, the impact is relatively low.

Regression analysis was used to analyze the relation between two dimensions of social value – social relationship support in the game and social self-image expression in the game (see annex nr.12). According to the results of the analysis, social relationship support has an impact on the social self-image expression as the significance is p<0,001, which is lower than 0,05.

Table 23

ANOVA table

Anova			
	df	**F**	**Sig.**
Regression	1	227.525	<0,001

Source: Compiled by the author based on the SPSS results

Coefficient of determination is more than 0.2, thus is it accepted (R^2= 0.374). Lastly, influential cases does not have an impact as the Cook's distance is less than 1 (0.073). Moreover, multicollinearity does not exist as VIF<4. Thus, **H15 is accepted. R^2=0.374, F(1)=227.525 p<0.001. Social relationship support in the game is positively related to the social self-image expression in the game (t= 15.084, p<001).**

Table 24

Coefficients of the analysis

	Unstandardized Coefficients		**Standardized Coefficients**			**Collinearity Statistics**	
Model	**Unstandardized B**	**Coefficients std. Error**	**Beta**	**t**	**Sig.**	**Tolerance**	**VIF**
(Constant)	1.998	0,146		13.650	<0.001		
SR	0.590	0,039	0,611	15,084	<0.001	1.000	1.000

Source: Compiled by the author based on the SPSS results

Empirical research has confirmed that social relationship support in the game has a significant impact on the social self-image expression in the game. According to studies conducted by Marder et al. (2019) and Kordyaka (2017), players, who want to belong to create friendships in the game or belong to certain gaming community, are more likely to develop and improve their in-game character in a way that it pleases other players. Such actions would lead to the acceptance by others and meeting norms of certain gaming communities. It can be assumed that social relationship support is an important predictor of self-image expression as often games have number of different communities and in-game groups that might differ one from another. In order to be accepted to their preferred community, players would be more likely to create their avatar/character in a way that is considered suitable for that community. It would also make it easier to gain respect and acceptance of other

players in the game. Thus, it can be claimed that players who want to belong to the community or be positively perceived by other players, are more likely to improve their self-expression.

Regression analysis was used to study the relation between social influence and social self-image expression in the game (see annex nr.13). According to the results of the analysis, social influence has an impact on the social self-image expression as the significance is p<0,001, which is lower than 0,05.

Table 25

ANOVA table

Anova			
	df	**F**	**Sig.**
Regression	1	111,486	<0.001

Source: Compiled by the author based on the SPSS results

Coefficient of determination is more than 0.2, thus is it accepted (R^2= 0.226). Lastly, influential cases does not have an impact as the Cook's distance is less than 1 (0.051). Moreover, multicollinearity does not exist as VIF<4. Thus, **H16 is accepted. R^2=0,226, F(1)=111,486 p<0,001. Social Influence is closely related to the social self-image expression in the game (t=10.559, p<0,001)**

Table 26

Coefficients of the analysis

	Unstandardized Coefficients		**Standardized Coefficients**			**Collinearity Statistics**	
Model	**Unstandardized B**	**Coefficients std. Error**	**Beta**	**t**	**Sig.**	**Tolerance**	**VIF**
(Constant)	2.395	0,167		14,342	<0.001		
PQ	0,463	0,044	0,476	10,559	<0.001	1.000	1.000

Source: Compiled by the author based on the SPSS results

H16 is accepted as empirical research has confirmed that social influence has an impact on the social self-image expression in the game. In general, social influence is frequently expected to have an impact on human's behavioral intentions, especially when it comes to larger communities (Guo, 2011). Thus, it was assumed that social influence will be an important predictor of social self-

image expression in the content of games, as well. Similarly to social relationship support, social influence impacts players' needs to comply with the social norms of the game and be accepted by gaming communities. Hence, gamers feel urge and pressure from the community for creating socially acceptable character or character which will be admired due to its' uniqueness (Kordyaka and Hribersek, 2019). Thus, the results of empirical research have proved theoretical speculations on the relation between social influence and social self-image expression in the game.

The impact of the enjoyment value of in-game items on the affective engagement with the game was analyzed using linear regression analysis (see annex nr.14). According to the results of the analysis, perceived enjoyment has an impact on the affective engagement with the game as the significance is p<0,001, which is lower than 0,05.

Table 27

ANOVA table

Anova			
	df	**F**	**Sig.**
Regression	1	23.620	<0,001

Source: Compiled by the author based on the SPSS results

However, the coefficient of determination is low (R^2 = 0.058). Thus, predictor can explain only 6% of the dependent variable. Multicollinearity does not exist as VIF<4. In addition, there is only one influential case and it does not have an impact as the Cook's distance is less than 1 (0.054). Nevertheless, **H17 is accepted. R^2 = 0.058 F(1)=23.620 p<0,001. Enjoyment value of in-game items is positively related to the affective engagement with the game (t=4.860, p<0,001).**

Table 28

Coefficients of the analysis

	Unstandardized Coefficients		**Standardized Coefficients**			**Collinearity Statistics**	
Model	**Unstandardized B**	**Coefficients std. Error**	**Beta**	**t**	**Sig.**	**Tolerance**	**VIF**
(Constant)	3.398	0,212		16,041	<0.001		
PE	0,200	0,041	0,242	4,860	<0.001	1.000	1.000

Source: Compiled by the author based on the SPSS results

H17 is accepted because research has proved that enjoyment value of in-game items is positively related to the affective engagement with the game. It is stated, that players are more likely to feel engaged with the game if they experience positive emotions and joy while playing (Sambe and Haryanto, 2021; Stetina et al., 2011), Moreover, gamers spend more time playing and achieving their in-game goals as achievements positively affect enjoyment of the game, sequentially increasing the engagement with the game (Cheung et al., 2015; Sambe and Haryanto, 2021). It can be assumed, that players who are using in-game items are likely to enjoy the game process more because in-game items are likely to improve their performance in the game and help to achieve game goals faster. Thus, gamers would feel more joyful and more enthusiastic to play, sequentially wanting to spend more time playing and achieving their goals. Hence, empirical research and theory have found the significant relation between enjoyment value of in-game items and affective engagement with the game.

Regression analysis was used to analyze the relation between gaming habits and perceived enjoyment of in-game items (see annex nr.15). The hypothesis was immediately rejected as the significance value is p=0.211, which is more than 0.05. Thus, gaming habits do not have any impact on the perceived enjoyment of the in-game items. **H18 is rejected. R^2=0,004 F(1)=1.567 p=0,211. Gaming habits have a positive impact on the enjoyment value of in-game items (t=1.252, p=0.211).**

Table 29

ANOVA table

Anova			
	df	**F**	**Sig.**
Regression	1	1.567	0.211

Source: Compiled by the author based on the SPSS results

The study has not proved that gaming habits have a positive impact on the enjoyment value of in-game items. Previously, it was theoretically analyzed and stated, that gamers who develop gaming habits by playing regularly and in general, spending a great amount of time in the game, are more likely to achieve gaming goals, which sequentially increase enjoyment value (Bae et al., 2019; Cai et al., 2019). However, the empirical research did not find a significant relation between gaming habits and enjoyment. It can be assumed, that as habits might vary in terms of playing time, money expenditure or genres of games that are played, developed habits might differ and not all of them

might increase joy of playing. For example, we can assume that people who develop a habit to spend big amount of money for in-game items, in the end might not enjoy them as much.

In total, conducted data analysis confirmed 11 hypotheses (H3, H5, H7, H8, H9, H12, H13, H14, H15, H16, H17) and rejected 7 hypotheses (H1, H2, H4, H6, H10, H11, H18).

Table 30

Table of confirmed and declined hypotheses

Hypotheses	Results
H1: *Enjoyment value of in-game items has a positive impact on the purchase intention of in-game items*	**Rejected**
H2: *Perceived quality value of the game has a direct positive on the intention to purchase in-game items*	**Rejected**
H3: *Perceived ease of use of in-game items is expected to have a positive influence on purchase intention of in-game items*	**Accepted**
H4: *Perceived usefulness of in-game items has a positive impact on the purchase intention of in-game items*	**Rejected**
H5: *Monetary value of in-game items has a positive impact on the purchase intention of in-game items*	**Accepted**
H6: *Social relationship support in the game has a positive impact on the purchase intention of in-game items*	**Rejected**
H7: *Social self-image expression in the game has a positive impact on the purchase intention of in-game items*	**Accepted**
H8: *Social Influence has a direct impact on the purchase intention of in-game items*	**Accepted**
H9: *Gaming Habits have a positive impact on the purchase intention of in-game items*	**Accepted**
H10: *Affective engagement with the game has a direct impact on the purchase intention of in-game items*	**Rejected**
H11: *The relationship between the enjoyment value of in-game items and the purchase intention of in-game items will be stronger with increasing affective engagement with the game*	**Rejected**

H12: *Perceived quality value of the game has an influence on the perceived ease of use of in-game items*	**Accepted**
H13: *Perceived quality value of the game has a positive impact on the perceived usefulness of in-game items*	**Accepted**
H14: *Perceived ease of use of in-game items positively affects perceived usefulness of in-game items*	**Accepted**
H15: *Social relationship support in the game is positively related to the social self-image expression in the game*	**Accepted**
H16: *Social Influence is closely related to the social self-image expression in the game*	**Accepted**
H17: *Enjoyment value of in-game items is positively related to the affective engagement with the game*	**Accepted**
H18: *Gaming habits have a positive impact on the enjoyment value of in-game items*	**Rejected**

Source: Compiled by the author based on the SPSS results

To conclude, it was found that perceived ease of use of in-game items, monetary value of in-game items, social self-image expression in the game, social influence and gaming habits have an impact on the intention to purchase in-game items. On the other hand, perceived enjoyment of the in-game items, perceived quality value of the game, perceived usefulness of in-game items, social relationship support in the game and affective engagement with the game, unlike expected, do not have direct positive impact on the purchase intention. It was also found that perceived quality of the game has an impact on the perceived ease of use and perceived usefulness of in-game items. At the same time, perceived usefulness of in-game items is also affected by the perceived ease of use. In addition, the research has confirmed that social self-image expression is affected by social relationship support and social influence. Although, enjoyment value of in-game items has an impact on the affective engagement with the game, the affective engagement does not moderate the relation between enjoyment value and purchase intention as it was expected. Lastly, it was found that gaming habits do not have a direct positive impact on the enjoyment value of in-game items. Based on the results, the conclusion can be made on which perceived value factors have an impact on the purchase intention of in-game items, taking in consideration interpersonal and social factors, such as habits, social influence and engagement.

CONCLUSIONS AND RECOMMENDATIONS

To conclude, gaming industry is constantly evolving and businesses need to find a way to generate revenue from the free-to-play online games (Hamari, 2015). One of the main revenue generators in free to-play games are virtual in-game items, thus it is important to understand how to motivate players to purchase them and how the perceived value factors of an online game and other interpersonal and social factors affect the intention to purchase in-game items.

Firstly, based on the observations of prior studies, following general assumptions on the games and in-game items could be made:

1. The companies in the gaming industry shall offer various types of games to captivate more players because gamers have different motives to play online games.

2. It is important to distinguish different genres of games and different types of players in order to select the most suitable ways to motivate gamers to purchase in-game items.

3. Players may purchase various functional/ non-functional in-game items that can be divided based on different qualities (functional; social; emotional) or functions (decorative; increasing performance) (Firdaus and Rahadi, 2021; Sambe and Haryanto, 2021). Moreover, in-game items may differ based on the game genre (Yoo, 2015).

4. It is crucial to identify gamers who are willing to buy in-game items and understand that gamers' purchase behavior may vary based on their demographical aspects (age, gender, social and academic background), and their gaming habits and attitudes (e.g. time spent with a game and playing it, money spent purchasing in-game items) (Cai et al., 2019).

Secondly, after conducting theoretical research on the impact of perceived value factors and other personal and social factors on the intention to purchase in-game items, the conceptual model was developed in order to achieve the aim of the research. It was analyzed how purchase intention of in-game items is impacted by the enjoyment value of in-game items, social value of the game (social self-image expression in the game, social relationship support in the game), perceived quality value of the game, perceived ease of use if in-game items, perceived usefulness of in-game items, monetary value of in-game items, social influence, affective engagement (dedication, enthusiasm) and gaming habits. The relationships among certain independent variables were also analyzed. To test the raised hypotheses, the questionnaire was developed. It was conducted online in English language to achieve

broader audience. The questionnaire consisted of 11 constructs which in total contained 47 questions and was measured using 7-point Likert type scale. A sample size of 351 participants was developed.

The developed questionnaire was completed by 383 people, which is more than initially expected sample size. The respondents were equally divided based on their gender. Moreover, among the respondents, more than half of the respondents belong to the age category of 25-34 years old. In addition, majority of the respondents have bachelor's or master's degree.

The empirical research has confirmed 11 out of 18 hypotheses. Therefore, it can be concluded that not all of the predictors have a direct impact on the intention to purchase in-game items, unlike the expectations that were based on the theoretical implications. Five out of ten independent variables appeared not to have direct positive impact on the purchase intention of in-game items. For example, the impact of the enjoyment value of in-game items was rejected. It is assumed, that players might be less interested in purchasing additional content if they are already enjoying the game. Likewise, the impact of the perceived quality value on the intention to purchase in-game items was not confirmed. The output of the analysis showed the opposite results compared to the expected. It was found, that players are less likely to purchase in-game items if they have a positive perception of the quality of the game. Thus, in order to motivate players to purchase paid content, it is important to find the middle point where players are satisfied with the quality of the game enough to keep playing it, yet would want to purchase additional content. Moreover, the results of the research did not confirm the impact of the perceived usefulness of in-game items, and the influence of the social relationship support in the game on the intention to buy. The usefulness of in-game items and their usage can be perceived differently based on the different game genre. Similarly, the importance of the social relationships could differ based on the genre of the game. While in some games these factors are crucial for the positive gaming experience, in other game genres they can play an unimportant role. Current research was focusing on all free-to-play online games, therefore, there is a possibility that bigger amount of respondents are playing games where in-game items are used for the decorative purposes rather than performance improvement, thus, their usefulness is perceived differently. Likewise, in-game items could have been perceived not as a crucial feature for creating social relationships in the game. Lastly, based on the results of the current research, it was found that affective engagement does not have a positive impact on the intention to purchase in-game items. It can be presumed, that players who spend a lot of time and effort playing the game and achieving the goals of the game might be more interested in completing the task themselves, rather than use the in-game items for that. It could feel more rewarding and motivate to keep playing.

On the other hand, other five of the variables were confirmed to have a direct impact on the purchase intention. It was found that perceived ease of use of in-game items have a direct impact on the purchase intention. It can be presumed that players are more likely to buy in-game items if they are not requiring a lot of mental effort to use. Sequentially, in-game items could help gamers to play faster and more efficiently. The research has also confirmed that monetary value has a direct impact on the purchase intention. It is believed, that players are more willing to purchase in-game items if the price is reasonable and if they considered purchased in-game items as valuable. Moreover, it was confirmed that social self-image expression in the game and social influence has a direct impact on the intention to buy in-game items. Players show higher tendency to purchase in-game items if that would give them a possibility to improve their self-image and differentiate from other players. Players often seek the approval of other players, thus, it might be important for them that in-game items provide an opportunity to improve their character and cause positive reactions of other players. Last but not least, gaming habits were confirmed to have a direct impact on the intention to buy in-game items. It can be assumed, that players develop gaming habits by constantly repeating same actions and if they develop a habit to play fast and efficiently with the help of in-game items, they might develop a habit which will trigger automatic purchases in the future.

Based on the theoretical analysis, relationships between independent variables were expected. The conducted analysis has confirmed the impact of the perceived quality value on the perceived ease of use of and perceived usefulness of in-game items, although, the impact is relatively low. It can be presumed, that games of higher quality offer in-game items that can contribute to the positive game experience and be designed in a way that would not require a lot of effort from the player to use. Subsequently, in-game items would be considered as more useful and also would not be difficult to use. In addition, it was confirmed that perceived ease of use of in-game items has an impact on the perceived usefulness of in-game items. If in-game items are not complicated to purchase or use in the game, gamers might be more willing to use them in order to improve their gaming performance, therefore, they would consider them as more useful. Furthermore, the research has proved the relationship between two dimensions of social value: social self-image expression is strongly affected by social relationship support. It is additionally impacted by social influence. We assume, that players are showing higher willingness to create their character by expressing themselves in order to stand out among other players, or on the contrary, to adjust to the community they belong. Gamers believe that it would help them to create new relationships and strengthen current social bonds among the players. Lastly, based on the results of the empirical research, gaming habits do not have a direct

impact on the enjoyment value of in-game items. It is believed, that gaming habits might differ from person to person or based on the games played. However, not all of the gaming habits are necessary positive and might not bring joy for the player.

The moderation was not confirmed. The affective engagement does not moderate the relation between enjoyment value and purchase intention as it was expected. However, enjoyment value of in-game items has a direct impact on the affective engagement with the game. It can be presumed, that players who are satisfied with the game are more likely to feel enthusiastic about the game as it would fulfil their emotional needs which would contribute to the development of the engagement with the game. On the other hand, it can be assumed that players who already feel engaged with the game are highly likely to be already satisfied with the existing game and do not see the necessity to purchase in-game items.

Research limitations and recommendations for future research. The research had a couple of limitations. Firstly, only a small amount of respondents were older than 35 years old, thus, the results of the research are mainly based on the younger generation. The perception of values might vary between different generations, thus, future researches could be done focusing on older generation in order to see which values have higher impact on purchase intentions.

Moreover, among all of the respondents, only 4% of respondents had an income of 3001 EUR and more. The results might change if more people with higher income participate in the survey, thus, future researches could be done focusing on the group of players with higher incomes.

In addition, the chosen variables can explain only 43% of the purchase intention of in-game items. Thus, further researches could add different variables to the proposed model to see which factors have the most impact on the purchase intention of in-game items. Moreover, the rejected variables, such as enjoyment value of in-game items, social relationship support, perceived quality value and affective engagement could be analyzed additionally taking into consideration one specific subgenre of the game, as the impact of these values might differ in a specific type of game. In addition, the relationships between values that were not certain in this study and showed low impact, could be analyzed further.

Implications for organizations. The research was focusing on the free-to-play online games as a whole rather than specific genre, thus research results are more general, covering all genres under the free-to-play games. Moreover, thesis was not focusing on the specific demographical or

sociographical group of players, hence, the value perception of all groups combined was found. It means, that the conducted research can explain which value factors are considered as more important for the players regardless their location, age category, gender or the type of game they are playing. Although, the impact of certain values on purchase intention might differ from genre to genre, the impact of main confirmed values shall stay similar across different genres. Therefore, game developers for free-to-play business model could use the results of the research for designing the game, virtual shops and in-game items, paying more attention to the values which were confirmed to have an impact on the purchase intention (e.g. perceived ease of use of in-game items, monetary value of in-game items, social self-image expression in the game, social influence and gaming habits). The study could also be applied to explore further results focusing on a specific group of players, depending on the target audience of the company. In addition, it could be explored whether perceived values that were not proved to have an impact on the purchase intention do not show different results while analyzing specific genre of games and it could be further analyzed why they do not have an impact unlike expected.

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SUMMARY IN ENGLISH

THE IMPACT OF FUNCTIONAL, PERSONAL AND SOCIAL VALUES OF THE GAME ON THE PURCHASE INTENTION OF IN-GAME ITEMS

Diana DULKO

Master Thesis

Marketing and integrated communication study programme

Faculty of Economics and Business Administration, Vilnius University

Supervisor Prof. dr. Indrė Radavičienė, Vilnius, 2024

SUMMARY

86 pages, 4 figures, 30 tables, 135 references.

The main purpose of this master thesis is to determine how the perceived functional, personal and social value factors of an online game and other interpersonal and social factors affect the intention to buy in-game items.

The Master thesis consists of the literature analysis, research methodology, empirical research and the results of the study, and conclusions and recommendations.

The literature analysis was conducted based on the prospective research method and consists of six topics: types of online games and their differences; types of virtual in-game items and their value for a player; online gamers typology in free-to-play online games; theoretical models for behavioural analysis, interpersonal and social factors on the intention to purchase in-game items; perceived value factors on the intention to purchase in-game items.

Based on the theoretical findings, the author carried out the research on how the intention to buy in-game items is affected by the perceived value factors of an online game and other interpersonal and social factors. Survey with close-end questions was used to collect the data. In total, 383 responses of gamers were analysed during the research. The results of the research were analysed using SPSS

programme. To confirm the developed hypotheses, the multiple regression, linear regression and moderation analyses were conducted.

In total, 11 out of 18 hypotheses were confirmed. Contrary to the theoretical findings, the research did not confirm that enjoyment value, perceived quality value, perceived usefulness, social relationship support and affective engagement with the game has an impact on the purchase intention. On the other hand, it was proved that perceived ease of use, monetary value, social self-image expression, social influence and gaming habits have an impact on players willingness to purchase in-game items. Moreover, it was concluded that enjoyment value of in-game items has a direct impact on the gamers affective engagement with the game, however, unlike expected, affective engagement does not moderate the relationship between enjoyment value and purchase intention. Although, perceived quality value of the game does not directly impact purchase intention of in-game items, it was found that perceived quality value positively impacts the perceived ease of use and perceived usefulness of in-game items. The connection between two factors of TAM model – perceived ease of use and perceived usefulness was confirmed proving that players find in-game items more useful if they are easy to use. In addition, based on the research findings, it can be concluded that social self-image is impacted by the social relationship support and social influence. Lastly, gaming habits were not proved to have an impact on overall enjoyment value of in-game items.

SUMMARY IN LITHUANIAN

FUNKCINIŲ, ASMENINIŲ IR SOCIALINIŲ INTERNETINIO ŽAIDIMO VERTYBIŲ ĮTAKA KETINIMUI PIRKTI PRIEDUS ŽAIDIMUOSE

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Darbo vadovė Prof. dr. Indrė Radavičienė, Vilnius, 2024

SANTRAUKA

86 puslapiai, 30 lentelių, 4 paveikslėliai, 135 literatūros šaltiniai

Pagrindinis darbo tikslas - nustatyti, kaip suvokiamos funkcinės, asmeninės ir socialinės internetinio žaidimo vertybės ir kiti tarpasmeniniai bei socialiniai veiksniai turi įtakos ketinimui pirkti priedus žaidimuose.

Magistro darbą sudaro literatūros analizė, tyrimo metodika, empirinis tyrimas ir tyrimo rezultatai, išvados ir rekomendacijos.

Literatūros analizė atlikta remiantis perspektyvinio tyrimo metodu ir susideda iš šešių temų: internetinių žaidimų tipai ir jų skirtumai; virtualių žaidimo priedų tipai ir jų vertė žaidėjui; internetinių žaidėjų tipologija nemokamuose internetiniuose žaidimuose; teoriniai elgsenos analizės modeliai; tarpasmeniniai ir socialiniai veiksniai, darantys įtaką ketinimui įsigyti priedus žaidimuose; suvokiamos vertės veiksniai, darantys įtaką ketinimui įsigyti priedus žaidimuose.

Remiantis atlikta teorine analize, buvo sukurtas tyrimo modelis bei iškeltos hipotezės. Duomenims rinkti naudota apklausa su uždaro tipo klausimais. Tyrimui atlikti buvo naudojama apklausos internetu anketa. Tyrimo metu iš viso buvo išanalizuoti 383 žaidėjų atsakymai. Tyrimo rezultatai buvo analizuojami naudojant SPSS programą. Siekiant patvirtinti iškeltas hipotezes, buvo atlikta daugialypės regresijos analizė, tiesinės regresijos analizė ir moderacijos analizė.

Atlikus duomenų analizę, iš viso pasitvirtino 11 iš 18 hipotezių. Priešingai nei nustatyta moksliniuose tyrimuose, aptikta, kad mėgavimosi vertės suvokimas, kokybės vertės suvokimas, naudingumo suvokimas, socialinis santykių palaikymas ir emocinis įsitraukimas į žaidimą neturi įtakos ketinimui pirkti priedus žaidimuose. Kita vertus, tyrimas patvirtino, kad naudojimo paprastumo suvokimas, piniginė vertė, socialinė saviraiška, socialinė įtaka ir įpročiai žaisti turi įtakos žaidėjų norui įsigyti žaidime esančius priedus. Be to, galima daryti išvadą, kad mėgavimosi vertės suvokimas turi tiesioginį poveikį žaidėjų emociniam įsitraukimui į žaidimą, tačiau, priešingai nei tikėtasi, emocinis įsitraukimas nemoderuoja ryšio tarp mėgavimosi vertės suvokimo ir ketinimo pirkti. Nepaisant to, kad žaidimo kokybės vertės suvokimas neturi tiesioginės įtakos ketinimui pirkti, nustatyta, kad kokybės vertės suvokimas teigiamai veikia žaidimo priedų naudojimo paprastumo ir naudingumo suvokimą. Atliktas tyrimas patvirtino ryšį tarp dviejų TAM modelio veiksnių - naudojimo paprastumo suvokimo ir naudingumo suvokimo, įrodant, kad žaidimo priedai žaidėjams yra naudingesni, jei jais lengva naudotis. Taip pat, remiantis tyrimo rezultatais, galima daryti išvadą, kad socialiniai saviraiškai įtakos turi socialinių santykių palaikymas ir socialinė įtaka. Tyrimo metu nustatyta, kad įpročiai žaisti neturi įtakos žaidimo priedų mėgavimosi vertei.

ANNEXES

Annex 1. Constructs of the questionnaire

Variable	Description	Measurement	References
Enjoyment value of in-game items	1. It would be exciting to use in-game items in the game 2. It is fun to use in-game items in the game 3. In-game items make the play of the game interesting 4. In-game items make the play of the game enjoyable	7-point Likert type scale	Wang (2020)
Purchase Intention of in-game items	1. The probability that I will consider buying in-game items from the game in the future is high 2. My willingness to buy an in-game item from the game in the future is high 3. The likelihood of my purchasing an in-game item from the game in the future is high	7-point Likert type scale	Ho and Wu (2012)
Social self-image expression in the game	1. Using the in-game items sold in the game enhances my self-image to others 2. Using the in-game items sold in the game improves my self-expression to others 3. Using the in-game items sold in the game makes a good impression on other people 4. Using the in-game items sold in the game improves the way I am perceived	7-point Likert type scale	Ho and Wu (2012)
Social relationship support in the game	1. Using the in-game items sold in the game better enables me to form interpersonal bonds with others 2. Using the in-game items sold in the game helps me maintain my social relationship with others 3. Using the in-game items sold in the game helps me make new friends 4. Using the in-game items sold in the game enhances my social relationships with others	7-point Likert type scale	Ho and Wu (2012)
Social influence	1. People from the gaming environment who are important to me think that I should use in-game items 2. People from the gaming environment who influence my behavior think that I should use in-game items 3. People from the gaming environment whose opinions that I value prefer that I use in-game items	7-point Likert type scale	Venkatesh et al. (2012)
Gaming habits	1. Playing online game is one of my habits. 2. Playing online game is quite automatic for me. 3. Playing online game is natural to me	7-point Likert type scale	Liao et al. (2020)
Affective engagement (Dedication)	1. The online game inspires me 2. I am enthusiastic about playing online games 3. I am proud of playing online games 4. I find online games full of meaning and purpose 5. I am excited when playing online game	7-point Likert type scale	Abbasi et al. (2020)

Affective engagement (Enthusiasm)	1. I spend a lot of my discretionary time playing online games 2. I am heavily into playing online games 3. I am passionate about playing online games 4. I enjoy spending time playing online games 5. I try to fit playing online games into my schedule	7-point Likert type scale	Abbasi et al. (2020)
Perceived usefulness of in-game items	1. Using in-game items would make the gaming easier 2. Using in-game items would be useful for my gaming 3. Using in-game items would help me to play more quickly 4. Using in-game items would help me to play more efficiently	7-point Likert type scale	Vahdat et al. (2020)
Perceived ease of use of in-game items	1. Using in-game items would be easy for me to learn 2. Using in-game items would not require much mental effort 3. Using in-game items would be simple to do 4. Using in-game items would be easy following the instructions of the game	7-point Likert type scale	Vahdat et al. (2020)
Quality value of the game	1. Free-to-play online game is of good quality 2. Free-to-play online game is well made 3. I believe free-to-play online game works reliably 4. I think free-to-play online game works as I expect it to	7-point Likert type scale	Loa and Berlianto (2022)
Monetary value of in-game items	1. In-game items are reasonably priced 2. In-game items offer value for money 3. In-game items are a good product for the price 4. In-game items are worth more than what they cost	7-point Likert type scale	Wang (2020)

Annex 2. Questionnaire

Questionnaire development

Dear respondent,

I am student of Marketing and Integrated Communication Master's program at Vilnius University. Currently I am conducting a research for my master thesis which is aiming to analyse the impact of perceived value and other factors on the intention to purchase in-game items* in free-to-play online games*. The questionnaire is anonymous and will take approximately 7-10 minutes to complete. The questionnaire is conducted solely for the research purpose and the collected data will be used to present research results of the master thesis, which is a scientific paper.

Thank you for your input in my research!

*Free-to-play online games refers to the games that can be accessed and played free of charge. In-game items are virtual assets that can be purchased in the game, such as clothing, skins that are used for the appearance of the character/avatar, or additional objects for improving skills and performance, such as weapons, cars, maps, or in-game currency.

- Have you played online games at least once over last year?

☐ Yes
☐ No (If the answer is no, you can finish the questionnaire. Thank you for your time!)

1. Please evaluate how the given statements describe your perceived enjoyment value of the in-game items (e.g. skins, consumables, weapons, cars, etc.) usage in the game, where 1 – Strongly disagree, 7 – Strongly agree:

	1 - strongly disagree	2	3	4	5	6	7 – strongly agree
It would be exciting to use in-game items in the game							
It is fun to use in-game items in the game							
In-game items make the play of the game interesting							
In-game items make the play of the game enjoyable							

2. Please evaluate how the given sentences describe your opinion about social self-image expression in the game using in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree:

	1 – strongly disagree	2	3	4	5	6	7 – strongly agree
Using the in-game items sold in the game enhances my self-image to others							

Using the in-game items sold in the game improves my self-expression to others							
Using the in-game items sold in the game makes a good impression on other people							
Using the in-game items sold in the game improves the way I am perceived							

3. Please evaluate how the usage of in-game items (e.g. skins, consumables, weapons, cars, etc.) supports your social relationship in the game, where 1 – Strongly disagree, 7 – Strongly agree:

	1 – strongly disagree	2	3	4	5	6	7 – strongly agree
Using the in-game items sold in the game better enables me to form interpersonal bonds with others							
Using the in-game items sold in the game helps me maintain my social relationship with others							
Using the in-game items sold in the game helps me make new friends							
Using the in-game items sold in the game enhances							

my social relationships with others							

4. Please rate how the given sentences describe your affective engagement (dedication) with a game, where 1 – Strongly disagree, 7 – Strongly agree:

	1 – strongly disagree	2	3	4	5	6	7 – strongly agree
The free-to-play online game inspires me							
I am enthusiastic about playing free-to-play online game							
I am proud of playing free-to-play online game							
I find online game full of meaning and purpose							
I am excited when playing online game							

5. Please rate how the given sentences describe your affective engagement (enthusiasm) with a game, where 1 – Strongly disagree, 7 – Strongly agree:

	1 – strongly disagree	2	3	4	5	6	7 – strongly agree
I spend a lot of my discretionary time playing free-to-play online game							

I am heavily into playing free-to-play online game							
I am passionate about playing free-to-play online game							
I enjoy spending time playing free-to-play online game							
I try to fit playing free-to-play online game into my schedule							

6. Please evaluate, how in your opinion, the given sentences describe the perceived quality of free-to-play game, where 1 – Strongly disagree, 7 – Strongly agree:

	1 – strongly disagree	2	3	4	5	6	7 – strongly agree
Free-to-play online game is of good quality							
Free-to-play online game is well made							
I believe free-to-play online game works reliably							
I think free-to-play online game works as I expect it to							

7. Please evaluate how the given sentences describe the monetary value of in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree:

	1 – strongly disagree	2	3	4	5	6	7 – strongly agree
In-game items are reasonably priced							
In-game items offer value for money							
In-game items are a good product for the price							
In-game items are worth more than what they cost							

8. Please evaluate how the given sentences describe the usefulness of in-game items (e.g. skins, consumables, weapons, cars, etc.) in a game, where 1 – Strongly disagree, 7 – Strongly agree:

	1 – strongly disagree	2	3	4	5	6	7 – strongly agree
Using in-game items would make the game easier							
Using in-game items would be useful for my game							
Using in-game items would help me to play more quickly							
Using in-game items would help me to play more efficiently							

9. Please evaluate how the given statements describe the ease of use of in-game items (e.g. skins, consumables, weapons, cars, etc.) in a game, where 1 – Strongly disagree, 7 – Strongly agree:

	1 – strongly disagree	2	3	4	5	6	7 – strongly agree
Using in-game items would be easy for me to learn							
Using in-game items would not require much mental effort							
Using in-game items would be simple to do							
Using in-game items would be easy following the instructions of the game							

10. We would like to know your gaming habits. Please rate the given sentences, where 1 – Strongly disagree, 7 – Strongly agree:

	1 – strongly disagree	2	3	4	5	6	7 – strongly agree
Playing online game is one of my habits.							
Playing online game is quite automatic for me.							
Playing online game is natural to me							

11. Please evaluate the given sentences on how the social influence impacts your intention to use in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree:

	1 – strongly disagree	2	3	4	5	6	7 – strongly agree
People from the gaming environment who are important to me think that I should use in-game items							
People from the gaming environment who influence my behavior think that I should use in-game items							
People from the gaming environment whose opinions that I value prefer that I use in-game items							

12. Please evaluate your intention to purchase in-game items (e.g. skins, consumables, weapons, cars, etc.) in free-to-play online games, where 1 – Strongly disagree, 7 – Strongly agree:

	1 – strongly disagree	2	3	4	5	6	7 – strongly agree
The probability that I will consider buying in-game items from online game in the future is high							

My willingness to buy an in-game item from online game in the future is high							
The likelihood of my purchasing an in-game item from online game in the future is high							

13. Please choose your gender:

☐ Female
☐ Male
☐ Other

14. Please choose your age:

☐ 18-24
☐ 25-34
☐ 35-44
☐ 44-54
☐ 55-64
☐ 65-74

15. What is your education?

☐ High school graduate
☐ Professional degree
☐ Bachelor's degree
☐ Master's degree
☐ Doctorate degree

16. Which one of the following ranges includes your average monthly income after taxes?

☐ 0-500 Eur
☐ 501-1000 Eur
☐ 1001-2000 Eur
☐ 2001-3000 Eur
☐ 3001 Eur and more

Annex 3. Factor analysis

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,899
Bartlett's Test of Sphericity	Approx. Chi-Square	14822,298
	df	1035
	Sig.	<,001

Communalities

	Initial	Extraction
Please evaluate how the given statements describe your perceived enjoyment value of the in-game items (e.g. skins, consumables, weapons, cars, etc.) usage in the game, where 1 – Strongly disagree, 7 – Strongly agree - It would be exciting to use in-game items in the game	1,000	,799
Please evaluate how the given statements describe your perceived enjoyment value of the in-game items (e.g. skins, consumables, weapons, cars, etc.) usage in the game, where 1 – Strongly disagree, 7 – Strongly agree - It is fun to use in-game items in the game	1,000	,844
Please evaluate how the given statements describe your perceived enjoyment value of the in-game items (e.g. skins, consumables, weapons, cars, etc.) usage in the game, where 1 – Strongly disagree, 7 – Strongly agree - In-game items make the play of the game interesting	1,000	,814
Please evaluate how the given statements describe your perceived enjoyment value of the in-game items (e.g. skins, consumables, weapons, cars, etc.) usage in the game, where 1 – Strongly disagree, 7 – Strongly agree - In-game items make the play of the game enjoyable	1,000	,801
Please evaluate how the given sentences describe your opinion about social self-image expression in the game using in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree - Using the in-game items sold in the game enhances my self-image to others	1,000	,749
Please evaluate how the given sentences describe your opinion about social self-image expression in the game using in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree - Using the in-game items sold in the game improves my self-expression to others	1,000	,729
Please evaluate how the given sentences describe your opinion about social self-image expression in the game using in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree - Using the in-game items sold in the game makes a good impression on other people	1,000	,757
Please evaluate how the given sentences describe your opinion about social self-image expression in the game using in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree - Using the in-game items sold in the game improves the way I am perceived	1,000	,804
Please evaluate how the usage of in-game items (e.g. skins, consumables, weapons, cars, etc.) supports your social relationship in the game, where 1 – Strongly disagree, 7 – Strongly agree: - Using the in-game items sold in the game better enables me to form interpersonal bonds with others	1,000	,736
Please evaluate how the usage of in-game items (e.g. skins, consumables, weapons, cars, etc.) supports your social relationship in the game, where 1 – Strongly disagree, 7 – Strongly agree: - Using the in-game items sold in the game helps me maintain my social relationship with others	1,000	,828

Please evaluate how the usage of in-game items (e.g. skins, consumables, weapons, cars, etc.) supports your social relationship in the game, where 1 – Strongly disagree, 7 – Strongly agree: - Using the in-game items sold in the game helps me make new friends	1,000	,858
Please evaluate how the usage of in-game items (e.g. skins, consumables, weapons, cars, etc.) supports your social relationship in the game, where 1 – Strongly disagree, 7 – Strongly agree: - Using the in-game items sold in the game enhances my social relationships with others	1,000	,887
Please rate how the given sentences describe your affective engagement (dedication) with a game, where 1 – Strongly disagree, 7 – Strongly agree: - The free-to-play online game inspires me	1,000	,722
Please rate how the given sentences describe your affective engagement (dedication) with a game, where 1 – Strongly disagree, 7 – Strongly agree: - I am enthusiastic about playing free-to-play online game	1,000	,777
Please rate how the given sentences describe your affective engagement (dedication) with a game, where 1 – Strongly disagree, 7 – Strongly agree: - I am proud of playing free-to-play online game	1,000	,776
Please rate how the given sentences describe your affective engagement (dedication) with a game, where 1 – Strongly disagree, 7 – Strongly agree: - I find free-to-play online game full of meaning and purpose	1,000	,722

Please rate how the given sentences describe your affective engagement (dedication) with a game, where 1 – Strongly disagree, 7 – Strongly agree: - I am excited when playing free-to-play online game	1,000	,733
Please rate how the given sentences describe your affective engagement (enthusiasm) with a game, where 1 – Strongly disagree, 7 – Strongly agree: - I spend a lot of my discretionary time playing free-to-play online game	1,000	,814
Please rate how the given sentences describe your affective engagement (enthusiasm) with a game, where 1 – Strongly disagree, 7 – Strongly agree: - I am heavily into playing free-to-play online game	1,000	,784
Please rate how the given sentences describe your affective engagement (enthusiasm) with a game, where 1 – Strongly disagree, 7 – Strongly agree: - I enjoy spending time playing free-to-play online game	1,000	,711
Please rate how the given sentences describe your affective engagement (enthusiasm) with a game, where 1 – Strongly disagree, 7 – Strongly agree: - I try to fit playing free-to-play online game into my schedule	1,000	,660
Please evaluate, how in your opinion, the given sentences describe the perceived quality of free-to-play online game, where 1 – Strongly disagree, 7 – Strongly agree: - Free-to-play online game is of good quality	1,000	,844

Please evaluate, how in your opinion, the given sentences describe the perceived quality of free-to-play online game, where 1 – Strongly disagree, 7 – Strongly agree: - Free-to-play online game is well made	1,000	,862
Please evaluate, how in your opinion, the given sentences describe the perceived quality of free-to-play online game, where 1 – Strongly disagree, 7 – Strongly agree: - I believe free-to-play online game works reliably	1,000	,817
Please evaluate, how in your opinion, the given sentences describe the perceived quality of free-to-play online game, where 1 – Strongly disagree, 7 – Strongly agree: - I think free-to-play online game works as I expect it to	1,000	,743
Please evaluate how the given sentences describe the monetary value of in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree: - In-game items are reasonably priced	1,000	,799
Please evaluate how the given sentences describe the monetary value of in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree: - In-game items offer value for money	1,000	,827
Please evaluate how the given sentences describe the monetary value of in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree: - In-game items are a good product for the price	1,000	,836

Please evaluate how the given sentences describe the monetary value of in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree: - In-game items are worth more than what they cost	1,000	,669
Please evaluate how the given sentences describe the usefulness of in-game items (e. g. skins, consumables, weapons, cars, etc.) in a game, where 1 – Strongly disagree, 7 – Strongly agree: - Using in-game items would make the game easier	1,000	,825
Please evaluate how the given sentences describe the usefulness of in-game items (e. g. skins, consumables, weapons, cars, etc.) in a game, where 1 – Strongly disagree, 7 – Strongly agree: - Using in-game items would be useful for my game	1,000	,783
Please evaluate how the given sentences describe the usefulness of in-game items (e. g. skins, consumables, weapons, cars, etc.) in a game, where 1 – Strongly disagree, 7 – Strongly agree: - Using in-game items would help me to play more quickly	1,000	,876
Please evaluate how the given sentences describe the usefulness of in-game items (e. g. skins, consumables, weapons, cars, etc.) in a game, where 1 – Strongly disagree, 7 – Strongly agree: - Using in-game items would help me to play more efficiently	1,000	,886
Please evaluate how the given statements describe the ease of use of in-game items (e.g. skins, consumables, weapons, cars, etc.) in a game, where 1 – Strongly disagree, 7 – Strongly agree: - Using in-game items would be easy for me to learn	1,000	,733

Please evaluate how the given statements describe the ease of use of in-game items (e.g. skins, consumables, weapons, cars, etc.) in a game, where 1 – Strongly disagree, 7 – Strongly agree: - Using in-game items would not require much mental effort	1,000	,767
Please evaluate how the given statements describe the ease of use of in-game items (e.g. skins, consumables, weapons, cars, etc.) in a game, where 1 – Strongly disagree, 7 – Strongly agree: - Using in-game items would be simple to do	1,000	,814
Please evaluate how the given statements describe the ease of use of in-game items (e.g. skins, consumables, weapons, cars, etc.) in a game, where 1 – Strongly disagree, 7 – Strongly agree: - Using in-game items would be easy following the instructions of the game	1,000	,803
We would like to know your gaming habits. Please rate the given sentences, where 1 – Strongly disagree, 7 – Strongly agree: - Playing online game is one of my habits	1,000	,843
We would like to know your gaming habits. Please rate the given sentences, where 1 – Strongly disagree, 7 – Strongly agree: - Playing online game is quite automatic for me	1,000	,867
We would like to know your gaming habits. Please rate the given sentences, where 1 – Strongly disagree, 7 – Strongly agree: - Playing online game is natural to me	1,000	,879
Please evaluate the given sentences on how the social influence impacts your intention to use in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree: - People from the gaming environment who are important to me think that I should use in-game items	1,000	,853
Please evaluate the given sentences on how the social influence impacts your intention to use in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree: - People from the gaming environment who influence my behavior think that I should use in-game items	1,000	,877
Please evaluate the given sentences on how the social influence impacts your intention to use in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree: - People from the gaming environment whose opinions that I value prefer that I use in-game items	1,000	,858
Please evaluate your intention to purchase in-game items (e.g. skins, consumables, weapons, cars, etc.) in free-to-play online games, where 1 – Strongly disagree, 7 – Strongly agree: - The probability that I will consider buying in-game items from online game in the future is high	1,000	,904
Please evaluate your intention to purchase in-game items (e.g. skins, consumables, weapons, cars, etc.) in free-to-play online games, where 1 – Strongly disagree, 7 – Strongly agree: - My willingness to buy an in-game item from online game in the future is high	1,000	,907
Please evaluate your intention to purchase in-game items (e.g.	1,000	,922

Rotated Component Matrix[a]

	Component											
	1	2	3	4	5	6	7	8	9	10	11	12
Affective engagement (dedication) with a game - I am proud of playing free-to-play online game	,835											
Affective engagement (dedication) with a game - I am enthusiastic about playing free-to-play online game	,807											
Affective engagement (dedication) with a game - The free-to-play online game inspires me	,805											
Affective engagement (dedication) with a game - I find free-to-play online game full of meaning and purpose	,799											
Affective engagement (dedication) with a game - I am excited when playing free-to-play online game	,746											
Perceived usefulness of in-game items - Using in-game items would help me to play more quickly		,907										
Perceived usefulness of in-game items - Using in-game items would help me to play more efficiently		,895										
Perceived usefulness of in-game items - Using in-game items would make the game easier		,880										
Perceived usefulness of in-game items - Using in-game items would be useful for my game		,826										
Social relationship in the game - Using the in-game items sold in the game helps me make new friends			,861									
Social relationship in the game - Using the in-game items sold in the game enhances my social relationships with others			,835									

Social relationship in the game - Using the in-game items sold in the game helps me maintain my social relationship with others			,806								
Social relationship in the game - Using the in-game items sold in the game better enables me to form interpersonal bonds with others			,721								
Perceived enjoyment value of the in-game items - It is fun to use in-game items in the game				,886							
Perceived enjoyment value of the in-game items - It would be exciting to use in-game items in the game				,869							
Perceived enjoyment value of the in-game items - In-game items make the play of the game interesting				,838							
Perceived enjoyment value of the in-game items - In-game items make the play of the game enjoyable				,835							
Perceived quality of free-to-play online game - Free-to-play online game is well made					,854						
Perceived quality of free-to-play online game - Free-to-play online game is of good quality					,828						
Perceived quality of free-to-play online game - I believe free-to-play online game works reliably					,820						
Perceived quality of free-to-play online game - I think free-to-play online game works as I expect it to					,771						
Perceived ease of use of in-game items - Using in-game items would be easy following the instructions of the game						,858					
Perceived ease of use of in-game items- Using in-game items would be simple to do						,850					
Perceived ease of use of in-game items - Using in-game items would not require much mental effort						,844					

Perceived ease of use of in-game items - Using in-game items would be easy for me to learn						,766					
Perceived monetary value of in-game items - In-game items are a good product for the price							,810				
Perceived monetary value of in-game items - In-game items offer value for money							,807				
Perceived monetary value of in-game items - In-game items are reasonably priced							,782				
Perceived monetary value of in-game items - In-game items are worth more than what they cost							,749				
Social self-image expression in the game using in-game items - Using the in-game items sold in the game improves the way I am perceived								,791			
Social self-image expression in the game using in-game items - Using the in-game items sold in the game enhances my self-image to others								,757			
Social self-image expression in the game using in-game items - Using the in-game items sold in the game makes a good impression on other people								,751			
Social self-image expression in the game using in-game items - Using the in-game items sold in the game improves my self-expression to others								,724			
Gaming habits - Playing online game is natural to me									,889		
Gaming habits - Playing online game is quite automatic for me									,860		
Gaming habits - Playing online game is one of my habits									,823		
Purchase intention - The likelihood of my purchasing an in-game item from online game in the future is high										,872	

Purchase intention - The probability that I will consider buying in-game items from online game in the future is high									,849		
Purchase intention - My willingness to buy an in-game item from online game in the future is high									,834		
Affective engagement (enthusiasm) with a game - I spend a lot of my discretionary time playing free-to-play online game										,738	
Affective engagement (enthusiasm) with a game - I am heavily into playing free-to-play online game										,729	
Affective engagement (enthusiasm) with a game - I enjoy spending time playing free-to-play online game										,661	
Affective engagement (enthusiasm) with a game - I try to fit playing free-to-play online game into my schedule										,659	
Social influence - People from the gaming environment who influence my behavior think that I should use in-game items											,832
Social influence - People from the gaming environment whose opinions that I value prefer that I use in-game items											,804
Social influence - People from the gaming environment who are important to me think that I should use in-game items											,797

Annex 4. Reliability check of the constructs

Reliability check of Enjoyment Value

Case Processing Summary

		N	%
Cases	Valid	383	91,8
	Excluded[a]	34	8,2
	Total	417	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
,914	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Please evaluate how the given statements describe your perceived enjoyment value of the in-game items (e.g. skins, consumables, weapons, cars, etc.) usage in the game, where 1 – Strongly disagree, 7 – Strongly agree - It would be exciting to use in-game items in the game	14,77	20,340	,776	,898
Please evaluate how the given statements describe your perceived enjoyment value of the in-game items (e.g. skins, consumables, weapons, cars, etc.) usage in the game, where 1 – Strongly disagree, 7 – Strongly agree - It is fun to use in-game items in the game	14,68	20,427	,824	,882
Please evaluate how the given statements describe your perceived enjoyment value of the in-game items (e.g. skins, consumables, weapons, cars, etc.) usage in the game, where 1 – Strongly disagree, 7 – Strongly agree - In-game items make the play of the game interesting	14,95	19,555	,810	,887
Please evaluate how the given statements describe your perceived enjoyment value of the in-game items (e.g. skins, consumables, weapons, cars, etc.) usage in the game, where 1 – Strongly disagree, 7 – Strongly agree - In-game items make the play of the game enjoyable	14,86	19,687	,808	,887

Reliability check of Social Self-expression in the game

Case Processing Summary

		N	%
Cases	Valid	383	91,8
	Excluded[a]	34	8,2
	Total	417	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
,889	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Please evaluate how the given sentences describe your opinion about social self-image expression in the game using in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree - Using the in-game items sold in the game enhances my self-image to others	12,07	19,988	,750	,860
Please evaluate how the given sentences describe your opinion about social self-image expression in the game using in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree - Using the in-game items sold in the game improves my self-expression to others	11,92	20,868	,734	,866
Please evaluate how the given sentences describe your opinion about social self-image expression in the game using in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree - Using the in-game items sold in the game makes a good impression on other people	12,10	20,781	,751	,860
Please evaluate how the given sentences describe your opinion about social self-image expression in the game using in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree - Using the in-game items sold in the game improves the way I am perceived	12,06	19,928	,792	,844

Reliability check of Social Relationship support in the game

Case Processing Summary

		N	%
Cases	Valid	383	91,8
	Excluded[a]	34	8,2
	Total	417	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
,924	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Please evaluate how the usage of in-game items (e.g. skins, consumables, weapons, cars, etc.) supports your social relationship in the game, where 1 – Strongly disagree, 7 – Strongly agree: - Using the in-game items sold in the game better enables me to form interpersonal bonds with others	10,05	23,225	,746	,926
Please evaluate how the usage of in-game items (e.g. skins, consumables, weapons, cars, etc.) supports your social relationship in the game, where 1 – Strongly disagree, 7 – Strongly agree: - Using the in-game items sold in the game helps me maintain my social relationship with others	10,37	21,505	,829	,900
Please evaluate how the usage of in-game items (e.g. skins, consumables, weapons, cars, etc.) supports your social relationship in the game, where 1 – Strongly disagree, 7 – Strongly agree: - Using the in-game items sold in the game helps me make new friends	10,28	20,857	,846	,894
Please evaluate how the usage of in-game items (e.g. skins, consumables, weapons, cars, etc.) supports your social relationship in the game, where 1 – Strongly disagree, 7 – Strongly agree: - Using the in-game items sold in the game enhances my social relationships with others	10,30	21,125	,878	,883

Reliability check of affective engagement (dedication) with the game

Case Processing Summary

		N	%
Cases	Valid	383	91,8
	Excluded[a]	34	8,2
	Total	417	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
,904	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Please rate how the given sentences describe your affective engagement (dedication) with a game, where 1 – Strongly disagree, 7 – Strongly agree: - The free-to-play online game inspires me	18,24	30,648	,740	,887
Please rate how the given sentences describe your affective engagement (dedication) with a game, where 1 – Strongly disagree, 7 – Strongly agree: - I am enthusiastic about playing free-to-play online game	17,92	30,740	,800	,874
Please rate how the given sentences describe your affective engagement (dedication) with a game, where 1 – Strongly disagree, 7 – Strongly agree: - I am proud of playing free-to-play online game	18,46	29,532	,785	,877
Please rate how the given sentences describe your affective engagement (dedication) with a game, where 1 – Strongly disagree, 7 – Strongly agree: - I find free-to-play online game full of meaning and purpose	18,73	30,613	,733	,888
Please rate how the given sentences describe your affective engagement (dedication) with a game, where 1 – Strongly disagree, 7 – Strongly agree: - I am excited when playing free-to-play online game	17,80	31,800	,743	,886

Reliability check of affective engagement (enthusiasm) with the game

Case Processing Summary

		N	%
Cases	Valid	383	91,8
	Excluded[a]	34	8,2
	Total	417	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
,869	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Please rate how the given sentences describe your affective engagement (enthusiasm) with a game, where 1 – Strongly disagree, 7 – Strongly agree: - I spend a lot of my discretionary time playing free-to-play online game	12,66	17,440	,790	,804
Please rate how the given sentences describe your affective engagement (enthusiasm) with a game, where 1 – Strongly disagree, 7 – Strongly agree: - I am heavily into playing free-to-play online game	12,77	18,281	,771	,813
Please rate how the given sentences describe your affective engagement (enthusiasm) with a game, where 1 – Strongly disagree, 7 – Strongly agree: - I enjoy spending time playing free-to-play online game	12,08	20,205	,659	,857
Please rate how the given sentences describe your affective engagement (enthusiasm) with a game, where 1 – Strongly disagree, 7 – Strongly agree: - I try to fit playing free-to-play online game into my schedule	13,04	18,564	,674	,853

Reliability check of the perceived quality of free-to-play online game

Case Processing Summary

		N	%
Cases	Valid	383	91,8
	Excluded[a]	34	8,2
	Total	417	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
,915	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Please evaluate, how in your opinion, the given sentences describe the perceived quality of free-to-play online game, where 1 – Strongly disagree, 7 – Strongly agree: - Free-to-play online game is of good quality	14,03	14,127	,840	,878
Please evaluate, how in your opinion, the given sentences describe the perceived quality of free-to-play online game, where 1 – Strongly disagree, 7 – Strongly agree: - Free-to-play online game is well made	14,03	14,476	,852	,874
Please evaluate, how in your opinion, the given sentences describe the perceived quality of free-to-play online game, where 1 – Strongly disagree, 7 – Strongly agree: - I believe free-to-play online game works reliably	14,15	14,727	,820	,885
Please evaluate, how in your opinion, the given sentences describe the perceived quality of free-to-play online game, where 1 – Strongly disagree, 7 – Strongly agree: - I think free-to-play online game works as I expect it to	13,92	15,301	,717	,921

Reliability check of monetary value of in-game items

Case Processing Summary

		N	%
Cases	Valid	383	91,8
	Excluded[a]	34	8,2
	Total	417	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
,891	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Please evaluate how the given sentences describe the monetary value of in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree: - In-game items are reasonably priced	9,86	17,509	,792	,847
Please evaluate how the given sentences describe the monetary value of in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree: - In-game items offer value for money	9,79	17,187	,815	,838
Please evaluate how the given sentences describe the monetary value of in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree: - In-game items are a good product for the price	9,94	17,703	,817	,839
Please evaluate how the given sentences describe the monetary value of in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree: - In-game items are worth more than what they cost	10,43	18,267	,631	,910

Reliability check of the usefulness of in-game items

Case Processing Summary

		N	%
Cases	Valid	383	91,8
	Excluded[a]	34	8,2
	Total	417	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
,933	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Please evaluate how the given sentences describe the usefulness of in-game items (e.g. skins, consumables, weapons, cars, etc.) in a game, where 1 – Strongly disagree, 7 – Strongly agree: - Using in-game items would make the game easier	12,97	23,256	,819	,921
Please evaluate how the given sentences describe the usefulness of in-game items (e.g. skins, consumables, weapons, cars, etc.) in a game, where 1 – Strongly disagree, 7 – Strongly agree: - Using in-game items would be useful for my game	12,98	24,384	,790	,929
Please evaluate how the given sentences describe the usefulness of in-game items (e.g. skins, consumables, weapons, cars, etc.) in a game, where 1 – Strongly disagree, 7 – Strongly agree: - Using in-game items would help me to play more quickly	13,03	22,711	,877	,902
Please evaluate how the given sentences describe the usefulness of in-game items (e.g. skins, consumables, weapons, cars, etc.) in a game, where 1 – Strongly disagree, 7 – Strongly agree: - Using in-game items would help me to play more efficiently	13,00	22,602	,886	,898

Reliability check of the ease of use of in-game items

Case Processing Summary

		N	%
Cases	Valid	383	91,8
	Excluded[a]	34	8,2
	Total	417	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
,887	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Please evaluate how the given statements describe the ease of use of in-game items (e.g. skins, consumables, weapons, cars, etc.) in a game, where 1 – Strongly disagree, 7 – Strongly agree: - Using in-game items would be easy for me to learn	15,91	16,818	,711	,876
Please evaluate how the given statements describe the ease of use of in-game items (e.g. skins, consumables, weapons, cars, etc.) in a game, where 1 – Strongly disagree, 7 – Strongly agree: - Using in-game items would not require much mental effort	15,68	17,075	,761	,852
Please evaluate how the given statements describe the ease of use of in-game items (e.g. skins, consumables, weapons, cars, etc.) in a game, where 1 – Strongly disagree, 7 – Strongly agree: - Using in-game items would be simple to do	15,42	18,380	,781	,848
Please evaluate how the given statements describe the ease of use of in-game items (e.g. skins, consumables, weapons, cars, etc.) in a game, where 1 – Strongly disagree, 7 – Strongly agree: - Using in-game items would be easy following the instructions of the game	15,52	17,826	,779	,846

Reliability check of Gaming Habits

Case Processing Summary

		N	%
Cases	Valid	383	91,8
	Excluded[a]	34	8,2
	Total	417	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
,917	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
We would like to know your gaming habits. Please rate the given sentences, where 1 – Strongly disagree, 7 – Strongly agree: - Playing online game is one of my habits	9,13	10,728	,820	,891
We would like to know your gaming habits. Please rate the given sentences, where 1 – Strongly disagree, 7 – Strongly agree: - Playing online game is quite automatic for me	9,42	10,663	,840	,874
We would like to know your gaming habits. Please rate the given sentences, where 1 – Strongly disagree, 7 – Strongly agree: - Playing online game is natural to me	9,28	10,911	,837	,877

Reliability check of Social Influence

Case Processing Summary

		N	%
Cases	Valid	383	91,8
	Excluded[a]	34	8,2
	Total	417	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
,918	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Please evaluate the given sentences on how the social influence impacts your intention to use in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree: - People from the gaming environment who are important to me think that I should use in-game items	7,02	9,686	,831	,885
Please evaluate the given sentences on how the social influence impacts your intention to use in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree: - People from the gaming environment who influence my behavior think that I should use in-game items	7,00	9,555	,841	,876
Please evaluate the given sentences on how the social influence impacts your intention to use in-game items (e.g. skins, consumables, weapons, cars, etc.), where 1 – Strongly disagree, 7 – Strongly agree: - People from the gaming environment whose opinions that I value prefer that I use in-game items	6,96	9,613	,831	,885

Reliability Check of Purchase Intention

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	383	91,8
	Excluded[a]	34	8,2
	Total	417	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
,951	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Please evaluate your intention to purchase in-game items (e.g. skins, consumables, weapons, cars, etc.) in free-to-play online games, where 1 – Strongly disagree, 7 – Strongly agree: - The probability that I will consider buying in-game items from online game in the future is high	7,75	11,709	,891	,934
Please evaluate your intention to purchase in-game items (e.g. skins, consumables, weapons, cars, etc.) in free-to-play online games, where 1 – Strongly disagree, 7 – Strongly agree: - My willingness to buy an in-game item from online game in the future is high	7,84	12,176	,900	,928
Please evaluate your intention to purchase in-game items (e.g. skins, consumables, weapons, cars, etc.) in free-to-play online games, where 1 – Strongly disagree, 7 – Strongly agree: - The likelihood of my purchasing an in-game item from online game in the future is high	7,75	11,399	,903	,925

Annex 5. Multiple regression analysis

Correlations

		PI	PE	SSE	SR	PQ	MV	Habit	SI	Engagem	PU	PEOU
Pearson Correlation	PI	1,000	,250	,431	,371	,156	,420	,374	,494	,331	,180	,273
	PE	,250	1,000	,448	,240	,162	,188	,064	,259	,242	,227	,114
	SSE	,431	,448	1,000	,611	,287	,376	,165	,476	,321	,255	,199
	SR	,371	,240	,611	1,000	,134	,458	,076	,537	,280	,299	,222
	PQ	,156	,162	,287	,134	1,000	,340	,264	,232	,554	,161	,362
	MV	,420	,188	,376	,458	,340	1,000	,110	,462	,326	,363	,269
	Habit	,374	,064	,165	,076	,264	,110	1,000	,133	,522	,068	,243
	SI	,494	,259	,476	,537	,232	,462	,133	1,000	,297	,306	,219
	Engagem	,331	,242	,321	,280	,554	,326	,522	,297	1,000	,195	,276
	PU	,180	,227	,255	,299	,161	,363	,068	,306	,195	1,000	,288
	PEOU	,273	,114	,199	,222	,362	,269	,243	,219	,276	,288	1,000
Sig. (1-tailed)	PI	.	<,001	<,001	<,001	,001	<,001	<,001	<,001	<,001	<,001	<,001
	PE	,000	.	,000	,000	,001	,000	,106	,000	,000	,000	,013
	SSE	,000	,000	.	,000	,000	,000	,001	,000	,000	,000	,000
	SR	,000	,000	,000	.	,004	,000	,068	,000	,000	,000	,000
	PQ	,001	,001	,000	,004	.	,000	,000	,000	,000	,001	,000
	MV	,000	,000	,000	,000	,000	.	,015	,000	,000	,000	,000
	Habit	,000	,106	,001	,068	,000	,015	.	,005	,000	,091	,000
	SI	,000	,000	,000	,000	,000	,000	,005	.	,000	,000	,000
	Engagem	,000	,000	,000	,000	,000	,000	,000	,000	.	,000	,000
	PU	,000	,000	,000	,000	,001	,000	,091	,000	,000	.	,000
	PEOU	,000	,013	,000	,000	,000	,000	,000	,000	,000	,000	.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	474,185	10	47,418	28,345	<,001[b]
	Residual	622,321	372	1,673		
	Total	1096,505	382			

a. Dependent Variable: PI

b. Predictors: (Constant), PEOU, PE, Habit, SR, PU, PQ, MV, SI, Engagem, SSE

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,658[a]	,432	,417	1,29341	2,200

a. Predictors: (Constant), PEOU, PE, Habit, SR, PU, PQ, MV, SI, Engagem, SSE

b. Dependent Variable: PI

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	-,176	,378		-,466	,641		
	PE	,070	,052	,061	1,363	,174	,762	1,312
	SSE	,211	,064	,184	3,291	,001	,487	2,055
	SR	-,032	,062	-,029	-,516	,606	,487	2,055
	PQ	-,232	,068	-,172	-3,392	<,001	,592	1,689
	MV	,285	,060	,231	4,718	<,001	,635	1,575
	Habit	,298	,049	,282	6,019	<,001	,693	1,444
	SI	,323	,056	,290	5,812	<,001	,615	1,627
	Engagem	,048	,078	,035	,621	,535	,488	2,048
	PU	-,082	,047	-,077	-1,741	,082	,789	1,268
	PEOU	,144	,055	,116	2,620	,009	,777	1,287

a. Dependent Variable: PI

Annex 6. Cook's distance test results

Descriptive Statistics

	N	Minimum	Maximum
Cook's Distance	383	,00000	,10581
DFBETA PE	383	-,01367	,01663
DFBETA SSE	383	-,02633	,01656
DFBETA SR	383	-,01863	,03273
DFBETA PQ	383	-,03114	,04146
DFBETA MV	383	-,02809	,02269
DFBETA Habit	383	-,01431	,02379
DFBETA SI	383	-,03270	,02760
DFBETA Engagem	383	-,03333	,02933
DFBETA PU	383	-,01481	,02744
DFBETA PEOU	383	-,02786	,03219
Valid N (listwise)	383		

Annex 7. Repeated multiple regression analysis

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,651[a]	,424	,415	1,29571	2,177

a. Predictors: (Constant), PEOU, SSE, Habit, MV, PQ, SI

b. Dependent Variable: PI

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	465,248	6	77,541	46,186	<,001[b]
	Residual	631,258	376	1,679		
	Total	1096,505	382			

a. Dependent Variable: PI

b. Predictors: (Constant), PEOU, SSE, Habit, MV, PQ, SI

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	-,095	,340		-,279	,780		
	SSE	,221	,053	,193	4,186	<,001	,719	1,391
	PQ	-,202	,060	-,150	-3,343	<,001	,762	1,313
	MV	,259	,057	,210	4,497	<,001	,702	1,424
	Habit	,314	,044	,298	7,209	<,001	,898	1,114
	SI	,311	,053	,279	5,859	<,001	,675	1,481
	PEOU	,122	,054	,099	2,281	,023	,817	1,223

a. Dependent Variable: PI

Descriptives

Descriptive Statistics

	N	Minimum	Maximum
Cook's Distance	383	,00000	,12940
DFBETA SSE	383	-,01834	,01449
DFBETA PQ	383	-,02706	,02134
DFBETA MV	383	-,02441	,02692
DFBETA Habit	383	-,01544	,01508
DFBETA SI	383	-,02605	,02463
DFBETA PEOU	383	-,01879	,03376
Valid N (listwise)	383		

Annex 8. Moderation analysis

```
OUTCOME VARIABLE:
 PI

Model Summary
       R     R-sq      MSE       F      df1      df2        p
    ,3766    ,1418   2,4828  20,8782   3,0000  379,0000    ,0000

Model
          coeff       se        t        p      LLCI      ULCI
constant   3,8762    ,0822  47,1518    ,0000   3,7146   4,0379
PE          ,2096    ,0566   3,7054    ,0002    ,0984    ,3208
Engag       ,4007    ,0683   5,8636    ,0000    ,2663    ,5350
Int_1       ,0327    ,0385    ,8494    ,3962   -,0430    ,1085

Product terms key:
 Int_1   :      PE     x      Engag

Test(s) of highest order unconditional interaction(s):
     R2-chng       F      df1      df2        p
X*W    ,0016    ,7215   1,0000  379,0000    ,3962
----------
   Focal predict: PE      (X)
      Mod var: Engag    (W)

Data for visualizing the conditional effect of the focal predictor:
Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/
  PE       Engag     PI       .
BEGIN DATA.
   -1,4699   -1,2159    3,1396
    ,0000   -1,2159    3,3891
   1,4699   -1,2159    3,6386
  -1,4699    ,0000    3,5682
    ,0000    ,0000   3,8762
   1,4699    ,0000    4,1843
  -1,4699   1,2159    3,9968
    ,0000   1,2159    4,3634
   1,4699   1,2159    4,7299
END DATA.
GRAPH/SCATTERPLOT=
 PE      WITH    PI      BY      Engag    .
```

Annex 9. Regression analysis on the impact of the perceived quality value of the game on the perceived ease of in-game items

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,362[a]	,131	,128	1,27891	1,660

a. Predictors: (Constant), PQ

b. Dependent Variable: PEOU

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	93,747	1	93,747	57,316	<,001[b]
	Residual	623,166	381	1,636		
	Total	716,913	382			

a. Dependent Variable: PEOU

b. Predictors: (Constant), PQ

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3,370	,252		13,381	<,001		
	PQ	,394	,052	,362	7,571	<,001	1,000	1,000

Annex 10. Regression analysis on the relation between perceived quality value of the game and perceived usefulness of in-game items

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,161[a]	,026	,023	1,57066	1,906

a. Predictors: (Constant), PQ

b. Dependent Variable: PU

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24,952	1	24,952	10,114	,002[b]
	Residual	939,914	381	2,467		
	Total	964,866	382			

a. Dependent Variable: PU

b. Predictors: (Constant), PQ

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3,381	,309		10,932	<,001		
	PQ	,203	,064	,161	3,180	,002	1,000	1,000

a. Dependent Variable: PU

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions (Constant)	PQ
1	1	1,966	1,000	,02	,02
	2	,034	7,575	,98	,98

a. Dependent Variable: PU

Annex 11. Regression analysis on the relation between perceived ease of use of in-game items and perceived usefulness of in-game items

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,288[a]	,083	,080	1,52416	1,895

a. Predictors: (Constant), PEOU

b. Dependent Variable: PU

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	79,777	1	79,777	34,341	<,001[b]
	Residual	885,088	381	2,323		
	Total	964,866	382			

a. Dependent Variable: PU

b. Predictors: (Constant), PEOU

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2,593	,307		8,454	<,001		
	PEOU	,334	,057	,288	5,860	<,001	1,000	1,000

a. Dependent Variable: PU

Annex 12. Regression analysis on the relation between social relationship support in the game and social self-image expression in the game

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,611[a]	,374	,372	1,17114	1,974

a. Predictors: (Constant), SR

b. Dependent Variable: SSE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	312,064	1	312,064	227,525	<,001[b]
	Residual	522,564	381	1,372		
	Total	834,629	382			

a. Dependent Variable: SSE

b. Predictors: (Constant), SR

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1,998	,146		13,650	<,001		
	SR	,590	,039	,611	15,084	<,001	1,000	1,000

a. Dependent Variable: SSE

Annex 13. Regression analysis on the relation between social influence and social self-image expression in the game

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,476[a]	,226	,224	1,30182	1,809

a. Predictors: (Constant), SI

b. Dependent Variable: SSE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	188,938	1	188,938	111,486	<,001[b]
	Residual	645,690	381	1,695		
	Total	834,629	382			

a. Dependent Variable: SSE

b. Predictors: (Constant), SI

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2,395	,167		14,342	<,001		
	SI	,463	,044	,476	10,559	<,001	1,000	1,000

Annex 14. Regression analysis on the impact of the enjoyment value of in-game items on the affective engagement with the game

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,242[a]	,058	,056	1,18138	1,943

a. Predictors: (Constant), PE

b. Dependent Variable: Engagem

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	32,966	1	32,966	23,620	<,001[b]
	Residual	531,750	381	1,396		
	Total	564,716	382			

a. Dependent Variable: Engagem

b. Predictors: (Constant), PE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3,398	,212		16,041	<,001		
	PE	,200	,041	,242	4,860	<,001	1,000	1,000

a. Dependent Variable: Engagem

Annex 15. Regression analysis on the relation between gaming habits and perceived enjoyment of in-game items

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,064[a]	,004	,001	1,46880	1,890

a. Predictors: (Constant), Habit

b. Dependent Variable: PE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3,381	1	3,381	1,567	,211[b]
	Residual	821,959	381	2,157		
	Total	825,340	382			

a. Dependent Variable: PE

b. Predictors: (Constant), Habit