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USING EXTENDED TAM FOR ANALYZING ADOPTION DETERMINANTS OF MICROTRANSACTIONS IN MOBILE GAMES AMONG SERBIAN GAMERS

Primena proširenog TAM modela za analizu determinanti
prihvatanja mikrotransakcija u mobilnim video igrama
kod igrača iz Srbije

Abstract

Microtransactions represent payments for purchasing mobile application or additional content in a video game. In contemporary conditions, most video game publishers have opted for microtransactions as a supplementary or even core business model. The market of mobile games is specific for the dominant role of microtransactions as a source of publisher's income. Due to the system differences between mobile phones and computers and gaming consoles, there are certain forms of microtransactions unique to mobile games. The aim of the research is to determine the key determinants that influence the player's decision to pay for microtransactions in mobile games. In this paper, the original TAM was expanded with variables that are specific to the video game adoption, and especially to the use of mobile platforms. The results showed that perceived enjoyment, flow of experience and mobility, that is, the specificity of mobile devices, are significant predictors of players' intention to pay for microtransactions. Also, the social component is an important variable in the model because it appears as a predictor of perceived enjoyment and flow of experience. The intention to use microtransactions has a statistically significant effect on the actual use of microtransactions.

Keywords: *microtransactions, Technology Acceptance Model, mobile games, perceived enjoyment, flow of experience*

Sažetak

Mikrotransakcije označavaju plaćanja prilikom kupovine aplikacije za mobilni telefon ili plaćanja za kupovinu dodatnog sadržaja u video igrama. U savremenim uslovima, većina izdavača video igara se odlučila za mikrotransakcije, kao dopunski ili osnovni poslovni model. Tržište mobilnih video igara specifično je po dominantnoj ulozi mikrotransakcija kao prihoda izdavača. Usled sistemskih razlika mobilnih telefona i računara i igračkih konzola, javljaju se pojedini oblici mikrotransakcija svojstveni samo mobilnim igrama. Cilj sprovedenog istraživanja je utvrđivanje ključnih determinanti koje utiču na odluku igrača o plaćanju mikrotransakcija u mobilnim igrama. Za potrebe rada, osnovni TAM model je proširen varijablama koje su specifične za industriju video igara, a naročito za korišćenje mobilnih platformi. Rezultati istraživanja pokazali su da su percipirano uživanje, tok doživljaja i mobilnost odnosno specifičnost mobilnih uređaja značajni prediktori namere igrača da plaćaju mikrotransakcije. Takođe, socijalna komponenta je značajna varijabla u modelu, jer se javlja kao prediktor percipiranog uživanja i toka doživljaja. Namera korišćenja mikrotransakcija ima statistički značajan uticaj na stvarnu upotrebu mikrotransakcija.

Ključne reči: *mikrotransakcije, TAM model, mobilne video igre, percipirano uživanje, tok događaja*

Introduction

The smartphone market is the most lucrative segment of computer equipment sales, with over 1.3 billion devices sold in 2022 [13]. Early models of mobile phones brought few and simple forms of entertainment applications, which nevertheless gained global popularity. Thus, the game “Snake” dating back to 1997 on Nokia devices became one of the most famous games of its time [4]. In addition to numerous other applications, smartphone operating systems have brought the possibility of developing complex video games. Thus, at the end of the first decade of the 21st century, the third and fastest growing segment of the video game market was created. In 2022, the mobile phone gaming market generated over 92 billion US dollars in revenue, or exactly 50% of the entire industry’s revenue [8]. The specific difference in the gaming experience compared to games for PCs and consoles is due to playing on a portable device and the possibility of performing a larger number of shorter gaming sessions during the day.

Charging a one-time premium price for the purchase of a video game used to be the business model of video game publishers. Such an approach corresponded to the intermediary relationship between publisher and player, which is characteristic of the physical sale of video game through retail gaming equipment chains. Under the influence of the Internet, the business model of video game publishers has changed. The Internet provided the infrastructure for direct distribution of games to players, and it eliminated the necessity of the involvement of intermediaries such as video game distributors [32, p. 151]. It also provided the possibility of online payment, which meant that the purchased games became available instantly. Direct game distribution systems created a more direct relationship between publishers and players, where on the one hand players could more easily send feedback regarding game content, while on the other hand publishers got the opportunity to offer players additional content [31].

Purchasing additional video game content is called microtransaction both in gaming and academic literature. Since the second decade of the 21st century, most publishers have opted for microtransactions, as a supplementary or even core business model. Therefore, microtransactions have

become a heterogeneous category, creating opportunities for different sales models. In popular games that are sold at a premium price, big publishers decide to sell additional content as a means of making extra profit [22, p. 424]. Small and independent development teams cannot reach enough players by selling at a premium price, so they often offer the basic game content for free. In order to make money, they rely solely on some form of microtransactions. Publishers of video games for mobile phones, as a rule, turn to microtransactions due to the partly different gaming experience compared to computer and console video games [41].

The topic of the paper is the adoption factors of microtransactions in video games for mobile phones. The aim of the research is to determine the key determinants that influence the player’s decision to pay for microtransactions in mobile games. The research has been performed on the sample of mobile game players in Serbia. In this paper, the original Technology acceptance model (TAM) was expanded with variables that are specific to the video game adoption, and especially to the use of mobile platforms.

The paper is structured in three logically connected units. In the first part, the concept of microtransactions will be explained with a special focus on those types that are applied in games intended for mobile phones. In the second part, the research methodology will be explained, through the adaptation of the original TAM model. The third part of the paper will present the results of the research.

The business model of microtransactions in the segment of mobile video games

Microtransactions represent payments for purchasing mobile application or additional content in a video game [38]. The original idea was for the player to purchase some extra content at a very low cost. By diversifying the business concept, microtransactions began to denote an increasing number of different forms of in-game payments that in certain situations can be quite high, almost at the level of the premium price of a video game. The notorious example is the game *Dead Space 3* [40]. That’s why it can be said that this category is primarily defined by the purpose and not by the payment amount.

The first microtransactions were designed as a way to monetize mobile phone applications at the end of the first decade of the 21st century. In modern conditions, mobile applications are almost entirely funded by some form of microtransactions. One way is to offer free download of the application and use of its basic contents, while the advanced contents are charged additionally. Another approach is to offer a trial period of using the application, during which the user can familiarize himself with the possibilities, but for long-term use it is necessary to pay a subscription. In the third access, the use of the free version of the application is periodically interrupted by advertisements, so the user must pay a certain amount if he wants to use the clean version [19]. Video games offer additional opportunities for earning through the payment of microtransactions thanks to the specificity of use.

An important aspect of microtransactions is the subscription model, which is especially present in games with a strong multiplayer component [26]. In this way, publishers generate stable income over a long period of time. An alternative approach involves the sale of additional content that modifies the content of the original game (downloadable content - DLC), such as new characters, levels or game mechanics added to the existing ones. The third model includes the sale of visual accessories that do not change the game mechanics but improve the gaming experience through content customization. In gaming terminology, these contents are called *skins* [37]. Loot boxes are also very common form of microtransactions. They represent a mysterious package, which may contain a skin, but also some improvement important for the further progress in the game [45]. Players must make a payment to be able to open the loot box, without knowing its contents in advance.

There are significant differences in the design of video games for computers and game consoles and mobile games. First of all, the difference in screen size determines a different approach to gaming. A smaller screen necessarily means lower visibility, so it is impossible to simply make a computer video game compatible with the operating systems of smart mobile phones. Instead, popular PC and console video games get their own mobile versions, which are often significantly altered from the originals.

Another difference is the gameplay mechanics. Computer and console video games are usually played in long sessions that can last several hours. They are tied to the location of console or computer. Thanks to the performances of mobile devices, mobile games can be played anywhere and anytime. Game sessions are on average significantly shorter, but also much more frequent. That is why there are rarely games that require the player to spend a lot of time continuously.

Due to the aforementioned differences, certain forms of microtransactions specific to mobile games also appear. The first type are energy or stamina refills. Under the pretext of frequent short gaming sessions, publishers often resort to game design that allows the player a limited number of actions over time. This phenomenon is especially common in the variation of strategy games known as MOBA (*multiplayer online battle arena*) or games in which the player leads one hero, who is gradually improved (MMORPG - *massive multiplayer online role playing games*). In order to speed up the construction jobs and training units for the tribe/nation he manages or to increase the number of actions with the hero he leads, the player must make a time-saving purchase or an energy refill. Otherwise, he is condemned to wait for a longer period of time after the allowed moves in order to replenish the scale for new actions. An example is one of the most lucrative mobile games, *Clash of Clans*, in which the player can pay to speed up the construction of buildings in the village [16].

The next type is characteristic of so-called *free-to-play* games, i.e. games where the start of playing is free. By not charging players to download a game and start using it, publishers contract with digital advertisers, allowing them to use a built-in ad serving mechanism. Players are broadcast advertisements at regular intervals, or in cycles after certain segments of the game [1]. Players have the option to remove ads from the video game for a one-time fee, so they can continue playing without interruption [27]. The next type of microtransactions is also characteristic of the same type of games. Namely, the design of the game can be such that it slows down the player's progress after a certain point, requiring more and more time to achieve new goals. Most often, it is not

about tasks that are complicated in themselves, but about monotonous repetition of the same actions, which does not contribute to the gaming experience. A player can use microtransactions to speed up their progress through the game, achieving more than non-paying players in less time and effort. Games designed in this way are called *pay-to-win* games. The problem is that multiplayer games create an imbalance that favors players who spend money. A negative example is *Diablo Immortal*, the first mobile game from the famous Diablo franchise, whose aggressive microtransactions system completely favors players who spend money [9]. This form of microtransactions can also occur in some form in computer video games, when players use microtransactions to buy better equipment and weapons, which gives them an advantage over other players. However, the acceleration of progress through the game is characteristic of mobile games.

Taking into account the previously stated claim, that mobile games are predominantly financed by microtransactions, as well as their presented types, it can be concluded that this segment of the video game market is more burdened by subsequent payments than computer and console games. Therefore, analyzing the factors that influence players to pay for microtransactions in mobile games is of great importance. In the following segment, an overview of previous research and a research model will be formulated.

Research model

Previous research

TAM is the dominant model in the analysis of factors influencing video game play. There are many studies in which a more or less adapted model was used. On this occasion, additional variables are introduced into the model, which are used to more precisely determine the driving factors for certain aspects of video games. By reviewing the literature, it is possible to identify a group of variables that show statistical significance in a large number of studies.

Wang & Goh [44] analyzed more than 50 academic papers on the topic of video games in which the TAM was

applied and concluded that in most of them perceived enjoyment is statistically significant added variable. Chauhan et al. [11] found a statistically significant influence of perceived enjoyment and the social component for the acceptance of mobile games. Linares, Gallego & Bueno [30] proved the statistical significance of perceived enjoyment and the flow of experience in multiplayer mobile games. Kaltum, Rimadina & Zusnita [25] analyzed the factors of the acceptance of mobile games in Indonesia by applying the extended TAM, concluding that in addition to the basic variables, the flow of experience is also statistically significant. Chen et al. [12] concluded, using the example of players from China, that the social component affects perceived enjoyment, which further affects perceived usefulness and the flow of experience. The research by Jiang, Peng & Liu [23] is particularly interesting for three reasons. The first is to use a different name for the pleasure-related variable, calling it perceived entertainment. Another reason is the introduction of the variable financial costs, whose statistical significance confirms the hypothesis that increased expenses associated with a mobile game lead to a decrease in players' willingness to play it. The third reason is the introduction of a variable related to the technical capabilities of mobile phones.

Technology acceptance model

The analysis of predictors of video game acceptance is most often performed using the basic or extended TAM. In the original model defined by Davis [14], the user accepts a new technology based on perceived ease of use and perceived usefulness. Perceived ease of use reflects an individual's belief that he will be able to use a certain technology without mental and physical effort, while perceived usefulness represents the degree to which an individual believes that using a certain technology will improve his work performance [14]. From these two variables comes the behavioral intention to use, based on which the actual use of a certain technology is predicted. Basically, perceived ease of use and perceived usefulness represent cognitive responses of users to certain external factors that initiate the process of accepting a new technology [15].

The conventional TAM has been repeatedly revised, expanded and reduced in order to achieve internal

consistency and validity of the model. The original TAM essentially represents a cause-and-effect link between belief, attitude, intention, and behavior [12]. Namely, in the initial version of the model, perceived ease of use and perceived usefulness form the user's attitude towards the use of a certain technology, which further implies the intention of use. However, some studies contested the mediating influence of attitude between cognitive responses and intention to use, which is why it was excluded from the model in further modifications. Also, in the original model, perceived ease of use appears as a predictor of perceived usefulness, i.e., if a potential user perceives a new technology as easy to use, he is likely to consider it useful, which creates preconditions for its acceptance and possible use. However, subsequent research has shown that perceived ease of use is not a necessary predictor of perceived usefulness [43], [5].

Thanks to its simplicity, the TAM has found application in numerous studies dealing with user acceptance of mobile or video games [21], [30]. It is explained by the theory of planned behavior that assesses the consumer's interest or intention to take a certain action or manifest some behavior [17]. The TAM is constructed to shed light on how and why users adopt new technology, making it suitable for analyzing the factors that precede the purchase of loot boxes or other microtransactions in mobile games. In addition, traditional TAM is focused on extrinsic motivators for participating in microtransactions in video games, which is why it is often enriched with new variables that authors seek to assess the intrinsic factors that motivate players to purchase loot boxes [21]. Thus, the conventional TAM model explains the process of accepting a new technology through the action of extrinsic motivators, such as perceived simplicity and usefulness reflected in better performance. However, mobile games are also influenced by intrinsic motivators, such as social cohesion, social influence or perceived enjoyment.

Model modification

Taking into account the original TAM and previous research, it was concluded that it is necessary to introduce additional variables. The extended model is more capable of capturing all the driving forces that motivate players

to use microtransactions. One of the key changes is the replacement of the model's standard variable, perceived usefulness, with a new variable, perceived enjoyment. The purpose of video games is entertainment, not utility or performance enhancement. This claim is particularly evident in the case of microtransactions because it is difficult to talk about any other kind of benefit other than the feeling of joy. A large number of studies have made an identical substitution [2], [3], [20], [30], [36].

Perceived ease of use. In accordance with the standard TAM model presented earlier, perceived ease of use appears as a predictor of perceived enjoyment and intention to use microtransactions. Lee & Tsai [29], Park et al. [36], and Matute-Vallejo & Melero-Polo [33] proved the positive influence of perceived ease of use on perceived enjoyment and tendency to play online video games. The following research hypotheses were proposed:

- H1:* Perceived ease of use significantly affects perceived enjoyment.
- H2:* Perceived ease of use significantly affects intention to use microtransactions.

Social interaction. Interaction between players is considered one of the key success factors of the video game industry (Martey & Stromer-Galley, 2007). Although there are a significant number of single-player games sold in large numbers whose popularity is timeless, multiplayer games allow for social interaction and have a better predisposition for longevity. One aspect of the social interaction of players is the ability to expand the context of socializing and cooperation outside the world of the video game [28]. Another aspect concerns the increased degree of competitiveness between players, whether it is those who cooperate during the game (say, members of the same clan in multiplayer games), or players who belong to opposing factions. In either case, there is an increased likelihood that the player will resort to microtransactions. Through payment, players can diversify and make themselves unique compared to the mass of other players (cosmetic microtransactions) or gain a competitive advantage over them (purchase of enhancements). The social aspect of gaming enhances the sense of satisfaction from consuming video games [11] and allows players to immerse themselves in the

virtual world [3], [29]. Therefore, the following research hypotheses were proposed:

H3: Social interaction significantly affects perceived enjoyment.

H4: Social interaction significantly affects flow of experience.

Perceived enjoyment. As a product of the entertainment industry, the key to the success of a video game is the sense of enjoyment that its consumption creates in the player. Based on the mentioned forms of microtransactions in the previous chapter, it can be concluded that their existence represents an obstacle or a limiting factor for the full enjoyment of users. Creating a unique player avatar through cosmetic microtransactions, speeding up gameplay through time-saving purchases, or purchasing enhancements for more competitive gameplay can enhance gaming enjoyment for different types of players. There are a number of studies that emphasize the importance of perceived enjoyment in all aspects of video game consumption on the flow of experience and the tendency to play video games [12], [18], [33], [35].

H5: Perceived enjoyment significantly affects flow of experience.

H6: Perceived enjoyment significantly affects intention to use microtransactions.

Flow of experience. When players indulge in the flow of a video game, they can often experience complete immersion in the virtual world [34]. Depending on the degree of their involvement and the depth of immersion, the players detach themselves from the virtual reality more

easily or with difficulty [20]. If by paying microtransactions the player can prolong or deepen the state of immersion, there is a high probability that they will resort to payment. A large number of studies have included this variable identifying its positive influence on the intention to use microtransactions [2], [3], [25], [30].

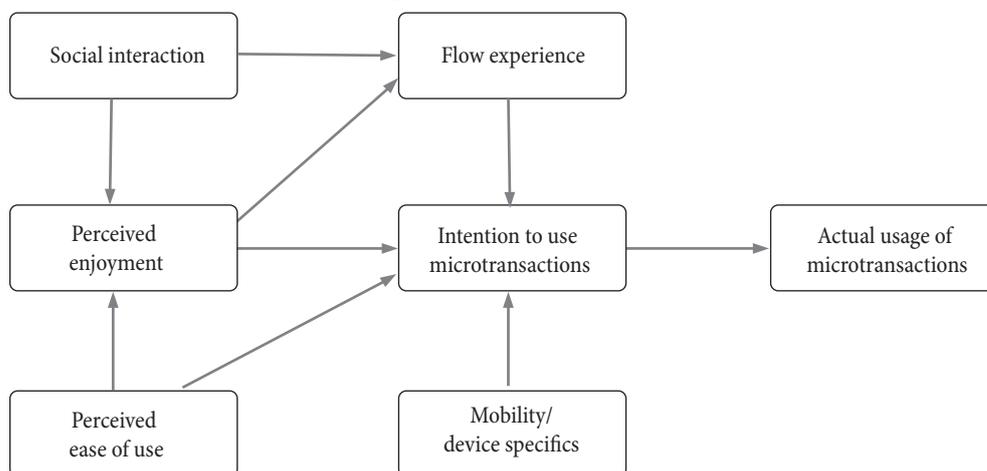
H7: Flow of experience significantly affects intention to use microtransactions.

Mobility/device specifics. As devices, mobile phones offer clear advantages over other computing systems. Operating systems enable the automation of the largest number of activities, which now take place “with a click”, which eliminates the need for step-by-step logging in and partial use of functions present in computers. Mobile games are played in short sessions, they start quickly, and they are easy to stop, so microtransaction systems are fast and intuitive. Therefore, the assumption is that the design of the device itself and the mobility feature can be a significant incentive for a player to use microtransactions. Zhao et al. [46] first introduce this variable, while it is elaborated by Jiang, Peng & Liu [23], using it as a direct predictor of intention to use microtransactions.

H8: Mobility/device specifics significantly affect intention to use microtransactions.

Intention to use microtransactions. According to the original TAM, the intention to use a new technology is considered a key predictor of its actual use. The entire model rests on the statistical significance of the relationship between these two variables. If intention to use microtransactions does not cause their actual use,

Figure 1: Modified TAM



Source: Authors

then none of its predictors have specific significance in the model. Starting from the introduction of model, there is a long line of research that points to the causality of belief-intention-behavior links in the context of the use of technological products or services [14]. Therefore, the following hypothesis is proposed:

H9: Intention to use microtransactions significantly affects actual usage of microtransactions.

Figure 1 shows the modified TAM used in this research.

Empirical research

Methodology

The basic methodological tool used in the paper is structural equation modeling (SEM). The main advantage of the SEM methodology is the possibility of examining the intensity of influence between variables, in a model that predicts that certain variables are both dependent and independent. Such variables are called mediators and are essential for the viability of the model.

The players' views were expressed in the form of a questionnaire, which could be accessed at the beginning of September 2023 through a link posted on the domestic gaming forum. Players answered 21 questions related to their motives for using microtransactions using a Likert

scale. A five-point scale was used. In addition to this part of the questionnaire, players also provided their demographic information and answered a question about their previous experience with microtransactions in mobile games. Only the questionnaires of players who made at least one payment within the mobile game were taken into account, a total of 198 of them. Table 1 presents the structure of the players who participated in the survey.

In order to confirm the validity of the statements made in the questionnaire, initial testing was performed on a small sample. The goal was to examine the precision of statements by calculating Crombach's alpha coefficient. The test showed satisfactory validity, as the Crombach's alpha values were above the threshold value of 0.70, so the reception of answers continued [39]. Crombach's alpha values for all variables can be seen in Table 2, along with

Table 2: Values of descriptive statistics and Crombach's alpha test

Variables	Mean	Standard deviation	Crombach's alpha
Perceived ease of use	3.753	0.902	0.818
Perceived enjoyment	3.652	0.881	0.833
Social interaction	3.604	0.929	0.765
Flow of experience	3.286	0.975	0.744
Mobility/device specifics	3.859	0.901	0.749
Intention to use microtransactions	3.960	1.071	0.895
Actual usage of microtransactions	4.136	1.101	0.914

Source: Authors based on research

Table 1: Structure of players

Category	Responses	Observations	Frequency
Gender	Male	175	88.38%
	Female	23	11.62%
Age	18-25	71	35.86%
	26-35	40	20.20%
	36-45	41	20.71%
	45+	46	23.23%
Education	High school	61	30.80%
	Student	48	24.24%
	Bachelor's degree	75	37.88%
	Master's or PhD degree	14	7.07%
Frequency of using microtransactions	Once in lifetime	61	30.80%
	At least once a month	87	43.94%
	At least once a week	45	22.73%
Operational system	More than one time per week	5	2.53%
	Android	159	80.30%
	iOS	39	19.70%
Mobile phone primary gaming device	Yes	78	39.40%
	No	120	60.60%

Source: Authors based on questionnaire

descriptive statistics. After calculating these indicators in the SPSS 22 software package, the analysis was continued in the Amos 23 software package.

Results

Table 3 shows the fit indicators. In addition to the basic indicator, the quotient of statistics χ^2 and the number of degrees of freedom, another four are included, particularly NFI, CFI, GFI and SRMR. The value of χ^2/df indicator is slightly above its upper limit, which is not a rare situation in this kind of research. The problem is that its value tends to increase as the number of observations increases [42], therefore, with large samples, the condition is almost never met. The four remaining indicators show a good fit of the model, while the SRMR meets even a more rigorous criterion.

Table 3: Fit indices of the model

Indicators	Values	Values of fit	Fit
χ^2/df	9.73	< 5(3), [10]	No
NFI	0.919	> 0.90, [7]	Yes
CFI	0.926	> 0.90, [6]	Yes
GFI	0.902	> 0.90, [24]	Yes
SRMR	0.080	< 0.10(0.08), [6]	Yes

Source: Authors based on research

Table 4 presents the results of model testing. Each row shows one path, the relationship between a pair of variables and refers to one of the formulated hypotheses. The coefficient indicates the intensity of the relationship, while the p-value indicates statistical significance. A lower p-value suggests statistical significance at a higher confidence level. A p-value lower than 0.001, i.e. confidence higher than 99.9%, is marked with asterisks.

The analysis confirmed the statistical significance of all variables included in the model. *Social interaction* emerged as a statistically significant predictor of *perceived enjoyment* and *flow of experience*. *Perceived ease of use* also has a significant impact on *perceived enjoyment*, which significantly affects *flow of experience*. The confidence level for all obtained results is higher than 99%. Regarding *intention to use microtransactions* as a mediator, the statistical significance of *perceived enjoyment*, *flow of experience* and *mobility/device specificity* was confirmed. *Perceived enjoyment* has the highest intensity of influence of all predictors, while *perceived ease of use* does not have a significant effect on intention to use microtransactions. Finally *intention to use microtransactions* emerges as a strong predictor of *actual usage of microtransactions*. An

Table 4: Analysis of significance of path coefficients

Exogenous variables	Endogenous variables	Coef.	S.G.	p-value
Perceived ease of use	Perceived enjoyment	0.585	0.053	****
Social interaction	Perceived enjoyment	0.267	0.052	****
Social interaction	Flow of experience	0.550	0.076	****
Perceived enjoyment	Flow of experience	0.231	0.080	0.004
Perceived ease of use	Intention to use microtransactions	0.027	0.086	0.754
Perceived enjoyment	Intention to use microtransactions	0.513	0.084	****
Flow of experience	Intention to use microtransactions	0.330	0.054	****
Mobility/device specifics	Intention to use microtransactions	0.229	0.065	****
Intention to use microtrans.	Actual usage of microtransactions	0.844	0.043	****

Source: Authors based on research

**** - statistical significance for $p < 0.001$

Table 5: Status of hypotheses

Hypotheses	Correlation	Outcome
H1	Perceived ease of use – Perceived enjoyment	Supported
H2	Social interaction – Perceived enjoyment	Supported
H3	Social interaction – Flow of experience	Supported
H4	Perceived enjoyment – Flow of experience	Supported
H5	Perceived ease of use – Intention to use microtransactions	Unsupported
H6	Perceived enjoyment – Intention to use microtransactions	Supported
H7	Flow of experience – Intention to use microtransactions	Supported
H8	Mobility/device specifics – Intention to use microtransactions	Supported
H9	Intention to use microtran. – Actual usage of microtransactions	Supported

Source: Authors based on research

overview of the confirmation of the hypotheses is given in Table 5.

Based on Table 5, it can be concluded that the claim about the significant influence of perceived ease of use on the intention to use microtransactions is the only unconfirmed hypothesis. Perceived enjoyment and flow of experience are of great importance to the model, as they translate the impact of their predictors on intention to use microtransactions. Also, the social component is a significant variable in the model because it appears as a predictor of both perceived enjoyment and flow of experience.

Conclusion

Based on the research, it can be concluded that TAM is a good basis for developing a complex model that explains decision-making about the use of microtransactions in mobile games. The model used is complex, because it requires the monitoring of a large number of variables that appear as mediators. Perceived enjoyment and flow of experience proved to be the central variables of this model because their importance in the model is the crucial for the role of perceived ease of use and social interaction. The statistical significance of their impact on the intention to use microtransactions is accompanied by high coefficient values, which gives special importance to the model. In addition, these two variables are themselves interrelated. The positive contribution of the variable related to the specifics of the mobile device should also be emphasized. While the previous two variables are regularly found in mobile video game research, the device-specific variable is seldom included. Research has shown that the nature of the device greatly contributes to players' intention to use microtransactions. This is completely understandable given the theoretical considerations from the first part of the paper, on the topic of specific forms of microtransactions developed especially for mobile games. Perceived ease of use has no statistically significant effect on the intention to use microtransactions. A partial explanation is that the difficulty of performing microtransactions is so trivial that it can hardly be a deterrent. Therefore, in this model, the

variable does not have that relative importance in relation to other variables, which it has in the original TAM.

Although the model showed a good fit and supported a significant number of hypotheses, there is still room for improvement. The following researches on this topic should enable the comparison of the obtained results. One aspect could be to compare the results from Serbia with results from another country, preferably with a different gaming culture. Another aspect may be platform-based, comparing research on the use of microtransactions in mobile games and PC/console video games.

The key limitation of the research is the size of the mobile game market in Serbia. Although globally this market has significantly surpassed the PC video games market, in Serbia the number of mobile game players is still significantly lower than the number of PC games players, as can be seen in the questionnaire. Certainly, the video games market in Serbia does not have a different trend but is only a few years behind the global market. Mobile games are also a rapidly growing segment of the market in Serbia, so they will inevitably become its dominant part in the coming period.

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