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THE USE OF VIRTUAL CURRENCIES IN MICROTRANSACTIONS AS A PREDATORY MONETIZATION TOOL

Summary: *Microtransactions increase the possibility of charging individual players an amount significantly higher than the average premium price of the complete game. A large number of publishers also use a special currency created solely for the purpose of paying microtransactions in that video game. Such currency is called virtual currency and as a rule it only works in a closed community formed around a specific video game. The topic of this paper is the use of virtual currencies in video games as a tool for performing microtransactions. The aim of the paper is to point out the negative aspects of this aggressive form of monetization in video games and to reveal approaches for avoiding it. Virtual currencies are the most refined tool of aggressive monetization, because their application is the easiest way to achieve the unfair practices, which makes publishers earn more money for the content offered. The key to the sustainable use of virtual currencies in video games is a balance between the efforts of gamers and publishers.*

Keywords: *virtual money, virtual currencies, microtransaction, in-game payments*

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1. INTRODUCTION

During the first two decades of the 21st century, microtransactions became a significant source of income for video games publishers. Their advantage compared to the classic form of financing through the sale of complete video games at full price is reflected in the possibility of subsequent payments from the player who has already bought the game. Everything can be sold in the form of microtransactions, starting from cosmetic changes for the character the player controls in the game, over improvements that change the balance of the game, to additional content that expands the game world¹. This increases the possibility of charging individual players an amount significantly higher than the average premium price of the complete game. Publishers achieve economies of scale, as they increase revenues with a proportionally smaller increase in costs for creating additional content. The expansion of microtransactions was further influenced by the growth of the mobile video games market². Since mobile games rarely sell at a premium price, microtransactions are a dominant source of revenue for publishers. Subsequently, new forms of microtransactions, unique to mobile games, have been developed.

A large number of publishers use a special currency created solely for the purpose of paying microtransactions in that video game. Such currency is called virtual currency and as a rule it only works in a closed community formed around a specific video game. Virtual currencies can sometimes be earned by playing game, but it is far more common to buy them with convertible money. This means that the player must make a payment in order to receive a certain amount of virtual currency, which he then use to make further payments. Not only is the in-game payment made with virtual currency, but also the prices of all content are denominated in it. This can make the actual cost content unclear. That is why the use of virtual currencies is considered an aggressive approach to monetization

The topic of this paper is the use of virtual currencies in video games as a tool for performing microtransactions. The aim of the paper is to point out the negative aspects of this aggressive form of monetization in video games and to reveal approaches for avoiding it. The first part of the paper will explain what virtual money is and how it differs from regulated electronic money and cryptocurrencies. The focus of the second part will be on explaining the features of the use of virtual money that can cause confusion among users regarding the actual price they pay for virtual content. The final part is devoted to approaches for including virtual currencies in a video game in a player-friendly manner.

¹ Tomić, N. (2017): "Effects of micro transactions on video games industry", *Megatrend revija*, 14(3), pp. 245-246

² Bradshaw, T., & Gross, A. (2022): "Mobile games market to decline for first time in over a decade", *Financial Times*, December 15

2. THE CONCEPT OF VIRTUAL MONEY

The term virtual money means „unregulated, digital money, issued and controlled by developers, and used as a means of payment in a certain virtual community³”. There are several fundamental differences between electronic and virtual money. In order to issue electronic money, the issuer must request and obtain a license, the system is registered and its operation is monitored to avoid fraud. The issuer of virtual money does not need a license, its system is not registered and it does not submit any business report. Electronic money is issued to serve as a means of exchange during third-party trade, while virtual money serves as a means of settlement and payment in transactions involving the issuer directly. All purchased electronic money can be exchanged for convertible money, either on the secondary market (if any) or at the issuer. Most virtual currencies cannot be exchanged for convertible money (officially, although there are often black markets)⁴.

The theoretical foundation of virtual money is in the so-called local exchange trading system (LETS). The system proposed at the beginning of the 1980s was based on the introduction of a local currency that would be used in a relatively closed community⁵. The local currency might be subject to conversions, generally done at non-market-based rates and under specific rules and policies of the LETS. Although the formation of a large number of LETS communities in Europe and North America was noticed at the end of the 20th and the beginning of the 21st century, none of them had a significant economic impact on the societies in which they were formed⁶.

The similarities between cryptocurrencies and virtual currencies should be noted. Both systems differ from the first generation electronic money, they are subject to less control and supervision⁷. However, there are significant differences between them. While virtual currencies have a clearly designated creator and application, cryptocurrencies have a general application and the creator is in most cases unknown. Cryptocurrencies have customized supply algorithms that cannot be changed by the discretionary decisions of an individual or a group of users. All differences are summarized in Table 1.

³ European Central Bank (2012): “*Virtual money schemes*”, Frankfurt: Eurosystem.

⁴ Sutter, J.D. (2009): “Virtual currencies' power social networks, online games”, CNN, May 19.

⁵ Peacock, M.S. (2006): “The Moral Economy of Parallel Currencies”. *American Journal of Economics and Sociology*, 65 (5): 1059–1083.

⁶ North, P. (1999): “Explorations in heterotopia: Local Exchange Trading Schemes (LETS) and the micropolitics of money and livelihood”, *Environment and Planning D: Society and Space*, 17 (1): 69–86.

⁷ IMF Staff Discussion Note (2016): “*Virtual currencies and beyond*”, IMF, p. 7.

Table 1: *The difference in the structural characteristics of centralized electronic money, cryptocurrencies and virtual money*

Type of digital money/ characteristics	Electronic money	Cryptocurrencies	Virtual money
Legal status	Regulated	At the edge	Unregulated
Issuer	Authorized institution	Algorithm	Unregistered
Application	With third parties	With third parties	In the closed system of the issuer
Supply	Depends on demand	Predetermined	Depends on the decision of issuer/demand
Redemptions	Guaranteed	Secondary market	Not guaranteed
Supervision	Yes	Partial	No

Source: Author, according to: European Central Bank (2012): “Virtual money schemes”, Frankfurt: Eurosystem, p. 16

Another big difference between virtual and electronic money is the subject of trade. In principle, electronic money (both centralized systems and cryptocurrencies) is used for paying for physical goods and real services, while virtual currencies are used for virtual products. These are various types of in-game content for video games and social networks. However, there are exceptions to this rule. For example, virtual currencies can be used for physical products coming from the issuer's system. If a video game can be considered as a closed system, the currency acquired or purchased within this game can be used to purchase improvements in the game itself, but also various gifts and souvenirs related to the game.

Using the method of acquisition and application as criteria for classification, virtual currencies can be divided into the following three groups:

1. Closed systems of virtual money - systems that are completely separated from the real economy, whereby virtual money is both earned and spent within the system itself. An example of this class of virtual currency is WoW Gold from the game *World of Warcraft*, which is earned by playing the game and can be spent on improvements or cosmetic changes to the characters the player leads. It is not transferable (officially) but is linked to the account of the user who acquired it.
2. One-way virtual money systems - systems where virtual money is purchased with convertible money through electronic payments, but the reverse process is not possible. Purchased virtual money is used in a closed system, with the possibility of paying some real life products related to game with it (eg Nintendo Points).
3. Two-way virtual money systems - systems in which virtual money is purchased with convertible money, and the unused amount can later be sold for the convertible currency. Purchased virtual money is used in a closed system, with the possibility of paying some real life products related to game with it (for example, Linden dollars from the game *Second life*).

Loyalty programs can resemble virtual money in their form, with the fact that they are tied to physical products or services. Airlines that have frequent flyer programs give their loyal customers a certain number of „air miles” with purchases. Once he has accumulated enough miles for one flight, the user can use his earnings and buy a flight without spending any money. Air miles work according to the principle of virtual money - they can be spent only at the issuer itself, according to a predetermined ratio and for a predetermined product, they are not transferable and cannot be used for another class of product (eg for cabin service).

Also, device-based tokens can be identified with virtual money by certain characteristics. For example, festival organizers issue tokens to visitors based on a prepaid card or mobile phone app. These tokens exchange for a convertible currency at a 1:1 ratio and are used to accurately monitor the spending at individual stands at the festival. The majority of festivals offer a pre-payment of the card and the later possibility of refunding the unused amount. Although they operate in a closed community, these tokens are spent on physical products and services, which differentiate them from virtual money.

3. USE OF VIRTUAL CURRENCIES IN AGGRESSIVE MONETIZATION

Virtual money is commonly referred to as virtual currency in video games. Many video games have one or even two virtual currencies, which are used for purchasing in-game content. The problem arises because the existence of virtual currency makes actual in-game spending less transparent. The situation is further complicated when two or more virtual currencies exist in parallel in the game, because both the relationship to the convertible currency, as well as the one between them, needs to be determined. An example is the game *Heroes of the Storm* published by *Blizzard*, where there are three virtual currencies that are acquired or bought in different ways and have different application⁸. Unlike the previously mentioned tokens at festivals, virtual currencies are usually not bought at a 1:1 ratio with convertible currency, but at a certain exchange rate. The exchange rate itself varies according to the size of the package being purchased, which further reduces the transparency of spending⁹.

The first cause of non-transparency is the parity of the convertible currency and the virtual currency, which is practically never such as to enable a simple calculation of the price of the purchased content. This means that in addition to the 1:1 exchange rate, the 1:10 or 1:100 exchange rates will very rarely appear in practice. More likely ratios when buying are, for example, 1:3.5 or 1:6.5, i.e.

⁸ Petrovskaya, E. & Zendle, D. (2021): “Predatory Monetisation? A Categorisation of Unfair, Misleading and Aggressive Monetisation Techniques in Digital Games from the Player Perspective”, *Journal of Business Ethics*, 181, 1072.

⁹ Terdiman, D. (2005): “Virtual gaming's elusive exchange rates”, *cnet.com*, August 5

the situation where 10 units of convertible currency are exchanged for 35 or 65 units of virtual currency. The actual cost of each in-game purchase automatically becomes harder to calculate with this parity.

Another reason is that the quantities intended for purchase are defined in advance¹⁰. The player is not able to buy the exact amount of virtual currency he needs for obtaining the content he is interested in. There are pre-defined packages of different sizes whose prices increase degressively. In Table 2, one can see how the price list of the virtual currency „gem” in the *Clash of Clans* game looks like. For ease of understanding, the price list has been reduced to only one convertible currency - US dollars. It should be emphasized that the comparison can also be made between convertible currencies, because the prices are not the same for players from different countries. Based on the abbreviated table, the following can be concluded: the game favors high-spending gamers, as there are six predefined gem packages, each larger one making the average cost of one gem in the pack lower than the previous one.

Table 2: *Prices of gems packages in Clash of Clans*

Packages	Pocketful of gems	Pile of gems	Bag of gems	Sack of gems	Box of gems	Chest of gems
Amount	80	500	1200	2500	6500	14000
Price	0.99\$	4.99\$	9.99\$	19.99\$	49.99\$	99.99\$
Amount per 1\$	80	100	120	125	130	140

Source: https://clashofclans.fandom.com/wiki/In-App_Purchases

The player buys a package that roughly suits him, but which in the vast majority of cases will leave him with a certain amount of unspent currency. This further complicates the attempt to understand the real price. For example, if a player wants to purchase a building upgrade that costs 1750 gems, he can do so by purchasing one bag of gems, one pile of gems, and one pocketful of gems, for a total of \$16. After the purchase, he has 30 gems left over. Another option is to immediately buy a sack of gems for \$20. After the purchase, he has 750 gems left over. He spent \$16 in the first case and \$20 in the second case, so it is clear in which of these two cases the player will pay less. However, in both cases he was left with an excess of gems. For a difference of \$4 in spending, the difference in surplus is 720 gems. If one calculates the ratio per dollar, the difference is worth 180 gems per dollar. If that price is then compared with the prices of the packages on sale, it can be concluded that the exchange rate for which this surplus is formed is more favorable than any of the offered packages. Although economic thinking indicates that it is better to spend less money and end up with a smaller surplus of gems, a gaming way of thinking can lead to a different conclusion. If

¹⁰ Scheidegger, G. & Raghubir, P. (2022): “Virtual currencies: different schemes and research opportunities”. *Marketing Letters*, 33, 357.

the player only wanted one upgrade that he needed to continue playing, then the logical choice is the cheaper sum of the packages. Conversely, if he aims at frequent microtransaction payments, the logical choice is a more expensive package that brings a conveniently formed surplus of virtual currency.

All of the above indicates that there is no single answer to the question: „how much does a purchased upgrade really cost, expressed in convertible currency?“ One relevant answer is \$16, the other answer is \$20. Regardless of any surplus gems that remain, the player has spent one of these two amounts to purchase them. If paying just one microtransaction is non-transparent, paying more of them can completely alienate the player from real money flow. Multiple consecutive purchases of virtual currency, followed by a series of microtransactions, makes it very difficult to draw a conclusion about the real price of each one.

Another problem is the high prices that are paid. Transactions involving virtual currencies are usually expensive. They allow publishers to avoid expressing the prices of in-game content in convertible currency. This makes it difficult for the player to assess the relative price of the content he is paying for compared to the value of the entire game. There cases in which one microtransaction amounts to 25%-30% of the premium price of a game are not rare¹¹. In those cases, the player can refuse to pay what he considers expensive. When the content is paid for in virtual currency, the player does not have a real sense of the cost, among other things, because the content in other games, with which he can compare the purchase, was not paid for with the same virtual currency. Tourists have a similar feeling when traveling abroad, when they do not recalculate the actual price of the products and services they buy.

The third problem that the application of virtual currencies brings is an exploitative approach.¹² It is related to the previously explained virtual currency implementation system design. Although the microtransaction system was designed as an alternative to the classic approach of one-time sales at a premium price, it completely changes the publisher's revenue structure. Instead of an even distribution of revenue from players who buy the game, microtransactions lead to a situation where a small number of players bring in the majority of the revenue. Since they are not obligated to pay them, players can choose to avoid microtransactions even when it slows down their progress through the game. Conversely, players who start paying for them are very likely to spend a large amount of money, especially if they opt for multiple consecutive purchases. In this sense, virtual currencies serve to ensure easier exploitation of players prone to additional payments. Particularly vulnerable in this group are children, who do not understand the real consequences of spending money.¹³

¹¹ Saul, C. (2019): “Why are Free-to-play Games so Expensive?”, *medium.com*, Jun 7

¹² Leung, D. (2023) “Microtransactions in Sandbox Games: How Habbo Monetises Emergent Gameplay”. Available at SSRN: <https://ssrn.com/abstract=4571951>

¹³ Stephenson, A. (2023): “The Ethics of Microtransactions in Modern Gaming”, *gameishard*.gg, September 9

The mentioned virtual currency package system and the price of in-game purchases, as a rule, leaves the player with an unused amount. The goal of such a design is to create a psychological impression among players that not using the remaining amount of virtual currency means a loss¹⁴. It is a category that in economic theory is called sunk costs.¹⁵ The existence of an unused amount will encourage economically irrational players to buy more virtual currency and make new in-game purchases. This initiates a long-term spiral of buying virtual currency and using it for in-game purchases, during which players spend far more than they would have spent on a one-time purchase of the game at a premium price.

The fourth problem is the manipulative practice of publishers when implementing the virtual currency system. In addition to the non-transparent determination of the actual price of the in-game content, the problem can be the non-transparency of the content itself. Virtual currencies are often combined with loot boxes and the gacha mechanism. In both cases, the player is sure to get some content, but cannot guess which one.¹⁶ The system in which the opening of loot boxes is financed with virtual currencies completely separates the player from the real flow of money and makes it impossible to determine the real price of the obtained content. Players who are collectors or compulsive buyers by nature are especially vulnerable.

The fifth problem is the negative impact of virtual currency implementation on video game design and gaming experience. With games that are sold at a premium price, the focus of designers and publishers is on creating quality gameplay. When virtual currencies are the tool for monetizing video games, designers and publishers will, as expected, focus on creating content that generates microtransactions. Thus, games often present players with the choice of „pay or wait”, i.e. “pay or grind”.¹⁷ These approaches are especially common in mobile games. Furthermore, the games will very often not be adequately balanced, in order to provide an opportunity for players who pay to create a competitive advantage over others and advance faster. Particularly infamous for this is *Star Wars Battlefront II* published by *EA Games*. The microtransaction system is implemented in such a way that it absolutely favors players who pay, thus ruining the gaming

¹⁴ Gibson, E., Griffiths, M., Calado, F. & Harris, A. (2023): “Videogame player experiences with micro-transactions: An interpretative phenomenological analysis”, *Computers in Human Behavior*, 145, 107766

¹⁵ Arkes, H. & Blummer, C. (1985): “The psychology of sunk costs”, *Organizational Behavior and Human Decision Processes*, 13(1), 125

¹⁶ Gonzales-Cabrera, J., Basterra-Gonzales, A., Ortega-Baron, J., Caba-Machado, V., Diaz-Lopez, A., Pontes, H.M. & Machimbarrena, J.M. (2023): “Loot box purchases and their relationship with internet gaming disorder and online gambling disorder in adolescents: A prospective study”, *Computers in Human Behavior*, 143, 107685.

¹⁷ Petrovskaya, E. & Zendle, D. (2021): “Predatory Monetisation? A Categorisation of Unfair, Misleading and Aggressive Monetisation Techniques in Digital Games from the Player Perspective”, *Journal of Business Ethics*, 181, 1069.

experience for non-paying players as well.¹⁸ Part of the content, which would be immediately available to the player in games sold at a premium price, can remain locked behind a series of additional charges, thus making the gaming experience incomplete. Game mechanics can be aimed at creating endless gaming sessions just to motivate players to spend extra money, which make the gameplay itself meaningless. The mentioned shortcomings contribute to monetization at the expense of quality.

4. ACHIEVING A BALANCE BETWEEN MONETIZATION AND PLAYER SATISFACTION

The monetization model must not disrupt gameplay experience. If designers' decisions favor monetization as the basis of gameplay, the game will be condemned by the gaming community. The focus during the development of the entire game, including the payment system, should be on the player. Gamers are certainly inclined to spend money on a game they like, and are more likely to do so if the content is of high quality. Games that makes players feel like they are obliged to spend money repetitively are quickly labeled in the gaming community as pay-to-win games. A good example is the game *Middle-earth: Shadow of War*, in which a system of microtransactions was implemented with the clear purpose of favoring players who spend a lot of money. Criticism from the gaming community was so extensive that half a year later the publisher *Warner Bros* canceled the existence of virtual currency in the game, in order to prevent the further functioning of the pay-to-win mechanism.¹⁹

Instead of an aggressive approach to monetization, designers and publishers should develop a fair and ethical monetization system, which allows them to earn money without endangering players with exploitative methods and manipulation. Non-transparency in spending virtual currencies, slowing down or completely stopping progress through the game until the moment of payment are considered unethical, while forcing the pay-to-win mechanism is considered as an unfair principle. Players should have microtransactions as an option, which they will only use when they feel it enhances their gaming experience. That's why *Blizzard's Overwatch* is an example of a good use of microtransactions. Instead of publishing paid DLC content, the game has implemented a system of loot boxes, the opening of which is charged. The benefit is twofold. Since the DLC is free, there will be no division of the gaming community into those who have access to the additional content and those who have not paid for it. As for the boxes, players know that they contain items that do not change the bal-

¹⁸ Thier, D. (2017): "This Is Likely Why EA Pulled Star Wars Battlefront 2's Microtransactions", *Forbes*, November 17

¹⁹ Schreier, J. (2018): "Shadow of War Is Now Microtransaction-Free", *Kotaku.com*, July 17

ance of the game²⁰. Their use is therefore completely optional and depends on the player's preferences. Designing the game so that certain content cannot be won by playing at all, but must be paid for, is also considered an unfair principle.

Prices of in-game content should be reasonable and transparent. High prices can only be justified if the player really understands them and if they bring him the benefit he desires. To achieve this, prices should be clearly stated, and when virtual currencies are used, players should be able to easily calculate the actual price of the content they are buying. The content must be accurately described, not only visually, but also in terms of the functionality it brings and the benefits the player will have by purchasing it. It is good that the player has easy access to the history of his purchases, not only so he could see the comparative value of different contents, but also so he could estimate total spendings within the game. In microtransactions involving loot boxes, designers should clearly disclose the probability of obtaining individual items, so that the player can weigh the ratio of investment of funds against the possibility of winning the necessary content²¹.

Ads and notifications that do not realistically represent the value of in-game content reduce transparency when performing microtransactions. An infamous example of misleading advertising is the *FIFA* soccer simulation series from *EA Games*. Through microtransactions, players can buy playing cards to build so-called Ultimate team. Although it is advertised as an opportunity for players to build their own dream team, it is not stated how much it will realistically cost them, as it is totally unknown what the purchased packs of cards contain²². Another example is the game *Warframe* published by *Digital Extremes*, where it was possible that a player buys an item that his character cannot use at all²³.

Different practice with similar negative effects is the sale of upgrades in bundles. Loot boxes are a frequently used tool for bundling items. Designers often bundle valuable items with those that can be easily acquired during gameplay to set a higher price for the entire package. Another approach is to create a package in which player gets items and virtual currency, which is later used for further payments. In both cases, the goal is to make players pay more for the desired item than what they would pay if it was available outside of bundle. A negative example is the game *Call of Duty: Black ops 4* published by *Activision*²⁴. The

²⁰ Kain, E. (2016): "'Overwatch' Micro-Transactions Are Just Fine, And Way Better Than Paid DLC", *Forbes*, Jun 10

²¹ Carvalho, A. (2021): "Bringing transparency and trustworthiness to loot boxes with blockchain and smart contracts", *Decision Support Systems*, 144, 113508.

²² Lemmens, J. (2022): "Play or pay to win: Loot boxes and gaming disorder in FIFA ultimate team". *Telematics and Informatics Report*, 8, 100023

²³ Petrovskaya, E. & Zendle, D. (2021): "Predatory Monetisation? A Categorisation of Unfair, Misleading and Aggressive Monetisation Techniques in Digital Games from the Player Perspective", *Journal of Business Ethics*, 181, 1070.

²⁴ Kain, E. (2019): "Call Of Duty: Black Ops 4's Microtransactions Are Terrible, But Do They Ruin The Game?", *Forbes*, January 7

game's aggressive notifications that the player needs to make a purchase can also create a feeling of discomfort or even frustration.

Flexible monetization is imperative, allowing a player to choose of payment methods for the content he plays. Some players prefer to pay a higher amount at once to purchase the entire game. Others prefer microtransactions as a series of smaller payments when they play intensively. Third group finds a seasonal subscription model as appropriate one, especially if they will not be playing at certain intervals. Setting virtual currencies as the only means of payment has no real justification. It is the proof of the publishers' intentions to get the players to use only one of the possible methods, which, according to the earnings projection, obviously brings them the most money for the content offered. By providing a range of options, publishers show that they care about players and don't prioritize their earnings at any cost.

Cosmetic microtransactions are viewed favorably by the gaming community. Players generally don't mind when others spend extra money to make their character look unique. Customization has always been one of the important qualities in the gaming community. A notable example is the *Path of Exile*, whose virtual currency „Orb” can be earned through gameplay, shared between players and purchased with real money, and is only used for cosmetic upgrades²⁵. However, most players are strongly opposing the opportunity of buying upgrades and gaining a competitive advantage with money. Buying upgrades makes the achievements of players who only use their own efforts meaningless and also reduces the importance of talent and skills for the scores players make. Pay-to-win games cannot retain a large number of players, because the more skilled ones will tend to find similar games where the monetization system is not decisive for the outcome of the game. That's why the business model of these games is a critical mass of players who are ready to pay a lot to progress²⁶. While this approach can be considered economically justified, it essentially negates the original principles of video games, which should be primarily entertainment software.

5. CONCLUSION

Gamers and video game designers/publishers have opposing stances when it comes to monetization. Gamers strive to get the most value for their money. The value is a combination of the content the game offers and the gaming experience. Designers/publishers strive to make the most money for the content they create. It is clear that when it comes to the content of the game, these principles diverge. This means that, in order to achieve an equilibrium that maximizes utility for both gamers and publishers, the game experience needs to be so strong that it

²⁵ Tack, D. (2013): "Path of Exile: A Truly Free-To-Play ARPG", *Forbes*, January 29

²⁶ Rose, M. (2013): "Chasing the Whale: Examining the ethics of free-to-play games", *gamedeveloper.com*, July 9

motivates players to spend more money on the game than they would realistically pay based on content alone. The problem is that very few games manage to do this organically. If one looks at the lists of the most played games or the games with the highest revenue, it can be seen that it is a small number of titles that stood out. Naturally, the number of publishers is even smaller. It can be concluded that with a completely fair and transparent approach, a small number of games would maximize the utility of their publishers.

This is precisely why aggressive monetization occurs. The economically justified effort of publishers to extract the maximum revenue from each product leads to unfair and unethical approaches such as manipulation of prices and content, forcing players to make repetitive payments and non-transparency when purchasing. Virtual currencies are the most refined tool of aggressive monetization, because their application is the easiest way to achieve the mentioned unfair practices, which makes publishers earn more money for the content offered. In fact, the very existence of virtual currencies can make some other techniques like content manipulation or repetitive payments unnecessary. Paradoxically, such games can seem more fair and ethical at first glance, because they do not require gamers to constantly pay for progress or because they do not offer loot boxes or bundle sales of upgrades. The non-transparency of the final price and the gamers' alienation from the real money flow are sufficient effects that lead to high spending.

The key to the sustainable use of virtual currencies in video games is a balance between the efforts of gamers and publishers. Video game production is increasingly demanding and expensive, so development teams and publishers should not be expected to do this work voluntarily. Also, publishers' expectations that every game can bring high profits are unrealistic. Like any other product, video games have their own market which depends on the affinity of the customers. Trying to charge proportionally more for those games whose market is smaller on average, in order to make them profitable, is not sustainable. However, introducing mechanisms for controlling virtual currencies and aggressive monetization in video games is not simple. One of the mechanisms is state regulation. It was previously emphasized that virtual currencies are a completely unregulated form of digital money. Requiring publishers to register their virtual currency and establish clear parities would not only help players better understand the pricing of in-game content, but also help them compare content across games. That would also strengthen another tool of regulation - the market principle. Rational gamers are already rejecting games that tend to charge frequently and excessively for content. Clear price comparability of paid content would certainly favor those games that offer higher value for money, rather than those that more aggressively demand money from gamers. Social responsibility of publishers is the third mechanism of regulation. It is necessary to condition publishers to implement in their business model the obligation of responsibility towards the community that uses their products. The victims of aggressive monetization are primarily children and adults susceptible to addictive behavior.

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UPOTREBA VIRTUELNIH VALUTA U MIKROTRANSAKCIJAMA KAO ALATA PREDATORSKE MONETIZACIJE

Sažetak: Mikrotransakcije uvećavaju mogućnost da se od pojedinačnih igrača naplati znatno viši iznos od prosečne cene igre. Veliki broj izdavača za plaćanje mikrotransakcija koristi posebnu valutu kreiranu za potrebe video igre. Takva valuta se naziva virtuelna valuta i po pravilu funkcioniše samo u zatvorenoj zajednici formiranoj oko konkretne video igre. Predmet rada je upotreba virtuelnih valuta u video igrama i na platformama sa pretplatom kao alata za izvođenje mikrotransakcija. Cilj rada je da se ukaže na negativne aspekte agresivne forme monetizacije u video igrama i na platformama sa pretplatom. Virtuelne valute su najprefinjeniji alat agresivne monetizacije, jer se njihovom primenom najlakše postižu navedeni nefer pristupi, koji izdavačima donose više novca za ponuđeni sadržaj. Ključ održive upotrebe virtuelnih valuta u video igrama je ravnoteža nastojanja igrača i izdavača.

Ključne reči: virtuelni novac, virtuelne valute, mikrotransakcije, plaćanja unutar igre

