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CREATING AND MODIFYING THE GAME CONTENT BY PLAYERS AS AN ACT OF PROSUMERISM

TWORZENIE I MODYFIKACJA TREŚCI GRY PRZEZ JEJ UŻYTKOWNIKÓW JAKO PRZEJAW PROSUMPCJI

Abstract: Prosumption can be described as an involvement of customers in the process of production. Customers obtain certain benefits related to increasing the degree of customization of the product or service. On the other hand, prosumption minimizes the costs associated with the purchase and/or use of products by consumers by undertaking of certain activities traditionally performed by the company. The primary aim of this paper is to investigate the phenomenon of creating and modifying computer game content by players as an act of prosumerism. Player used a game as pri-

mary materials to create some game elements or even producing a completely new one. They make unpaid work on game modification, called by its practitioners as "game modding". Game modding is a process of changing, adding or removing game code that alters the way the game is played. This process includes many different actions, such as creating characters, houses and gardens in The Sims, changing the appearance of the residents, creating virtual buildings and landscapes in Second Life. Players build their own virtual environment. Creators gather in modding communities in which they sharing created content, advice each other's, cooperate with other creators. Cooperation facilitates some platforms like Steam, various online forums or video sharing sites like Youtube. Besides players, also companies can take advantages from users' creativity. They obtain information's about consumer preferences which can be used e.g. in advertising or future product design. The modding community is a valuable source of innovation and recruitment for the game industry. Game modds can expand period of time when the game is played and consecutively receive high sales revenue. Presented approach is based on literature review.

Keywords: game modifications, modds, player production, player generated content

Streszczenie: Prosumpcja może być krótko scharakteryzowana jako zaangażowanie konsumenta w proces produkcji. W tym procesie klienci uzyskują pewne korzyści związane ze zwiększeniem stopnia dostosowania produktu lub usługi. Z drugiej strony prosumpcja wpływa na minimalizację kosztów związanych z zakupem i/lub używaniem produktów przez konsumentów poprzez podejmowanie przez nich określonych czynności tradycyjnie wykonywanych przez firmę. Głównym celem artykułu jest zbadanie zjawiska kreowania i modyfikowania treści gier komputerowych przez graczy w kontekście prosumpcji. Gracze wykorzystują grę jako podstawowy materiał do stworzenia niektórych elementów, a nawet wyprodukowania zupełnie nowej gry. Wykonują bezpłatną pracę, nazywaną przez jej praktyków „modowaniem gry". Modowanie gry to proces zmiany, dodawania lub usuwania kodu gry, który zmienia sposób grania. Proces ten obejmuje wiele różnych działań, takich jak tworzenie postaci, domów i ogrodów w The Sims, zmiana wyglądu mieszkańców, tworzenie wirtualnych budynków i krajobrazów w Second Life. Gracze budują własne wirtualne środowisko. Twórcy zrzeszają się w społecznościach, w których dzielą się efektami swojej pracy, doradzają sobie nawzajem i współpracują. Współpracę tę ułatwiają platformy takie jak Steam, fora internetowe lub witryny służące do udostępniania filmów, np. Youtube. Oprócz graczy także producenci gier mogą czerpać korzyści z kreatywności użytkowników. Pozyskują informacje o preferencjach konsumentów, wykorzystywane następnie między innymi w reklamie lub w pracy nad nowym projektem produktu. Społeczność twórców modów jest również cennym źródłem innowacji i rekrutacji dla branży gier. Istniejące modyfikacje mogą wydłużyć czas użytkowania gry, a tym samym czas kiedy gra generuje największe dochody. Prezentowane podejście oparte jest na przeglądzie literatury.

Słowa kluczowe: modyfikacje gier, mody, produkcja graczy, treść tworzona przez graczy

Introduction

In the present consumption can be observed several interesting changes. There is an acerbated trend of consumers who are not willing to buy products and services from the existing offer, especially young and active individuals. They are interested

in products co-creation and cooperation with producers[1]. Customization and personalization of consumer products require significant input from consumers at the design and production stages. Toffler recognized "a progressive blurring of the line that separates producer from consumer", and foresaw a "customer-activated manufacturing system"[2]. That came out early conceptions of prosumption. Toffler confined prosumption to independent supplying the household with various goods, e. g. self-made furniture from available materials. Today, this term is interpreted much broader and is related to any consumer activity, consciously directed to increasing the value of product and process of usage[3]. The concept of value co-creation assumes an active role of consumers which create value together with the firm. Consumers in the co-creation process participate in action such as new product development, service delivery, service recovery or content creation through online communities[4].

Present paper is aimed to give an outlook on creating and modifying computer game content by players as an act of prosumerism. Players became a hobbyist developers and perform unpaid labor for other hobbyists, fans and casual players to consume[5]. Through game modding they can change the game according to their preferences. They often modify technical features such as annoying music or some tasks perceived as too difficult or too easy. Players also change the graphic details or parameters related to the game's narrative and content, for example change in character's appearance, specific skills or equipment. Some mods alter particular elements but there are also modifications that fundamentally change the nature of a game[6]. Digital games are commercial products and game providers are commercial enterprises. Game providers pursue profit maximization by attracting people to join virtual world that they offer and retaining players over longer period of time[7]. The game mods and the modder communities play an important role for the success of a particular game[8]. As Arakji and Lang (2007) emphasized, the game modds can

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[1] J. Bednarz, *Prosumpcja jako rezultat zmian zachodzących w zachowaniach konsumentów na przykładzie przemysłu spożywczego*, „Studia Oeconomica Posnaniensia" 2017, 5(1), p. 8.

[2] A. Bruns, *Prosumption, produsage*, "The International Encyclopedia of Communication Theory and Philosophy" 2016, p. 1.

[3] M. Mitręga, O. Witczak, *Prosumpcja jako przejaw przedsiębiorczości konsumenckiej*, „Zeszyty Naukowe Uniwersytetu Szczecińskiego. Ekonomiczne Problemy Usług" (97 Przedsiębiorczość szansą rozwoju regionu, t. 1, Polityka wsparcia i kreowania przedsiębiorczości) 2012, p. 432.

[4] K.R. Ranjan, S. Read, *Value co-creation: concept and measurement*, "Journal of the Academy of Marketing Science" 2016, 44(3), p. 291-292.

[5] O. Sotamaa, *"Have Fun Working with Our Product!": Critical Perspectives On Computer Game Mod Competitions*, "DiGRA Conference" 2005, p. 1-2.

[6] K.M. Behr, R. Huskey, R. Weber, *Creative interactivity: customizing and creating game content*, "Video Games and Creativity" 2015 (pp. 285-299). Academic Press, p. 287-290.

[7] R. Hong, *Game modding, prosumerism and neoliberal labor practices*, "International Journal of Communication" 2013, 7, p. 985.

[8] O. Sotamaa, *When the game is not enough: Motivations and practices among computer game modding culture*, "Games and Culture" 2010, 5(3), p. 2.

significantly extend an average shelf life of computer game[9]. Due to an importance of this phenomenon it is necessary to build better knowledge.

It can be observed differences in game producers' approach to creating game content by it users. Game providers standpoints vary substantially in the degree to which they allow players modify the game, create game content and distribute the results of their work[10]. Historically, modding was treated as a form of hacking, where computer-savvy individuals modified code of the existing game without the company's consent[11]. Recently, game developers proposed a promising means of opening up the innovation process to customers throughout toolkits for user. Using these tools allows players' design products to fit their individual needs. It can be distinguish toolkits called "level builders", which allow players to create their own game environments. "Character-building kits", which enable users to create individual avatars. Some game producers provide users with the code or scripting language to create their own games. These functions are called "mods"[12].

The phenomenon of modifying game content by player can have many advantages. Not only in expanding the period of time when the game receives high sales revenue. Popular mods can help to understand the player preferences. This information can be used in advertising and future design activities. Moreover, modding community is a source of innovation and recruitment source for the game industry[13].

Present article investigates creating and modifying computer game content by players as an act of prosumerism and is based on review of available literature. Text has been divided into the following parts. First part consider the issue of prosumerism. Second it looks at user-created content in virtual worlds of computer games. Afterwards, the example of Second Life and The Sims games are presented. The paper is ended with final conclusions.

1. The issue of prosumerism

The term "prosumer" appeared for the first time in 1980 when Toffler defined a proactive consumer who participate in designing and improvement of goods and services. From this time, the meaning of this term evolved. Prosumer is a consumer who consumes what he produced, in various forms, which can involve brands and

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[9]   R.Y. Arakji, K.R. Lang, *Digital consumer networks and producer-consumer collaboration: innovation and product development in the video game industry*, "Journal of Management Information Systems" 2007, 24(2), p. 12.

[10]   M. Burri, *User created content in virtual worlds and cultural diversity*, "Governance of Digital Game Environments and Cultural Diversity" 2010, Christoph Beat Graber and Mira Burri-Nenova, eds., Edward Elgar Publishing, p. 80.

[11]   R. Hong, *Game modding, prosumerism…*, p. 985.

[12]   R. Prügl, M. Schreier, *Learning from leading edge customers at The Sims: opening up the innovation process using toolkits*, "R&D Management" 2006, 36(3), p. 244-245.

[13]   O. Sotamaa, "*Have Fun Working with Our Product*"…, p. 3-4.

market or not. Colin Campbell described the ideal crafted prosumer as an individual who uses the products with creativity. He completes them, mixes them, processes them according to very personal ends, with passion. The craft consumer buy products as primary materials to create new ones, for example rework of the mechanics of a car or a motorcycle and use of ornamental objects to transformed jeans or jacket[14]. Prosumption is the increase involvement of customers in the process of production, which contain use of customer feedback and direct design requests in the case of high-tech industries such as computer-aided manufacturing systems. Prosumerism causes the rise of customization in goods and services markets[15].

It can therefore be assumed that prosumption includes conscious activities undertaken by the consumer, increasing the value attributed by the consumer to the purchased products and services[16]. This activity can be for example purchase of an expensive tailor-made suit or a home garden arranged according to own design[17].

Mitręga (2016) distinguished between two types of prosumption, exhibitionistic and rationalizing. Both types of prosumption are aimed on increasing the value of the product (or service) purchased by the consumer. The difference lies in the way the "value equation" is used. Exhibitionist consumption is characterized by the consumer's striving to obtain symbolic or real benefits related to increasing the degree of customization of the product. It finds expression in activities such as participation in testing new products or sharing opinions about specific products and enterprises, for example in social media. Rationalization prosumption focuses on minimizing the costs associated with the purchase and/or use of products by consumers. This type of prosumerism is manifested in activities such as the undertaking of certain activities traditionally performed by the company (seller), e.g. packaging or transporting goods or introducing new applications for existing products and their own modification, e.g. using cheaper salon furniture in the kitchen or replacing branded ingredients with cheaper substitutes[18].

The propensity to prosumption is based on a specific state of mind, but it finds expression in the behavioral sphere. For example, one of the determinants of prosumption can be the level of self-confidence and the behavioral result may be sharing the idea of improving the product with its producer. The increase in value as a consequence of prosumption is equated with the difference between the costs and benefits associated with purchased products and services. Value is a quantity sub-

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[14] R. Paltrinieri, P. Esposti, *Processes of Inclusion and Exclusion in the Sphere of Prosumerism*, "Future Internet" 2013, 5(1), p. 21, 23.

[15] M.V. Alderete, *The age of prosumerism: Some micro-economic analysis*, "Journal of Theoretical and Applied Electronic Commerce Research" 2017, 12(3), p. 2.

[16] M. Mitręga, *Koncepcja produktów systemowych a prosumpcja*, "Studia Ekonomiczne" 2016, (262), p. 8.

[17] M. Mitręga, *Czy prosumpcja w dobie kryzysu to zjawisko jednowymiarowe? Eksploracja wśród użytkowników portali społecznościowych*, "Problemy Zarządzania" 2013, 1(40) t. 1, p. 45.

[18] M. Mitręga, *Koncepcja produktów systemowych…*, p. 8.

jectively perceived by the consumer. It can be maximized by increasing perceived benefits related to the purchased goods at a given level of costs[19].

Prosumption increases product customizations, that is adapting the company's offer to the needs of a specific buyer, both on the B2B market and on the consumer market. In this case, prosumption requires engagement of buyers in the product design and assessment how much existing offer meets their expectations. As a result, the company obtains information about consumer preferences. Customizing products does not have to result in a reduction in the cost of purchase and usage. It requires the customer to devote sufficient time to dialogue with the company and the selection of detailed variants of the offer. The process of producing a personalized product is much more expensive and result in prices' growth[20].

Development of Internet during past decades have changed the entire information and communication environment. It exert influence on processes such as user participation and interaction[21]. Before the dissemination of the social network use, there was limited communication between firms and clients. There was also lack of appropriate channels where consumers could express their thoughts and feelings. Nowadays, on web 2.0 presumption exploited, for example in eBay consumers create the market. It allows develop a relationship between firm and client and transform a passive consumer to an active prosumer. Companies should target and manage the right customers to achieve particular goals[22].

Paltrinieri and Esposti (2013) stated that digital prosumption has specific characteristics:
- the production and sharing of content on Web 2.0,
- the abundance of produced and published content,
- the unpaid work of those who produce the content,
- the online spread of a culture of free content[23].

The evolution of the Internet and the role of social media allow internet users to interact with each other and establish communities. Marketers in short time saw the opportunity to involve customers in content generation and value creation in order to better meeting their needs[24]. According to Ritzer and Jurgenson (2010) Web 2.0 has been a dramatic explosion in prosumption. Ritzer and Jurgenson gave many examples of means of prosumption: Wikipedia, where users can generate articles and continually edit, update, and comment on them, social networking websites

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[19] M. Mitręga, *Czy prosumpcja w dobie kryzysu to zjawisko jednowymiarowe…*, p. 44.
[20] M. Mitręga, O. Witczak, *Prosumpcja jako przejaw przedsiębiorczości konsumenckiej...*, p. 432-433.
[21] M. Burri, *User created content in virtual worlds...*, p. 74.
[22] M.V. Alderete, *The age of prosumerism...*, p. 2-3.
[23] R. Paltrinieri, P. Esposti, *Processes of Inclusion and Exclusion in the Sphere of Prosumerism*, "Future Internet" 2013, 5(1), p. 24-25.
[24] C.M. Sashi, *Customer engagement, buyer-seller relationships, and social media*, "Management Decision" 2012, 50(2), p. 254.

(e.g. Facebook, MySpace) where users create profiles composed of videos, photos, and text, interact with one another, and build communities, Second Life, where users create the characters and entire virtual environment, posting comments on blogs and microblogging (e.g. Twitter), creating the market on an auction portal like eBay, YouTube and Flickr, where mostly amateurs upload and download videos and photographs[25].

Consumers are open-minded to interact with firms and thereby co-create value. Consumer is able to create content, opinions and comments about goods and services which are shared in a community with the same interests. An instance of Wiki shows how users become active producers. Some kinds of topics are followed on Facebook and fans are willing to participate in creating content. Unlike other activities, prosumpion is an unpaid activity. Organizations are not willing to pay for content that consumers generate on social networking sites, blogs and so on[26]. There is an approach to creating value that assumes that product or service are deprived value as long as customer appreciate it and start to use it. Value is co-created by sellers as well as consumers and demands constant cooperation[27].

Some organizations make efforts to encourage consumers to prosumption. An example of supporting prosumer activities is the mRada created in 2003, consisting of mBank's clients. MRada's was establish in order to test and express opinions about new elements of mBank's offer, evaluating existing solutions and proposing changes to improve and extend banking services. In mBank, the customer can choose the offer elements that meet their individual needs. Expanding the range of the bank's offer parallel increases their costs. These costs are compensated by increasing the value for the consumer, enhancing his satisfaction and making him loyal to the bank. The particular elements are very standardized. This allows them to some extent limit the increase in costs. The pricing policy of the bank is designed so that the client cannot compare the total costs of services with the cost of the same services in competitors[28].

2. User-created content in virtual worlds of computer games

Digital games represent a type of commodity which reconfigures the position of the consumer, who no longer simply purchases the game as a product, but is actively engaged in its continued development. New media provides conditions for involving audiences because: new tools and technologies enable consumers to archive, annotate

[25] G. Ritzer, N. Jurgenson, *Production, consumption, prosumption: The nature of capitalism in the age of the digital 'prosumer'*, "Journal of Consumer Culture" 2010, 10(1), p. 19.
[26] M.V. Alderete, *The age of prosumerism...*, p. 2-3.
[27] M. Mitręga, J. Laskowska-Witek, *Rutyny współtworzenia wartości z klientem – konceptualizacja i pomiar*, „Zeszyty Naukowe Uniwersytetu Szczecińskiego. Studia i Prace Wydziału Nauk Ekonomicznych i Zarządzania" 2015, (39 T. 2 Zarządzanie), p. 26.
[28] M. Mitręga, O. Witczak, *Prosumpcja jako przejaw przedsiębiorczości konsumenckiej...*, p. 436-438.

and appropriate media content, a range of subcultures promote DIY (do-it-yourself) media production, economic trends favoring the flow of images, ideas and narratives across multiple media channels and demand more active audiences[29]. Anybody who has internet access can join the group of media creators and play a role in media production such us game modification, described by its practitioners as "game modding"[30].

According to Wallace (2014), game modding or modifying is a process of changing, adding or removing game code that changes the way the game is played. This process includes many different actions, such as changing the graphic layout (so-called "reskinning") or creating new characters and objects. It happens in extreme cases that the moderator removes almost the entire original content of the game and turns it into a completely new one and consequently creates a virtually different game. This action is known as "total conversion modding"[31]. Poor (2014) defines game modding as an act of changing the game, usually through programming and using tools that are not part of the game. It does not take place on the initiative of the game producer, only its users and fans. It happens that some companies support modders, for example by providing them discussion forums. Poor distinguishes modifying the game and game modding as two separate initiatives. Users modding the content of the game show a large belongingness to a certain society and take pleasure in helping each other. Many modders have a certain contribution to what another author has created. There are also many co-authoring modes. The achievements of modders many times give them employment opportunities in the gaming industry, but for most of them it is not a motive for undertaking their activities[32].

In the history of games, the first episode of game modification can be found yet in 1976, when Don Woods created the game Adventure, a variation of Collosal Cafe developed between 1975-1977 by Will Crowther. The player controls the character using simple text commands. The goal of the game is to search the cave where the treasure is hidden[33]. The next example is the simple game Pac-man. Students Doug Macrae, Kevin Curran and Jihn Tylko changed the gender of main character, the yellow dot. They changed their appearance by adding bow and lips. In the middle of 80's game modding gain popularity amongst programmers who created applications dedicated for Apple computer. Then the game Castle Smurfenstein appeared, modification of Castle Wolfenstein, where Nazis were replaced with Smurfs.

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[29]   A. Herman, R.J. Coombe, L. Kaye, *Your Second Life? Goodwill and the performativity of intellectual property in online digital gaming*, "Cultural Studies" 2006, 20(2-3), p. 189, 193.
[30]   R. Hong, V.H.H. Chen, *Becoming an ideal co-creator: Web materiality and intensive laboring practices in game modding*, "New Media & Society" 2014, 16(2), p. 291.
[31]   R. Wallace, *Modding: Amateur authorship and how the video game industry is actually getting it right*, "BYU L. Rev." 2014, p. 220-221.
[32]   N. Poor, *Computer game modders' motivations and sense of community: A mixed-methods approach*, "New Media & Society" 2014, 16(8), p. 1249-1250.
[33]   M. Filiciak, *Modyfikacje gier komputerowych przez użytkowników*, „Kultura Popularna" 2003, p. 68; en.wikipedia.org/wiki/Colossal_Cave_Adventure, retrieved 8.04.2019.

In the following years, the process of creating games have changed and the games themselves has changed. It can be observed the emergence of trend of modifying the game content amongst players. The breakthrough took place in 1993, when ID Software released the game Doom, with an open structure. The core of the game was isolated from the map, graphics and sound, which facilitated players making their own modifications. The company also provided a toolkit for players to create new levels of the game[34]. Using the toolkit, players could create or modify parts of the game for example levels, graphic design or storylines[35].

Game modifications can be divided into two types. The first type encompasses interference into audiovisual presentation, change of scenery, modification and/or addition of graphic elements and sound. The changes are "cosmetic", e.g. creating characters or houses used in The Sims, or changing the appearance of the players in sports games, changing the designation of cars in race games. The second type contains changes at the level of game mechanics that are the most complicated from a technological point of view. It require changes in graphic and sound elements and primarily interference in the game code. These types of modifications are almost unfeasible for the average player[36].

Herman, Coombe and Kaye (2006) stated that when players create their own in-game artifacts, they become agents of some cultural production. They also introduced four different practices of distributed agency. The first pertains to the changing appearance of avatars, building a space within the game using digital resources provided by the game developers inside the games. An example represents The Sims, where it is estimated, approximately 90 per cent of the game content is crafted by users. Second, is when players use other media forms in digital games, such as machinima[37]. Machinima can be simply defined as recording movies in games, modifying them, adding effects, music, dubbing and so on[38]. Third is producing a game modification by using software design engines and underlying source code provided by game developers. This action leads to creating entirely new games, for instance Counter-Strike out of Half-life and Velvet Strike out of Counter-Strike. Fourth, the players not only create their own game mods or all add-ons, they also disseminate results of their works through the network and virtual gaming communities[39].

The modding communities associate players eagerly building and sharing their customized game experiences[40]. The community plays an important role to realize

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[34]   M. Filiciak, *Modyfikacje gier komputerowych…*, p. 68-69.
[35]   R. Hong, *Game modding, prosumerism...*, p. 985.
[36]   M. Filiciak, *Modyfikacje gier komputerowych…*, p. 71-72.
[37]   A. Herman, R.J. Coombe, L. Kaye, *Your Second Life? Goodwill and the performativity...*, p. 194.
[38]   zapytaj.onet.pl/Category/001,001/2,8855927,Co_to_jest_machinima.html, retrieved 29.04.2019.
[39]   A. Herman, R.J. Coombe, L. Kaye, *Your Second Life? Goodwill and the performativity...*, p. 194.
[40]   M.S. El-Nasr, B.K. Smith, *Learning through game modding*, "Computers in Entertainment" (CIE) 2006, 4(1), p. 9.

players' passion for creating. Modders can discuss their work with others, receive feedback and get some help[41]. There are growing ranks of distributive platforms for showcasing mods, equipped with various ratings, rankings, and filtering mechanisms that algorithmically present mods for viewing through patterns of comparison and association[42]. It can be exemplified by the Steam platform, where players can participate in forum discussions, receive help in creating their own game elements and also find ready content created by players for various games. Steam also provides free programs for processing sounds and photos[43].

In the last decade, a few scholars have asked a question why people engage in such difficult and time-consuming game modding activity. According to Thiel (2019), mods are created in order to improve play experience and enjoyment, gain valuable skills and learn new techniques, for enjoyment of the activity (e.g. fun with coding). Creators are also geared by prospect of a job in the game industry. Meaningful part of modders enjoy co-operation in creating and shared enthusiasm within two the modding community[44].

According to Poor research (2014), the vast majority of creators (90,9%) engage in mods production because they want to have more fun with games or see the process of modding as a fun activity (89,2%) whereas (86,4%) create modifications to make the game better for themselves. 84,6% of respondents engage in modding because want to feel proud of the work they have made and 72,9% make the game better for other players. For 71,1% of creators, game modding is treated as a challenge and 48,6% talk about modding with friends. Much less (27%) of respondents produce game content to improve the game for the game developers or because they hope to get a job in the gaming industry (20,7%)[45].

Similarly, Ellis (2014) identified the following reasons for engagement in game modding. Most creators (71%) are drawn by a desire to fill a personal in-game need or an interest to learn more about programming (20%). The minority of respondents admitted that their initial motivation was external: 4% wanted to fill an in-game need for someone else, 2% wanted to improve the game for all players, and 2% report taking up the task in order to meet others interested in add-on development[46].

[41] D. Nielsen, *Modders in the Digital Game Industry - A study on modders' perceptions on corporate commodification of free labor*, 2019, p. 21.
[42] R. Hong, V.H.H. Chen, *Becoming an ideal co-creator...*, p. 292.
[43] www.store.steampowered.com data, retrieved 2.03.2019.
[44] S.K. Thiel, *Creativity through Communities: The Case of Game Modders*, "Woodstock '18: ACM Symposium on Neural Gaze Detection, June 03–05, 2018, Woodstock, NY". ACM, New York, NY, USA, 2019, p. 3.
[45] N. Poor, *Computer game modders' motivations and sense of community: A mixed-methods approach*, "New Media & Society" 2014, 16(8), p. 1249, 1252-1253, 1257.
[46] E. Ellis, *Productive play: Exploring participant motivations of a modding community surrounding a massively multiplayer online game* (Doctoral dissertation) 2014, Pepperdine University, p. 45-46, 48, 53, 59, 62, 73.

3. An example of Second Life and The Sims

A noteworthy example of creating content by players is represented in thegame launched by Linden Labs Second Life virtual world. Linden Lab did not ignore the issue of player authorship. Instead of seizing their innovations they gave the players consent and rights to use their piece of work and earn money. Players are encouraged to use a dedicated scripting language and collaborate with each other in developmental activities. It is aimed to make the Second Life virtual economy as real as possible[47]. Second Life has a fully functioning virtual market, designed to allow involve virtual community in various economic[48]. Transactions in this market are carried out using a virtual currency, Linden Dollars. The value of Linden Dollar varies similarly to the currencies in the real world and can be exchanged for real American dollars and vice versa[49]. Many users establish own virtual businesses. Activities such as buying and selling virtual items or buying and providing virtual services have gained popularity. Yet in 2006, 25% of users are sellers of own created virtual items[50]. Created items are offer in virtual shops, established by their author. Another players, as an avatars, are strolling virtual world and can visit virtual stores. He can talk to the store avatar representatives (seller) or interact with some of the presented virtual products[51]. Aside from sales in virtual store, very popular among Second Life users is also Marketplace[52]. Marketplace is a kind of auction portal, where Second Life users can sell what they create or buy other's creations. It can be find numbers of object, such as avatar components, gadgets, buildings, animals or home furnishings[53].

In Second Life, players are represented by avatars, animated characters that resemble human creatures[54]. Consumers create their avatars, which are a reflection of their personality from real life or instead a completely different individual. Frequently,

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[47]   A. Herman, R.J. Coombe, L. Kaye, *Your Second Life? Goodwill and the performativity of intellectual property in online digital gaming*, "Cultural Studies" 2006, 20(2-3), p. 196.
[48]   B. Koles, P. Nagy, *Virtual customers behind avatars: The relationship between virtual identity and virtual consumption in second life*, "Journal of Theoretical and Applied Electronic Commerce Research" 2012, 7(2), p. 89.
[49]   J.F. Bélisle, H.O. Bodur, *Avatars as information: Perception of consumers based on their avatars in virtual worlds*, "Psychology & Marketing" 2010, 27(8), p. 742.
[50]   K. MacKenzie, S. Buckby, H. Irvine, *Business research in virtual worlds: possibilities and practicalities*, "Accounting, Auditing & Accountability Journal" 2013, 26(3), p. 355; S. Papagiannidis, M. Bourlakis, F. Li, *Making real money in virtual worlds: MMORPGs and emerging business opportunities, challenges and ethical implications in metaverses*, "Technological Forecasting and Social Change" 2008, 75(5), p. 619.
[51]   R.Y. Arakji, K.R. Lang, *Avatar business value analysis: a method for the evaluation of business value creation in virtual commerce*, "Journal of Economic Commerce Research" 2008, p. 210.
[52]   P. Nagy, *Second Life, Second Choice? The effects of virtual identity on consumer behavior. A conceptual framework*, "In Proceedings of FIKUSZ'10 Symposium for Young Researchers" 2010, p. 175.
[53]   marketplace.secondlife.com, retrieved 30.04.2019,
[54]   M. Hofman-Kohlmeyer, *Characterization of new business opportunities in virtual commerce*, "World Scientific News" 2017, 78, p. 177.

avatars are the embodiment of who their users want to be[55]. Some virtual products, that are available inside the game, are strongly associated with avatar's appearance, for example clothes and accessories[56]. The vast part of these products (clothes and accessories) are developed by players[57]. Koles and Nagy (2012) noticed that on the one hand, particular products are popular amongst Second Life users because allow them stand out from the crowd. On the other hand possessing of particular goods help residents gain access to certain social groups or confirm membership in some community[58]. Virtual communities can be utilized on the word of mouth communications purposes Information's are gathered amongst virtual friends and experts and can be exchange worldwide at lower cost[59]. Second Life is spaces when the communities and social life is shaped by game users. It is part of co-created value with game developer[60]. Virtual marketers also utilize an opportunity of viral marketing. An attractive or/and controversial message is transmit from one user to another. The "Virus" can take the various forms of a shocking idea, game, animation, video, image, spot, song, poem or message that residents share with each other by e-mail, instant messaging and chat rooms. Many times, managers actively participate in the Second Life forum and contribute to brand recall on Second Life blogs[61].

Besides products for avatars, users also engage in creating virtual buildings and landscapes. There we have public as well as private spaces. Public spaces are created in order to spend time with each other, for example to arrange an exhibition. Players can also build single houses, equipped with items of furniture and appliances, and whole cities[62]. Users often build landscapes that mirror real life settings such as shopping malls and night-clubs and fictional or historical situations, like ancient Rome[63].

Second Life includes several academic projects in the area of virtual archaeology. This project gathers historians and archaeologists to establish historical accuracy. Otherwise Second Life users are very prolific in creating their own models of the historical past without any method of caring about historical accuracy. As Sequeira and Morgado (2012) wrote, residents are "amateur virtual archaeologists", getting inspiration from real heritage sites or images remembered from movies or TV se-

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[55]   J.F. Bélisle, H.O. Bodur, *Avatars as information*..., p. 744

[56]   B. Koles, P. Nagy, *Virtual customers behind avatars*…, p. 95.

[57]   S. Papagiannidis, M. Bourlakis, F. Li, *Making real money*..., p. 614.

[58]   B. Koles, P. Nagy, *Virtual customers behind avatars*…, p. 94.

[59]   G. Sharma, Y. Qiang , S. Wenjun, L. Qi, *Communication in virtual world: Second life and business opportunities*, "Information Systems Frontiers" 2013, 15(4), p. 680-681.

[60]   S.K. Bonsu, A. Darmody, *Co-creating second life: Market—consumer cooperation in contemporary economy*, "Journal of Macromarketing" 2008, 28(4), p. 357.

[61]   J. Laskowska-Witek, M. Mitręga, *Brand Promotion*..., p. 41.

[62]   K. Best, S. Butler, *Virtual space: creating a place for social support in second life*, "Space and Culture" 2015, 18(2), p. 187, 191; A.M. Kaplan, M. Haenlein, *The fairyland of Second Life: Virtual social worlds and how to use them*, "Business Horizons" 2009, 52(6), p. 565.

[63]   A.M. Kaplan, M. Haenlein, *The fairyland of Second Life: Virtual social worlds and how to use them*, "Business Horizons" 2009, 52(6), p. 565.

ries. They also emphasized that the vast majority of these places are pieces of art made by amateur virtual archaeologists and less are made by actual historians, archaeologists, or academic researchers[64]. An example of a reproduction of an ancient building is Jerusalem Temple in the region "Holy City", an initiative of an "Open Jewish Congregation Klal Israel of Delft, the Netherlands"[65].

In terms of the above-mentioned mapping of real life cities, an example is London, with Hyde Park and the gateway of Buckingham Palace. In this virtual city the areas of Mayfair, Knightsbridge, Kensington, and Westminster are exhibited[66]. There is also a remarkable recreation of Dublin's downtown area, full of interesting attractions and replete with Irish hospitality, bars, music, and great company[67]. In 2007, the Polish advertising agency Supremum Group conducted a project named "Second Poland". First, in 2007, Second Kraków was made, specifically replica of the market square, faithful copy of surrounding tenement houses, the Mariacki Church, the cloth hall and the rest of the buildings near the city center. Thereafter appeared Wrocław, Poznań and Katowice. The central places of all these cities were created on the pattern of particular real Polish cities[68].

There is growing interest among urban designers and planners to use Second Life as 3D virtual reality models for the designing and planning of buildings, neighborhoods and cities[69].

The appearance of Second Life opened new possibilities. The previously unmanageable consumer now is a firm partner in the co-production process. Consumer offer skills and creativity that support the companies' goals by strengthening the key drivers of grow and innovations[70].

The Sims is another example of computer game equipped with tools which enable individual users to modify the standard game as they need. The Sims was developed and published by Maxis (now EA Games) and frequently is evaluated as the one of the best-selling PC games in history[71]. The first part of The Sims was released in 2000. After that were published 3 additional parts and tens of smaller or larger additions[72].

[64] L. Sequeira, L. Morgado, *Virtual archaeology in second life and open simulator*, "Journal of Virtual Worlds Research" 2012, 6(1), p. 4.
[65] K. Radde-Antweiler, *Virtual Religion. An Approach to a Religious and Ritual Topography of Second Life*, "Online-Heidelberg Journal of Religions on the Internet" 2008, p. 176-177.
[66] www.secondlife.com/destination/london, retrieved 30.04.2019.
[67] www.secondlife.com/destination/dublin, retrieved 30.04.2019.
[68] P. Topol, *Polska w edukacyjnej przestrzeni Second Life*, "Adam Mickiewicz University Press" 2013, Neodidagmata 35, p. 34-35.
[69] T. Panagopoulos, I. Jankovska, I. Straupe, *Second life 3D city virtual environment as an urban planning tool for community engagement*, "Recent Researches in Environmental Science and Landscaping" 2012, p. 14.
[70] S.K. Bonsu, A. Darmody, *Co-creating second life...*, p. 357.
[71] R. Prügl, M. Schreier, *Learning from leading edge customers...*, p. 246-246.
[72] www.gry-online.pl, retrieved 30.04.2019.

The Sims is a game which lets players create and control the lives of virtual people. Players create individual characters, sims, that have their own goals and drives and are managed by the players[73]. Inside the game, players take care of a virtual family of Sims and build them houses and design gardens[74]. There is also an "online community market" where users actively exchange the files they created. Unlike Second Life, The Sims has no traditional market and users generally exchange their work without any charges[75].

The latest part of the game (The Sims 4) contains a selection of much more extensive possibilities for modifying the game elements. It includes the possibility of comprehensive influence on features such as silhouette, height, weight, face shape and nature of the individual. Players choose a few of dozens of available personality traits, as well as long-term goals of sim. They affect the future behaviors of the sim and are part of the updated artificial intelligence system introduced to the game. Sims behaviors are more natural and their reactions to different situations are much more diversified. In The Sims 4, the constructor interface has been improved. Consequently is more intuitive and more accessible to use. One of the most important improvements is the new social options. Now players can share the homes that they created with other players and also see, comment and evaluate the works of other players[76].

Players co-create the content of the game and support each other on online forums. There is available an official game forum, www.forums.thesims.com, as well as many unofficial websites with forum gathered The Sims community. An official online forum give opportunity to discuss about official additions to the game, advice to each other's and share pictures an films from the game. On unofficial forums and websites related to the game, player can not only share created content or advise each other but also add or download unofficial game additions, namely mods. There have been some doubts about the legitimacy of these creations[77].

Conclusions

The present article investigated the phenomenon of creating and modifying computer game content from the point of view of prosumerism. According to the available literature, the process of game modding provides customers a certain benefit, namely well customized computer game. In this case, prosumption requires the engagement of buyers in the product design and assessment of how much the existing offer meets their expectations. Consumers are open-minded to interact with firms and cooperate with other creators. They gather in modding communities

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[73]   R. Prügl, M. Schreier, *Learning from leading edge customers...*, p. 249.
[74]   www.gry-online.pl, retrieved 30.04.2019.
[75]   R. Prügl, M. Schreier, *Learning from leading edge customers...*, p. 2256-257.
[76]   www.gry-online.pl, retrieved 30.04.2019.
[77]   www.forums.thesims.com, www.simtopia.pl, retrieved 30.04.2019.

and share their work. In addition, companies can also take advantages from users' creativity. They obtain information about consumer preferences which can be used e.g. in advertising or future product design. The modding community is a source of innovation and recruitment for the game industry. Game modds can expand the period of time when the game is played and consequently receive higher sals revenue.

Based on the presented considerations, it can be said that game modding plays an important role in the field of prosumption. Further research can answer the question of how game developers can encourage players to become creators, facilitate them in this difficult activity and control. It is important to know how game developers and amateur creators can communicate and cooperate and how this cooperation can influence the final product – the computer game.

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