КУЛТУРА ПОЛИСА, год. XVI (2019), посебно издање
THE CULTURE OF POLIS

часопис за неговање демократске политичке културе

UNDERSTANDING VIDEO GAME SUBCULTURE

Edited by:

Aleksandar Filipović

THE CONTENT:

САДРЖАЈ:

ALEKSANDAR FILIPOVIĆ

FOREWORD
Understanding video game subculture

This thematic issue is dedicated to one of the most important cultural phenomena of the modern world, which is paradoxically not researched well enough. The paradox lies in the fact that there are 2,5 billion people on Earth who play video games, and there are tens of thousands of articles about video games, but when it comes to undisputable scientific facts, all that is left from all that noise are efforts of individuals or groups of individuals to try and define the phenomenon. It is not for anyone's personal gain – any phenomenon that includes its own subculture, with its own value system, slang, lifestyle, and all the other identifying elements, even when we exclude the money – and we truly can't – is worth much deeper and diverse research. Hundreds of billions of dollars are spent each year on video games and video game-related objects, and when compared to the money invested, it is clear that we talk about the most lucrative business with a third of world population as its consumers. The implications are vast, so is the potential, and the academization of the phenomenon is necessary in order to be able to intervene before it becomes too late. This thematic issue is but a humble effort to contribute in that process. Why video games came into existence? What is their value? What are their implications in different aspects of life? What is their place in technology and in culture? These are some of the questions this issue will try to provide answers to.

This thematic issue is not dedicated to general phenomenon of subculture. Papers in this issue do not even presume the undisputable existence of gaming subculture, although there are global researches and papers that posit that there is a subculture of an online community with massive gaming community within, which, like any living organism, does not have other inner purpose than to exist and multiply. In order to understand that, we have to understand several underlying aspects of this phenomenon, whose existence and properties allowed all the other aspects to exist and grow, and, eventually, formed a sociological construct that is subculture. In this issue we try to tell the story of video games and their being that in fact uses players and gaming community to realize its *Dasein*. If this scientific turn seems unexpected, let's not jump to conclusions, since the greatest minds, from Heraclites and Plato to Gadamer and Heidegger claim exactly that.

Elements of video game subculture do exist and try to establish the subculture in the mainstream media space as something that is at least equal, but as with every new subculture, video game subculture is treated by traditional authorities with too much of caution, flagrant distrust and disapproval, similar to any other subculture and each new medium in the past. We think that those subculture elements will ripen and form an authentic subculture no authority will disprove in future.

Video game shares the destiny with all previous new media and subcultures. Each new medium was disapproved and deemed inferior to already established media when it originated and continued to early period of its istory. Books once printed by Gutenberg were deemed aesthetically inferior to previos, hand-written and decorated by vignettes. Reasons for disapproval were changing as new media were created, but their treatment remained similar. Like its predecessors, such as film, television or comic books, video game was considered very low ever since it formed itself enough and entered public perception. Scientific community nearly ignored it, considering it as a medium that offers only fun and escapism without performing other traditional media functions, like educational or artistic, along with numerous damaging consequences. When it came to value transfer function, video game was most often considered as harmful medium. Now, it is obvious that moral panic regularly happened whenever some new, massively accepted and influential medium was created, so it is an established thing with societies and people. So modern parents and educators, born during the last moral panic (1950s, comic book censorship in the US), and the whole traditional society is now in panic because of possible consequences of video games on children and adolescents. In addition, violence in video games is in the center of mass consternation, and apologists of the moral panic claim that if the young people adopt the pattern of violent video games that might shake the foundations of civilization on the planet, more than other negative consequences of playing video games, or just sitting in front of the display for too long.

Nonetheless, video games ignored the moral panic and became one of the top segments of modern culture and entertainment industry. By becoming a part of everyday life of billions of people around the world they have created a primal subculture. Video games have formed and will continue to form new traditions and new behavioral skills while changing the structure of society. It is necessary to clearly identify their place in the information culture and structure of their inner content.

Still, the video game phenomenon resists rationalization because of, more or less, two reasons. The first is that the phenomenon is approached from the wrong side, the side of the method of analysis of performing arts, while the second is that video game has much more complex structure and different socio-cultural functions. In their structure video games have elements of many cultural realities – rituals and myth, art and simulation, different ethical and aesthetical constructions, different ethical institutions previously unseen in social relationships. Video games constitute many new ontological constructions. These constructions are yet to receive scientific explanation. One of them is, for instance, ethics of the world of video game, or its being, constituted as *non-ethics* and that creates a video game world as a world with absence of moral, *privatio ethicae*, meaning a world outside and above moral.

Objects, or Heideggerian things, we call video games are multi-channeled specimens of cultural context, based on various human sensory channels. Video games contribute to structure of arts, culture, and daily changes in life, like film and television did for more than a century, but after shared path, from a certain point video games went their own separate way. At one point in this issue we will try to explain that ludistic incompatibility of video game with any other cultural phenomenon.

In consideration related to video game theory there are many questions. Like in co-existence of imagination and desire of man, his ideas and plans on one side and limitations on the other, when it comes to further development of video game theory and practice, everything depends on hardware. Ontological being of video game can be perfected and developed as fast as hardware and game engines allow. When the processing power becomes large enough, we will have a new ontological dimension of video games and gaming. As preconditions for existence of video game are a player and a game loaded into memory of an electronic device, the game will be able to exist if it is loaded into player's memory. The existence of the being of video game does not always and fully depend on electric energy flowing through the gaming hardware, because it exists in the world of the game inside the player's imagination and experience as well. Being of a video game cannot exist without and outside of video game, but world of a video game can. The question arises – is it, for a part of gamers at least, video game as defined and delivered by the manufacturer only a matrix or means of creating experience working synchronously with player's consciousness and individual and collective subconsciousness to create images and or otherwise expressed information, and together with the game software as it is given and as it is shown on display create much more personal and associative world?

It seems that the video game history began with Willie Higginbotham's osciloscope experiment that created *Tennis for Two,* or with certain earlier rudimental patents, but the truth is that the ground for video games creation and development, and eventual takeover of culture was set even before humans evolved to their current form, and in this issue that point will be discussed as well. But when we talk about video games as the most modern form of game, their history, despite not being long, was turbulent and spectacular, full of invention, drama, rises and falls, until it arrived at its current Golden age. Not even two decades after first experimental video games, we saw a spectacular rise. In the late 1960s and early 1970s television broadcasted only several channels even in the most developed countries, and the reality of that age was pretty gloomy and hopeless. When Magnavox and later the first video game industry titan Atari created home gaming consoles, people suddenly had a choice to plug that device in their TV sets and enjoy a virtual reality, one where you are actively involved in the outcome on the screen. Atari then grew so much that it crushed under its own weight and brought down the complete industry in 1983. There were many reasons for that, such as hyperproduction, oversaturation of the market, lack of originality, but the final straw was when Atari published *E.T.* video game to coincide with the release of Spielberg's masterpiece. The players then, already fed up with the way the gaming industry handled their issues, could directly compare the visual look of the film and of the game, and since the hardware was pretty primitive then, the game was not only a poor copy, but something that doesn't ever resemble the look seen on the silver screen. The market crashed, but the opportunity was grabbed by the Japanese. Nintendo, and later Sega, revived the market, constantly improving their hardware and software, but the next revolution arrived when Sony entered the market. Sony had a deal with Nintendo to develop a CD reader to be used in their next gaming console, but as friction between the two compa-

nies appeared, the deal was cancelled. Sony then decided to use that already develop hardware and to manufacture their own console. That marked the birth of PlayStation. Nintendo continued to improve, and not only that they are still in the market today, their different approach brought them immense number of hardware and software unit sold. Sega couldn't keep up, despite trying hard, and now they are software manufacturer, while Microsoft entered the hardware market with their Xbox consoles, so today we have PlayStation and Xbox duopoly, with Nintendo with higher sales, but in a niche of its own. So far, the latest revolution happened with introduction of Internet 2.0 and broadband Internet, as well as development of handheld device into strong processing units. Mobile revolution turned many non-players into players, and today a third of the world's population play video games regularly. And yet it seems the phenomenon has just taken impetus.

What is the future of video games? Futurists, and not only them, are asking where is the boundary?

The boundaries are set only by progression of hardware and imagination of the video game creators, which practically mean that despite existing at every moment, there are no boundaries to growth and evolution of video games. Robotics futurists estimate that by mid-21st century people will have artificial partners so realistic that they would be able to be a substitution for human partners, while AI experts estimate that the level of sophistication of virtual characters will become so immense that people will be able to have their virtual partners, who they might not be able to touch, but will be able to speak to at any time, which is similar to current alienation trends where people talk over Skype or other communications app despite being able to easily meet and talk face-to-face. Such artificial companions will even be more human than many real persons one might be in contact with in extremely alienated world of the future, like Hari from Lem's and Tarkovsky's *Solaris* or Samantha from Spike Jonze's *Her*.

There are more optimistic futurists as well. They base their optimism on the fact that video game's important difference from any other phenomenon is its virtuality, parallel existence of two worlds where the player moves. The existence of two world already implies connection and intertwining of worlds from both sides of the display and parallel living of the player in the both worlds via avatar. Futurists in turn predict much more serious and different interaction between the player and the video game characters when the hardware improves that much to allow the characters to „come out" of the video game into the real world. Surely one cannot touch a holographic or other projection, but to many people of the future a kind word and care will be much more desirable. The future might bring loneliness and devastating alienation, where a kind word one hears from the intuitive AI video game character might be the only kind word one has ever heard from another person, real or otherwise. A film we mentioned before, Spike Jonze's *Her* might become a prophetic classic, as it predicts interactions between the man of the future and his biomimetic extensions, regardless of their software or hardware nature. The video game industry and the gamers subculture are ready.

ALEKSANDAR FILIPOVIĆ[*]
Faculty of Economics and
Engineering Management
Novi Sad

ETIOLOGY AND AXIOLOGY OF VIDEO GAME[**]

Summary: Video games have passed a long way from a white moving dot on a black screen to modern photorealistic interactive stories. Author tries to find a seed of origin of video games in the depths of human instincts in this paper, by placing the cause and the reason of phenomenon's creation in pre-human period. Furthermore, the author analyzes axiological aspects of video game offering logical explanations for very surprising commercial and sociological success of video games, sum of their global value and worth for human life. In the conclusion the author posits that in a possible dystopic future we can find ourselves in video game can be a rare oasis of soothing de-alienation negentropy and life as it was before and that made a man of today.

Key words: Video games, information society, origins, value, playing instinct, alienation

Introduction

This paper is but a humble pioneer effort intended to help better understanding of virtual electronic games, that first were called computer games, and only when new platforms for playing them were developed that weren't necessarily computers, they finished their terminology journey as video games. Although video games have significant potential as a noumenon, that might speak of the real essence of video game, we will set that aside and focus on phenomenon aspect of video game.

Undisputable etiological origin of video games is in a human impulse, that is directly derived for impulse for love and especially from instinct for imagination – in human impulse for game and for playing. That impulse is, along with impulse for love as a tendency for reaching one's purpose and oneness, the strongest, most dura-

---

[*] sasha.filipovic@gmail.com
[**] Etiology, or aetilogy, is the study of causation or origination. The word is derived from the Greek αἰτιολογία, aitiología, „giving a reason for" (αἰτία, aitía, „cause").
Axiology (ἄξιος axios — value, worth; λόγος logos — science) is a branch of philosophy that studies value.

ble and most consistent impulse of human being. Nietzsche[1] said that human being is constantly playing.

Initial essence of impulse to play, and we hope to prove that through millennia it remained the same was – game itself and for itself, an activity of crucial importance for existence of being. If the man, in his early existence indeed followed the divine model[2], but stumbled along the way and found himself here, it is quite possible that the game is the only thing he carried over from the divine path. Play of human beings is more aboriginal than the human beings themselves, and represents a way of human understanding of its own existence. Game is a dimension of existence which is intertwined with other dimension of existence. The game is not only the difference in the acts of play, but before that a basic way of human communication with the possible and the unreal[3], which is more present in the life of human community and individuals more than the real, the experienced and the lived. The game is not alike anything other, and serves only itself. Since it is older than man, it has no beginning or the end and is a phenomenon on the other side of purpose. The game was not made by man, it is a pre-human creation.

By gaining consciousness, the man on earth found the game as self-existing divine recidivation which is, like its maker, purpose by itself. If we try and mix the game less with other life tendencies, if the game is living without purpose, „we furthermore in it find a small, but within itself a complete happiness. Nietzsche's often misinterpreted Dionysian Dithyramb „Among the Daughters of the Desert[4]" sings about the magic and oasis of happiness in the game while surrounded by growing desolation of the void and senselessness of modern existence, cause by devaluing the highest values. The game has no purpose and it does not serve anything. It does not refer to the final goal, to any final goal of human life that is searched for and that is believed in. A true player plays only to play. The game stands for itself and in itself and is an exception in more than one sense[5].

Origins of the phenomenon

Video games are a phenomenon of the information age which skyrocketed due to gigantic dimension of the information and communications technology. Since the first computer games in virtual space were created several decades have passed. Despite the wide distribution and socio-cultural institutionalization, they are yet to receive scientific and philosophical determination and irreversible status in the system of information culture and social structures whatsoever. One of the problems lies in the definition of video games. The general and widely accepted definition of this phenomenon is still not developed. The hardship lies in their unusualness and

---

[1] „In every real man there is a hidden child, and a child wants to play ", „I don't know other way to treat large tasks except to play ", „A true man wants two things, danger and game". Friedrich Nietzsche, *Tako je govorio Zaratustra*, Dereta, Beograd, 2011
[2] Biblija, Prva knjiga Mojsijeva, glava 1: 26-27 trans.: Daničić/Karadžić
[3] Fink, Eugen, *Osnovni fenomeni ljudskog postojanja,* Nolit, Beograd, 1984, p. 295
[4] Niče, Fridrih, *Dionisovi ditirambi,* Grafos, Beograd, 1983, p. 12
[5] Fink, Eugen, *Osnovni fenomeni ljudskog postojanja,* Nolit, Beograd, 1984, p. 295

novum brought to civilization by being of the video game, but in its Heideggerian *Dasein*[6] dimension defined as a concrete manifestation of being of every video game in time and space, or playing of each concrete game. By that the ontological weight and essence is transferred from term „video game" to term „playing video game", and that introduces a secretive metaphysical dualism called „the play of being – being of video game", as player's personal experience of video game with unparallel possibilities for creation of virtual and parallel meta-worlds[7].

Components, but the boundaries of player's personal experience of video game and its world are: given world of the video game created by the manufacturer (1), experience of player measured by his capability of reception of virtual reality with his sensory and extrasensory receptors (2) and imagination of the player that through his avatar[8] in character of the protagonist[9] of the game creates his own imaginary being that in its own sphere of sense of alternate reality experience an alternative world of video game, while constantly upgrading and controlling it (3). Alternatively real world of video game and real world of experience of video game are intertwined, so the player and his avatar in imagination of the player can switch places where total identification of player with the avatar is the ultimate goal, but an ultimate reach of implementation of real player into alternatively real world of video game.

Video game might be defined as Video game is a game in a virtual reality, oriented to player without whom it cannot exist, where the player, interacting with hardware, activates already defined game software, and together, within inner space and time of the game create its alternative-reality world whose visible being is shown on the display of an electronic device while virtual being remains inside the parallel world of the game together with the player's avatar, with either being not being aware or dependable on the other.[10]

But, with information era, video games grew into a global phenomenon and fast-growing lucrative business. The video game industry generated nearly 150 billion USD in 2018 with 2,5 billion players worldwide. But, video games are more than a game. They change the view of the world and form a way of life in similar

---

[6] *Dasein* is a German word that means „being there" or „presence" (German: *da* „there"; *sein* „being") and is often translated into English with the word „existence". It is a fundamental concept in the existential philosophy of Martin Heidegger, particularly in his *magnum opus Being and Time*. Heidegger uses the expression *Dasein* to refer to the experience of being that is peculiar to human beings. Thus, it is a form of being that is aware of and must confront such issues as personhood, mortality and the dilemma or paradox of living in relationship with other humans while being ultimately alone with oneself.

[7] Filipović, Aleksandar: Paradigma kulturološkog pozicioniranja video igre, doctoral dissertation, Faculty of Dramatic Arts, University of Arts, Belgrade, 2016

[8] Avatar (sanskrit: अवतार {*avatāra*}, originally: coming down, meaning coming down from the sky). Ludology took this term to mark the player's incarnation in the virtual world of the game. It is most often the one playable character in a video game

[9] Protagonist (Greek πρωταγωνιστής *(protagonistes)*, originally „the first player in *agon,* and today the main character in works of arts with narrative. The opposite is antagonist.

[10] Filipović, Aleksandar: *Paradigma kulturološkog pozicioniranja video igre*, doctoral dissertation, Faculty of Dramatic Arts, University of Arts, Belgrade, 2016

fashion like other crucial inventions, such as wheel, writing, steam machine, telephone, film, mobile phones and the Internet. Still, video games are frequent topic for moral panic, accusations, disapproval and disparagement. Nearly everything related to video games is disapproved – from scientific status to status of media to questioning its artistic form. They are accused of not only negatively affecting young players, but for global problems of the modern life, because, allegedly, current politicians and managers were nurtured by and grew playing video games.

Nonetheless, video games are multilayered cultural phenomenon, which *a propos* cultural perception has many dimensions or functions. Video game has dimensions of virtual reality, aesthetical, ethical, innovative, educational, managerial, philosophical, cultural, social, communicational, psychological, modernizing, technological, sports, militaristic, cybernetic, manipulative, futuristic, but the dimension that refers to separate peripheral life phenomena such as cultural taboos, sexual and other differences, challenged and diseased persons, women, children, religion, etc. In this paper we will try to set video games on their objective place, that is an important factor of revolution of virtual mobility, the greatest technological revolution after the Industrial, which happens right before our eyes. Video games are an important relay in the ICT that have already won the millennials and the generation after them.

One of the difficulties to define a place of video games in contemporary culture is their wide use. This problem was increased by the fact that after they appeared video games quickly became an important segment of free time. Behavioral skill have changed and created new traditions while affecting the society structure. The wave of scientific interest for video games and for the changes they make in cultural and social spheres began in 1980s. Still, serious scientific results that would uncover the essence of this manifestation are yet to be developed. There is no global study suitable for video games from philosophical or cultural and anthropological positions.

The status of video games as a phenomenon demands deeper and more complete cultural and anthropological analysis. Scientists mostly agree about principal attributes of video games. Still, this phenomenon has a more complex structure and refined socio-cultural functions: in their structure they have elements of numerous other cultural realities, such as art and virtual simulation. Also, objects called virtual video games are an example of multi-channeled cultural text based on different sensory channels of a person. Virtual video games create changes in structure of art, culture and daily life, similar to those that cinema and television are creating for more than a century.

After their quick expansion video games became a staple of modern culture. By becoming an element of daily life of millions of people around the world, they have created new subcultures. Video games form new traditions and behavioral skills that change the structure of the society. It is necessary to identify their clear place in the information culture and the structure of their inner content[11].

---

[11] Filipović, Aleksandar, *Etički izazovi video-igre,* Zbornik radova Fakulteta dramskih umetnosti, Časopis Instituta za pozorište, film, radio i televiziju, Beograd, 2013, broj 24,

With having in mind that this is a pioneering effort, I am afraid that this paper will open more themes and questions than give the answers. Simply, an effort to contribute to determining the place of video game in modern world culture demanded numerous aspects of video game to be presented, without which it is not possible to understand the phenomenon of video game and to understand all of its depths. The character of the research caused us to point to metaphysical, gnoseological, psychological, ethical and aesthetical, cultural and artistic, managerial, sociological, didactic, and many other aspects of video games and their ontological being that all together cause the video game to become the form of game that is played the most and to become a phenomenon that stands firmly with other phenomena of modern society.

There is another reason for this topic. Despite analyzing a number of theories and minute search for elements shared with modern ludology theory, we had to conclude that despite overall brilliance of these theories, they still do not offer enough material to understand and define the video game, especially in its virtual segment, meaning what happens on the other side of a display in a triangle video game software – player's experience – video game world with avatar who plays, and where, like Gadamer[12] said, „a man does not play, a game plays, using a man as its toy". Exactly that hidden segment that makes video game most playable game ever demands different thinking and explanations, and this paper offers a new approach that can provide certain explanations of meta-activities of the player of a video game in mandatory meta-reality of the world of a video game.

Because of advanced industry of video games, the largest number of researches was made in the USA and in Western Europe. Due to lack of serious entertainment industry in our country, video game studies are rudimental. The majority of works about video games and publicist texts that explore video games from technical aspects, and not humanist. If there are works of humanist provenance, they are basically psychological and treat psychological preconditions for playing and development of gaming addition.

In works of not only local researchers the place of video game in cultural structures is not determined. There is no correlation between video game and game phenomenon as whole and traditional cultural reality, such as mythology and ritual in these works. There is no clear correlation of video game with other art forms – literature, drama, film. Analysis of video games as cultural texts is not completed. Definitive and irreversible status of video game is not yet established, when we take in consideration its place in socio-cultural structures and inner content. Authors who previously studied this topic did not make a clear selection of video game structures. Despite large number of these works, a deep synthetic research that would determine cultural and anthropological status of video game hasn't been made. It is necessary to create researches that would explain inner structures and origins of video game, as well as influence of this phenomenon on social and cultural dynamics[13].

---

[12] Hans-Georg Gadamer (1900 — 2002)

[13] Filipović, Aleksandar: *Video igre kao najozbiljniji biznis kreativne industrije na početku 21. veka*, „Megatrend revija" vol 10 (2) 2013, Beograd,

Axiology of video games

Why is the phenomenon of video game so crucial, why is its noumenon component priceless for future of human relations, what makes the ontological being of video game so important and valuable?

This paper treats video game as a singular phenomen of the culture which is present through complete human history as a rare constant. Nonetheles, „when we try to understand the essence of the game, particularly of the vdeo game, to give its definition, we see certain difficulties, because the game, albeit omnipresent and seemingly easy to understand seems to resist rationalization and defining, and when we try description, another mutually exclusive phenomena appear"[14].

Today, in era of undefined cultural paradigm and dillemma whether we live in post-modernist or digimodernist era, practically all cultural spaces are re-oriented to the game, or refer to game, or contain some of its important characteristics. Existence of video game is multiple, and its presence is felt everywhere. Umberto Ecco[15] claimed that the game lies in foundation of every cultural phenomenon. Everything is game, which is good, but it is not good for game to be everything. Being of game and the play of being are two dialectically intertwined phenomena[16]. The being of game that plays within the game is eternal as ancient Ouroborus.[17] Ecco does not stand alone in that belief, and has strongest support in already described and cited beliefs of Gadamer and Finl. Interpretation of concept of the game can be seen everywhere in the world and life, wherever nature of things and relations depends on conflict between two or more sides, and its outcome depends on choice of strategy and application of certain solutions by involved participants. On foundation of such position, practical forms and applications of the game are very wide (children, political, military, economical, psychological, mathematical, logical). It is a complicated and layered phenomenon ontologically based in anthropological reality and supplied by subjectivity. The game are embodied as a complexity of actions, knowledge and cummunications. To set an universal definition of the game and the nature of the game is very difficult. Fink wrote on death, work, love, and game which is like an existential pjenomenon, „one of the ways of undertanding by which the man understands himself... and tries to explain existence of all things through these semantic horizons"[18].

---

[14] Jakovljeva Elena, (Яковлева, Елена Людвиговна) *Игра – уникальный феномен культуры* (Igra, jedinstveni fenomen kulture), Вестник ОГУ, №7(113)/июль 2010, Институт экономики, управления и права, Казань, 2010, p. 150

[15] Eco, Umberto: *La structura assente. Introduzione alla ricerca semiologica*/ U.Eco, SPb., 2004.

[16] Козырева Н.А. - *Бытие игры или игра бытия*, http://www.read.in.ua/book208396/, retrieved 20.04.2019

[17] Ouroboros is an ancient symbol of eternity showing a snake eating its own tail and forms a circle, and constantly renew itself from itself

[18] Финк Е. *Основные феномены человеческого бытия / Е. Финк // Проблема человека в западной философии*. М., 1988. С. 357–403. see: Yakovleva Elena, (Яковлева, Елена Людвиговна) Игра – уникальный феномен культуры (Igra, jedinstveni fenomen kulture), Вестник ОГУ, №7(113)/июль 2010, Институт экономики, управления и права, Казань, 2010, p. 150

Omnipresensce of game by no means represents a solution for all the problems of the world, since game, that is not serious and is fantastic must not play life, it only may imitate it, immaculately and inconsequentially. Video game more than any other creates a field of imagination and fantasy where a man plays with reality, led by rational or irrational interests and by that it becomes a way of organizing though and philosophical thinking, especially in modern times. With video game, a search for the purpose of life and its essence appears. Game in general is a necessary human quality without which it is not possible to construct anthropology, ontology and gnoseology.

Video game is, on the other hand, something that has already been seen in every game, but it is something else as well, previously unseen. Video game is a game in virtual space and non-reality. Physically speaking, it shall not exist. No matter how hard we try to find physical trail of being of video game in the real world we will not find them. Because physically video game exists only in the mind of the player, where bioelectric discharges and chemical connections between synapses create the world of video game in imagination and experience of the player.

Video game is a true phenomenology revelation of this generation, and despite the fact that the same video game is daily played by millions of players, the way of play and experience of the same game is different with each player. It is a phenomenon like no other before, and in order to correctly determine place and essence of video game, we will have to look for answers that only the philosophy of the game with its metaphysics can give through ontology and gnoseology.

Some value aspects of video game

Based on inadequate and even wrong methods of analysis inherited from performing arts phenomena of the culture, video game inherited from them and particularly from the film, unbased moral panic. Using methodology and value and ethical positions of film analysis and critic after more than 100 years of development, thousands of critics for years scientifically incorrectly interpreted ethical and aesthetical values of video game, even when it was in its cradle. Only a small number of reasonable people reminded that video games after ten years of development can only be compared to film after ten years of development. Any other comparison gives inaccurate and unreliable results. Only in the last several years new standards in perception of video game and difference of that cultural phenonenon from any other appeared. Video game share the most visual identifications with the film, with one crucial difference. Everything not allowed in film or in theater, and was and still is a subject of state censorship was a standard in video games. Educational, religious and scientific authorities were taking turns in harsh criticism of video games and its destructive influence on gaming population for several decades. The fact that millions of players belonging to *Nintendo generaion*[19] came of age in the meantime, and now

---

[19] The term Nintendo generation applies to a generation that grew up with various gaming systems since the early 1980s and so called third genration of gaming consoles. One of the best-selling consoles

are in their forties, and who, after completing higher education became successful people and carriers of progress and pillars of society in their countries did not help much in predominant perception of video games effects.

The essence of positive functions of video game is generally in the fact that playing video games represents an irreplaceable training for human brain and human motor functions. Similar mechanism takes place like in other games, especially sports, that while playing, a person strengthens nearly all elements of their body and personality, with addition that while playing video games one does not strengthen his body nearly at all, but many other functions, as we will see, do. In many video games skills necessary to start and particularly to win in a game are a sum of abilities of abstract and rational thinking and practical skills and atributes of the highest order. These skills cannot be learned in school, but only in a game, in the same way as people who played games for millennia became better, stronger, more skilled and more human. The game continues to perform both divine and diabolical function it always performed and which made a man more human. Naturally, the planet has changed, the society has changed, people and their values have changed. The game changed as well, and adapted into a thing mankind wants it to be.

In order to start playing a video game, a player must follow instructions and strictly follow the procedure. If one does not, there is no game. It might seem insignificant, but following procedures and respecting instructions is of crucial importance for functioning of the society, and it will be even more important for functioning of a much more complicated society we will live in in several decades.

Playing of video game consists of problem solving. Nearly every sequence in a video game demands mental effort from the player to identify the problem, choose a strategy and overcome it. Problem solving demands rational thinking, it demands solving of logical puzzles and tasks. A player who daily solves various logical and thought problems for hours should have less problems to similarly well adapt to similar situations in the real life.

Practining of eye-hand coordination, improvement of motor functions and improvement of various spatial skills are a topic for a separate paper, but it is undisputable that one cannot get a pilot's licence unless one spent certain number of hours in a flight simulator which is nothing more than a high-performance video game. Every larger army in the world use video games simulating driving of real vehicles for at least a part of military training. No one will fire a shell from *Abrams*[20] or *Challenger*[21] until the instructor is sure that one can hit the target in the simulator. One of the most important functions of usage of video games in soldier training is so-called desensization of killing of another human.

----

of that generation was Nintendo Entertainment System from 1984, that sold 61,9 million units. The term does not exclusively apply to players of the third gen consoles, but also all those who came later. See: Aleksandar Filipović, „*Odrastanje nintendo generacije: Kako je video-igra postala važan element popularne kulture"*, „Medijski dijalozi", časopis za istraživanje medija i društva, godina VI, broj 17, novembar 2013.

[20] M1 Abrams, main battle tank of the US Army. Namesake of Creighton Abrams, former chief of staff of the US Army

[21] FV4034 Challenger 2, main battle tank of the British Army

Shooting and usage of available resources in video game is not like in the films. You cannot behave like Rambo or Schwarzenegger's film characters in video game and shoot for hours without reloading. Every bullet and every piece of resources in video games is hard-earned or rewarded for achieving certain goals. Planning, resource management and rational usage of available logistics one cannot learn from the films, but can learn from video games. A player who successfully leads his civilization to modern day in games from *Civilization* series can be a manager in a company since they achieved necessary level of knowledge, planning and management.

Multitasking is another ability one can learn by playing video games. Simultaneous following of numerous variables and managing of multiple goals is a situation one can rarely meet in the real life. In order to solve problems, players must think quickly, analyze quickly and make decisios quickly. According to a research[22], „players of action games must make numerous correct decisions per unit of time. If you are a surgeon or you are in the middle of a battlefield, that skill can be the difference between life and death".

A research from University of Rochester[23] shown that by playing video games players practice precision. Action games, the study says, train the brain of a player to make decisions faster, without losing accuracy. In contemporary world, fluidity and precision are becoming abilities whose combination marks the most successful people.

Steve Johnson[24] points that current players, or at least the most successful ones, must share traits with top level managers, whether they are military generals or leaders of large teams. Strategy and prediction are abilities that gamers practice daily. Although the opponent is relatively predictive, a player must know when and how to use its advantages, when to attack, when to wait and when and how to withdraw in order to attack again. As a chess player in each game, video game players have to have an ability to anticipate the mvoes of their opponents, and particularly to anticipate how the opponents will react to their own moves. Johnson call that group of gamer skills the *telescoping* and claims that these skills are learned by solving daily gamer dillemmas. What is even more important that learning itself is adoption of strategies and predicting as an outlook on life, as well as an outlook to their own managerial strategies. A player has to learn to deal with current problems while keeping the long term goals on his horizon.

Defense news[25] published several times that the US Army uses video games for training of so-called situational awareness, meaning training of soldiers in order to improve their spatial and temporal awareness during combat. After sudden

---

[22] Daphne Bavelier, Alexandre Pouget, and C. Shawn Green, *Video games lead to faster decisions that are no less accurate,* Current Biology, http://phys.org/news/2010-09-video-games-faster-decisions-accurate.html, retrieved 18.04.2019

[23] http://rochester.edu/news/show.php?id=3679, retrieved 18.04.2019

[24] Steven Johnson *Everything Bad Is Good forYou: How Today's Popular Culture Is Actually Making Us Smarter*, Riverhead Books, 2006

[25] Defense News, a magazine founded in 1986, represents an authority source of independent and professional news for creators of global security policies

changes in combat (ambush, raid, mines, snipers) a security orientation and security situation drastically changes and security warnings and orientation is of survival importance. A soldier has to know where are his allies, where are enemies, what is up and what is down, what is the source of the sudden light, etc. Many strategy games have similar sutiations and demands from players to become aware of sudden changes in situational games and to adapt as quick as possible. The same magazine mentions that Pentagon paid video game manufacturers to create video games[26] that would simulate the most difficult situations that may happen during the combat so they could train members of their special units using these video games.

By playing video games, players train or improve a whole specter of abilities on whose usage if not life then correct problem solving in their life will depend. Simplified list would look like this: development of reading and mathematical skills, durability, recognition of forms, estimation of their own and the opponent's abilities, inductive logic and setting and testing the hypotheses, correct mapping and later usage of the maps, memory and concentration training, improvement of abilities to quickly and precisely recognize visual and sonic information. For instance, *Beth Israel Medical Center*[27] found a direct connection between successful playing of a video game and successful completion of laproscopic surgery.

Video games can help people to understand a term and necessity of taking risks and to realize how much courage is needed for that, to learn how to answer to challenges, how to overcome frustrations, how to explore and think through the goals. They have to understand importance or even necessity of adoption the managerial rules in order to reach the goal.

Conclusion

One of the serious problems of modern man is that his mental faculties and reaction by instincts are the constant and essence of human nature demand a free man, with right and power of free choice, even to choose evil. The problem is that such mental apparatus was created „then[28]" and therefore requires the man from that time, when nearly all aspects of life were aligned with it. Modern man and modern life is consisting of numerous aspects that are new, while the man, in a biological sense, remained almost the same. Although humans of today think they life in freedom and are free, it is only a perception and estimations dependable on the point of view. Freedom understood as a possibility of undisrupted full choice, even with acceptance of all the consequences of such choice is absolutely not possible. Ever since the first forms of state and state force, a man is permanently exposed to thousands of prohibitions. It is impossible to list everything that a civilized man living in a city cannot do, and what he has to do, and everything he can do that implies some

---

[26] Personalized Approach to Army Avatars,
http://www.defensenews.com/story/defense/international/americas/2014/12/08/personalized-approach-to-army-avatars-/20105585/, retrieved 15.04.2019
[27] Mount Sinai Beth Israel is a 1,368-bed, full-service tertiary teaching hospital in New York City
[28] 300,000 BCE

form of punishment which always means pain[29]. Such changes that lead from freedom to extremely limited freedom, accepting of these limitations happened slowly, over decades or centuries, so they practically cannot be felt, but still combined together are a reason for deep and devastating frustrations and alienation that are unwise to ignore.

There is an old saying that the nature, even when forced away, will still return[30]. Now we know that the life sharply in contrast with natural instincts will have equally bad effects on quality of life as would complete surrendering to forbidden impulses. People who live outside certain boundaries of the natural will probably be envious, selfish, malicious, angry. They can even become mad and cruel[31], or on the other hand, to lose any joy of life so much that they would not have the strength to do anything useful. People have many aggressive, as well as creative impulses that the society prohibits, and alternatives offered by society like sports competitions will hardly be a replacement. Anyone who hopes that in time wars will be eradicated should seriously think about the problem of harmless satisfaction of instintcs we inherited from generations of our wild ancestors[32]. Daily work and respecting of thousands of bans will not make a man happy. A freedom of the soul is necessary. „Christ knew that man cannot live only on bread. If there is no spiritual life, if there is no beauty ideal, a man will grieve, he will die, he will go mad or kill himself, or he will surrender to pagan dreamers", Dostoyevski[33] wrote in a time when life was much harder, but also much more free than today.

By following the claim of Bertrand Russell, one of the goals of this paper was to research, or at least set a thesis or a question, can video game be a substitution for humans for abstaining from reacting by instinct and the natural law, which is deeply embedded but so deeply repressed by the need for moral good that it threats to irreversibly dissolve human community and mental apparatus of every man by alienation? This is more about a freedom as the first in the primary group of values of human life, an elementary freedom of human being, the freedom of the soul. People took liberty to ckaun that complete freedom of every man brings universal possibility to do evil, so in oredr to control the evil in themselves they turned their attention to the freedom in themselves and nearly erradicated it. Saint Augustine[34] propheti-

---

[29] Recently a court in Great Britain (judge Peter Greene of Cambridgeshire) took away two sons younger than 4 from their parents because their mother allowed the boys to sleep in the same bed with her (http://www.independent.co.uk/news/uk/home-news/mother-who-allowed-her-children-sleep-bed-taken-away-judge-a7576776.html http://www.telegraph.co.uk/news/2017/02/12/mother-allowed-two-boys-sleep-bed-has-taken-family-court-judge/ retrieved 14.04.2019

[30] Bertrand Russell, *BBC Reith Lectures*, http://pescanik.net/drustvena-kohezija-i-ljudska-priroda/, retrieved 18.04.2019

[31] Unthinkable mass shootings in the USA, or bestial cruelty over innocent population (Boko haram - Jamā'at Ahl as-Sunnah lid-Da'wah wa'l-Jihād in Nigeria, Tchad, Cameroon and Niger, crimes of ISIS, crimes in Rwanda etc.)

[32] Bertrand Russell, *BBC Reith Lectures*, http://pescanik.net/drustvena-kohezija-i-ljudska-priroda/, retrieved 18.04.2019

[33] Dostojevski, Fjodor Mihajlovič, „*Legenda o velikom inkvizitoru" Braća Karamazovi-knjiga prva*, Rad, Beograd, 1975. pp. 314-338

[34] Aurelius Augustinus (354 - 430), better known as Saint Augustine was a Roman writer, philosopher and theologist, author of *Theologiae Patristicae*. He was one of the most important people in history of

cally claimed that „the world with evil is better than the world where moral evil would be impossible. A perfect world demands existence of free creatures, and some of those free creatures choose evil with their free will. Still, the world with free creatures and evil is better than the world without freedom and evil.[35]"

Can video games give people back the possibility of free choice, or at least create an illusion of free choice in virtual and alternative worlds of the being of video game which will soon become so realistic and lifelike that people might more gladly spend their time there instead of obscure and cruel real worlds of permeating alienation?

The short answer to the question is – yes. Video game can do it and video game already does that. There is still not enough research papers to prove it, but it seems that the Nintendo generation today is a happier and better part of the human community.

The humankind is only to gain from this phenomenon. If we consider that video game helped to come full circle with the initial instinctive need of a man, the need to play, it is additional layer of value of video games. And to be in such harmony with basic human needs as well as the *zeitgeist* and the ever-changing world we live in, to be past, present and future in the same time, it is a peerless phenomenon, not only a cultural one, but one of the defining phenomena of our time.

References:

1. Augustin, Aurelije: *O državi Božjoj - De civitate Dei*, Kršćanska sadašnjost, Zagreb, Katolički bogoslovni fakultet Sveučilišta u Zagrebu, 1996,
2. Bavelier, Daphne, Pouget, Alexandre, Green, C. Shawn: *Video games lead to faster decisions that are no less accurate,* Current Biology, http://phys.org/news/2010-09-video-games-faster-decisions-accurate.html,
3. Biblija: *Prva knjiga Mojsijeva*, trans.: Daničić/Karadžić,
4. Dostojevski, Fjodor Mihajlovič: *Legenda o velikom inkvizitoru, Braća Karamazovi- knjiga prva*, Rad, Beograd, 1975,
5. Eco, Umberto, La structura assente. Introduzione alla ricerca semiologica, Bompiani, Milan, 1968,
6. Filipović, Aleksandar: *Paradigma kulturološkog pozicioniranja video igre*, doctoral dissertation, Faculty of Dramatic Arts, University of Arts, Belgrade, 2016
7. Filipović, Aleksandar: *Odrastanje nintendo generacije: Kako je video-igra postala važan element popularne kulture*, Medijski dijalozi, časopis za istraživanje medija i društva, godina VI, broj 17, 2013,
8. Filipović, Aleksandar: *Etički izazovi video-igre,* Zbornik radova Fakulteta dramskih umetnosti, Časopis Instituta za pozorište, film, radio i televiziju, Beograd, broj 24, 2013,
9. Filipović, Aleksandar: *Video igre kao najozbiljniji biznis kreativne industrije na početku 21. veka*, Megatrend revija, vol 10 (2) 2013, Beograd,

----

Christianity. Born as a son of a pagan and a Christian mother (St. Monica), Augustine followed Manichaeism and lived a decadent life, later described in his *Confessions.* He turned to Christianity in 386 AD and later became a bishop of Hippo, where he served until his death. His most important work is *De Civitate Dei contra Paganos* (The City of God).
[35] St. Augustine: *Confessions III, 7, 12*

10. Fink, Eugen: *Osnovni fenomeni ljudskog postojanja*, Nolit, Beograd, 1984,
11. Gadamer, Hans Georg: *Istina i metod, Osnovi filozofske hermeneutike*, Veselin Masleša, Sarajevo, 1978,
12. Yakovleva, Elena: *Игра – уникальный феномен культуры* (Igra, jedinstveni fenomen kulture), Вестник ОГУ, №7(113)/июль, Институт экономики, управления и права, Казань, 2010,
13. Johnson, Steven: *Everything Bad Is Good for You: How Today's Popular Culture Is Actually Making Us Smarter*, Riverhead Books, 2006,
14. Козырева Н.А: *Бытие игры или игра бытия*, http://www.read.in.ua/book208396/,
15. Kvint Horacije Flak: *Pesme*, NNK international, Beograd, 2013,
16. Le May, Doris and Jean-Louis: *La chasse a l'imponderable*, 1966,
17. Niče, Fridrih: *Tako je govorio Zaratustra*, Dereta, Beograd, 2011,
18. Niče, Fridrih: *Dionisovi ditirambi,* Grafos, Beograd, 1983,
19. Russell, Bertrand: *BBC Reith Lectures*, http://pescanik.net/drustvena-kohezija-i-ljudska-priroda/,
20. Sivč, Milotka Molnar, *Hajdegerov pojam „tubitak" i temeljni pojmovi tradicionalne ontologije*, Filozofski fakultet Novi Sad, „Filozofija i društvo" 3/2008
21. Saint Augustine of Hippo, *Confessions*, translated by R.S. Pine–Coffin. Harmondsworth Middlesex, England: Penguin Books, 1961,
22. Todorović, Miloš: *Fundamentalna ontologija i idealizam*, Kratke studije, Plato, Beograd, 2003

ЕТИОЛОГИЈА И АКСИОЛОГИЈА ВИДЕО ИГРЕ

Сажетак: Видео игре су прешле дуги пут од беле покретне тачке на црном екрану осамдесетих година прошлог века, па до данашњих графички невероватних интерактивних прича. Аутор у овом раду настоји да, у дубинама људских нагона потражи клицу настанка видео игара, сместивши узрок и разлог настанка феномена у пређудско. Аутор у наставку анализира аксиолошке аспекте видео игре нудећи логична објашњења за, на моменте шокантни комерцијални и цивилизацијски успех видео игара, њихову свеопшту планетарну вредност и корист за будућност живота на Планети, тврдећи да ће, у дистопијској будућности која нужно очекује људе на Земљи, видео игра можда бити ретка оаза благотворне дезалијенације, негентропије и неповратно минулог живота који је од човека направио "човека каквог познајемо".

Кључне речи: Видео игре, информационо друштво, ИКТ, нагон за играњем, алијенација

NENAD BINGULAC[*]
Faculty of Law
Novi Sad
SLOBODAN MALEŠIĆ
Ministry of Interior - Republic of Serbia
Belgrade

VIDEO GAMES AND LEGAL SYSTEM – CRIMINOLOGICAL AND CRIMINAL LAW ASPECTS OF VIOLENCE IN VIDEO GAMES

Summary: Video games represent one of the modern, inevitable forms of everyday life, with all its positive and negative aspects. There are various motifs of playing video games, starting with entertainment, education, socializing with other players, etc. Video games have dealt with many themes based on real life for long time now, but there are video games that base their stories on absolute fiction. Whatever the the type of game is, the games are most often dominated by elements of violence, which is also shown in the work through individual statistical data. For decades, the question is whether the real-life violence is caused by virtual violence, which is especially discussed when after some kind of violence was commited and then the person who commited the violence is pointing a finger directly on some of the video games in which he practiced that act of violence or similar one. In this paper, certain aspects, conclusions and attitudes that confirm and contradict the hypotheses of these investigations are concisely considered and presented in order to find the causal link. Then, in addition to the aforementioned, the significance of PEGI categorization guidence is shown, which does not however represent a required segment of the description of video games, while a special part of the work is dedicated to the fact that the World Health Organization decided to add „gaming disorder" to its list of mental health conditions. At the end of this research the basic views of the author on how violence in video games can be regulated in a legal way, but with the emphasis on the complexity of this topic, especially if one has in mind that there is no single position or definitive, which concerns the question of whether the virtual violence can provoke or encourage real-life violence.

Key words: video games, legal order, criminal law, misdemeanor law, violent behavior, ICD-11

Initial consideration

The reasons for playing video games are numerous. Most often it is about entertaining gaming, i.e. about playing in order to „kill and spend" some free time.

---

[*] nbingulac@pravni-fakultet.info

There are also cases where the person goes inside the virtual world in order to escape the everyday problems and various contemporary stress situations. Depending on the type of game, games can also be of educational character, and not necessarily to be infused with various forms of violent or deviant behavior.

Video games have been for decades a very large and significant industry, with large budgets for story-line teams and programmers who encode sometimes very complex software algorithms.

Keeping in mind mentioned as an important factor, but also keeping in mind that based on statistics from January 2018 stemming from a study conducted in six countries, on average individual is playing video games on a weekly basis for almost 6 hours (Figure 1) is clear reason why this topic has been increasingly explored and considered for many years now.

The survey was conducted on a sample of 500 respondents per country, representing 3000 respondents. During the survey, only one question was asked:„How many hours each week do you spend playing video games?"

Statistic that were shown on *Figure 1* illustrates the average weekly hours spent playing video games in selected countries during January 2018. Based on data analysis it was discovered, that among studied countries, U.S. gamers spent the largest number of hours weekly playing video games with average of 7.15 hours, while South Korean's spent and average of 4.42 hours per week on this activity.

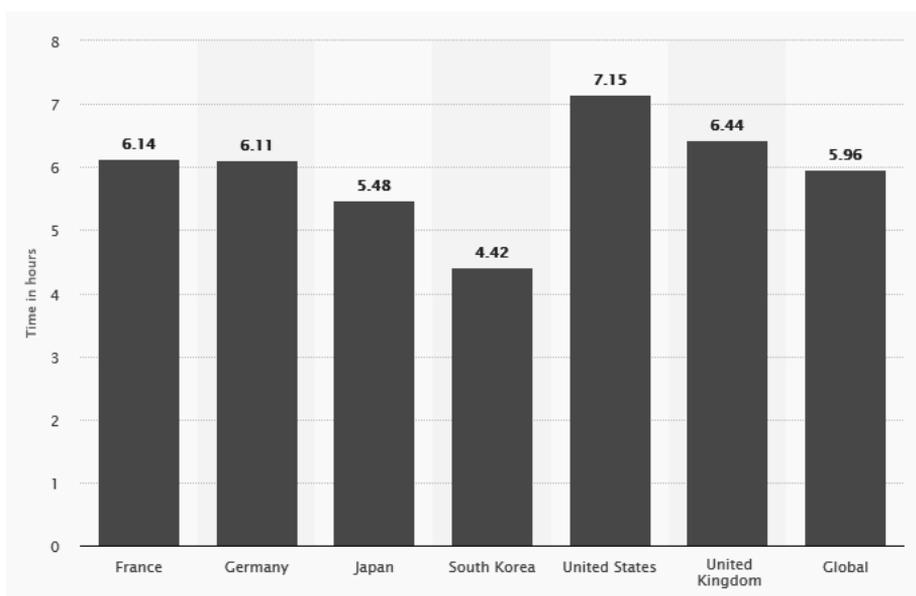Figure 1 – *Average weekly hours spent playing video games in selected countries worldwide as of January 2018 - Data: Statista - The Statistics Portal*[1]

---

[1] Statista - The Statistics Portal - Average weekly hours spent playing video games in selected countries worldwide as of January 2018, www.statista.com/statistics/ 273829/average-game-hours-per-day-of-video-gamers-in-selected-countries/

Many studies conducted in 2000, which were prompted by the same research in the late 1980s, led to the conclusion that viewing of violent TV content increases aggressive behavior.[2] From this comes the logical question of whether video games with elements of violence also have the effect of instigating violent behavior, especially if more active participation in virtual violence through video games is taken into account[3], especially if the time period is spent on a daily basis playing video games.

Additional studies show that violence that exists in games as much as 78% in real life would result in a death outcome.[4]

Certain aspects of the issue of violence in video games and legislative issues

Creating addiction on video games is conditionally said one of the segments of this issue, because it is this addiction that leads to repeated or continuous playing, for example, playing the same games that has segments of violence.

Creating addiction can be viewed from multiple angles. Some players create addiction on the basis of „liking" the game's themes, which is supported by achieving certain goals and advancements that players need to accomplish inside the game. In online games, that addiction can be created in addition to the before mentioned, through interaction with other players, as online gaming has a greater degree of interaction, and players have the ability to develop their own relationship.

In contrast to watching violent TV content where the viewer is a passive actor, in video games, the player is an active player and he decides how to behave, which further stimulates decision-making, especially since in this way the player has the „power of decision" and that can also affects the addiction, but also on possible violent behavior. More precisely, this is not about power in the literal sense, but it is an illusion of power because the programmer is the one who created the software by which the player will still play this video game.

---

[2] Ana Jeftić i Milomirka Savić, *Povezanost igranja nasilnih video-igrica i vršnjačkog nasilja kod adolescenata u Srbiji,* Psihološka istraživanja, Vol. XVI/2013, str. 192, a upićivanje na istraživanja Bandura, A., Ross, D., & Ross, S. A. (1963). Imitation of film-mediated aggressive models. Journal of abnormal and social psychology, 66(1), 3–11; Murray, J. P. (2008). Media Violence The Effects Are Both Real and Strong.American Behavioral Scientist, 51(8), 1212–1230; Bushman, B. J. & Huesmann, L. R. (2001). Effects of televised violence on aggression. In D. Singer & J. Singer (Eds.), Handbook ofchildren and the media, Thousand Oaks, CA: Sage, 223–254.

[3] Ana Jeftić i Milomirka Savić, *Povezanost igranja nasilnih video-igrica i vršnjačkog nasilja kod adolescenata u Srbiji, op.cit.,* upićivanje na istraživanja Anderson, C. A. & Dill, K. E. *Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life*, Journal of Personality and Social Psychology, 78, 2000, pp. 772–790. Gentile, D. A., Craig, Anderson, C. A. *Violent Video Games: The Newest Media Violence Hazard*. U: Gentile, D. A. (ur.) Media Violence and children, 2003, pp 131–152.

[4] For more see: Smith, S., Lachlan K., & Tamborini R. *Popular video games: Quantifying the Presentation of Violence and it's Context*, Journal of Broadcasting & Electronic Media, Vol. 47, 2003, pp. 58–76.

Playing violent video games does not necessarily mean that players will be violent in real life, but there is no doubt that there is a justifiable fear that young players, children in development, playing violent games can develop the perception that violence can solve things in the real world as well as in virtual. Of course this is not a rule especially when you take into account the significant influence of the family, environment and other things have on children.

On the other hand, when playing games with violent behavior, players can put themselves in situations where they may never find themselves in real life, which can to a certain extent be considered as an „educational" aspect.

The hallmark of the time we live in is aggressive, starting with TV content through available internet content to video games, and hence violent video games do not represent a unique case or the only potential cause of violent behavior.

Although it is understandable, it has been indicated that video games were created by people with a predefined theme. In this regard, there are a lot of games with violent content that are banned in some parts of the world. Australia is on top when it comes to the number of banned video games.[5] Some of the reasons for banning games are related to the games contain detailed instruction or promotion in matters of crime or violence, depiction of rape, the promotion or provision of instruction in pedophile activity, descriptions or depictions of child sexual abuse or any other exploitative or offensive descriptions or depictions involving a person who is, or appears to be, a child under 18 years…

The aim of this research is not to indicate in detail which those violent video games are, so it will not be mentioned further, but it will be mentioned why several games, based on their description, why are they are banned in many countries precisely because of the elements of extreme violence. An example can be a game called *Hatred* which is a violent twin-stick shooter, in which you take the role of The Antagonist fighting against all of humanity, with significant elements of genocidal behavior.[6] Then, the game called RapeLay, which is also banned in many countries, because the game theme refers to a male character who sexually assaults women.[7]

For more than a decade, there are significant civic initiatives in America to allow the elimination or censoring of video games with elements of violence. One of these major initiatives was carried out during Barack Obama's mandate, resulting in the Congress's large financial investment in additional research into the consequences of violent games. Some of the arguments for initiating this initiative were because of Adam Lanza who killed 27 people at the end of 2012, while being „obsessed" with the violent games, as stated in one of the announcements. It's similar

---

[5] List of banned video games in Australia, https://ipfs.io/ipfs/QmXoypizjW3WknFiJn KLwHCnL72 vedxjQkDDP1mXWo6uco/wiki/List_of_banned_video_games_in_Australia.html 03.03.2019.
[6] The Gardian: Hatred shooter removed from Steam gaming site:
www.theguardian.com/technology/2014/dec/16/hatred-shooter-removed-from-steam-gaming-site 03.03.2019.
[7] The Economic Times: RapeLay banned for sexual content,
https://economictimes.indiatimes.com/magazines/panache/rapelay-banned-for-sexual-content-manhunt-for-gore-pokmon-go-could-be-next/articleshow/53516123 .cms?from=mdr 03.03.2019.

with Anders Breivik, who told the court that he had practiced his act in Call of Duty video game.[8]

The same initiative attempt was made during the early years of Donald Trampe's mandate at a meeting attended by representatives of the video game industry and the organization of parental control of the media.[9]

The US Supreme Court responded to these initiatives are not in accordance with the US Constitution. In the legislative sense observed since 2000, seven states and two local governments have enacted laws that attempted to restrict minors from playing and purchasing violent video games. In all cases, Federal courts applying established First Amendment law have enjoined the laws. As one of the consequences of this, is that Entertainment Merchants Association opposes the enactment of laws restricting minors' access to video games based on the depictions of violence in them because they were committed to protecting the First Amendment rights of retailers and their customers.[10]

One of the most important court judgments according to many sources, is the decision by Supreme Court of USA, in which Supreme Court has held that games qualify as protected free speech, which is directly pointed at California's 2005 law banning the sale of violent video games to minors without parental consent is unconstitutional.[11]

Although this suggests that there is a justifiable fear that the violent video games may have negative consequences for the juveniles in the real world, i.e. to provoke violent behavior, in recent years more and more studies have been done that deal with these issues, which in their conclusions do not confirm that there is link between violent games and socially relevant outcomes.[12]

The impression is that this issue is still in the gray zone and that the data from those studies is used on a need basis and by various different groups.

When you specifically observe the legislation part, in America and Europe, it can be seen primarily that the focus of ban is exclusively on age groups to which certain content of the games can be sold. It should be aware that these restrictions can not be fully implemented because video games can be purchased online. Eventhough the seller is asking a buyer about his age, it is still a formal requirement of fulfilling a legal obligation, not a classic restriction because there is no possibility of checking the data.

---

[8] White House press release, Видео игре (не) изазивају насиље?,
https://www.b92. net/tehnopolis/aktuelno.php?yyyy=2013&mm=01&nav_id=678273, 04.03.2019.
[9] White House press release, Violence in Video Games, https://m.cdm.me/tehno-nauka/igrice/snimak-o-nasilju-u-video-igrama-koji-je-prikazan-donaldu-trampu/ 04.03.2019.
[10] Entertainment Merchants Association, Regulation of Violent Video Games and DVDs,
http://www.entmerch.org/government-affairs/ema-position-statements/regulation-of-violent-video.html#.XJo_QKR7m9I, 04.03.2019.
[11] Supreme Court of USA, Supreme Court says video games are protected free speech,
https://www.theverge.com/2011/6/27/2515183/supreme-court-video-games-protected-free-speech-analysis, 04.03.2019.
[12] Christopher Ferguson, *Violent Video Games, Sexist Video Games, and the Law: Why Can't We Find Effects?*, Annual Review of Law and Social Science, Volume 14, 2018, pp 412.

Pan-European Game Information (PEGI)

Pan-European Game Information (PEGI) represents a grouping of fun content based on the content of the video game. The point is to predict the minimum age recommendation based on the content they have.

It is necessary to point out that this is not a legal form of definition, but it has already been done on an optional content, which, however, is respected by the world's largest distributors of games.

Most games are suitable for players of all ages, but there are games only suitable for older children and young teenagers. Also some contain content is only appropriate for an adult audience.[13]

PEGI has more labels by which it groups video games into categories. The PEGI age labels are:[14]

PEGI 3 - The content of games is considered suitable for all age groups. The game should not contain any sounds or pictures that are likely to frighten young children. A very mild form of violence (in a comical context or a childlike setting) is acceptable. No bad language should be heard.

PEGI 7 - Game content with scenes or sounds that can possibly frightening to younger children should fall in this category. Very mild forms of violence (implied, non-detailed, or non-realistic violence).

PEGI 12 - Video games that show violence of a slightly more graphic nature towards fantasy characters or non-realistic violence towards human-like characters would fall in this age category. Sexual innuendo or sexual posturing can be present, while any bad language in this category must be mild. Gambling as it is normally carried out in real life in casinos or gambling halls can also be present (e.g. card games that in real life would be played for money).

PEGI 16 - This rating is applied once the depiction of violence (or sexual activity) reaches a stage that looks the same as would be expected in real life. The use of bad language in games can be more extreme, while games of chance, and the use of tobacco, alcohol or illegal drugs can also be present.

PEGI 18 - The adult classification is applied when the level of violence reaches a stage where it becomes a depiction of gross violence, apparently motiveless killing, or violence towards defenceless characters. The glamorisation of the use of illegal drugs and explicit sexual activity should also fall into this age category.

In addition to the listed categories grouped by age, PEGI also has a grouping by content.

The PEGI content descriptors:[15]

Violence - In games rated PEGI 7 this can only be non-realistic or non-detailed violence. Games rated PEGI 12 can include violence in a fantasy environ-

---

[13] Pan-European Game Information, https://pegi.info/page/pegi-age-ratings, 04.03.2019.
[14] *Ibid.*
[15] *Ibid.*

mentor non-realistic violence towards human-like characters, whereas games rated PEGI 16 or 18 have increasingly more realistic-looking violence.

Bad language - This descriptor can be found on games with a PEGI 12 (mild swearing), PEGI 16 (e.g. sexual expletives or blasphemy) or PEGI 18 rating (e.g. sexual expletives or blasphemy).

Fear - This descriptor may appear on games with a PEGI 7 if it contains pictures or sounds that may be frightening or scary to young children, or on PEGI 12 games with horrific sounds or horror effects (but without any violent content).

Gambling - The game contains elements that encourage or teach gambling. These simulations of gambling refer to games of chance that are normally carried out in casinos or gambling halls. Games with this sort of content are PEGI 12, PEGI 16 or PEGI 18.

Sex - This content descriptor can accompany a PEGI 12 rating if the game includes sexual posturing or innuendo, a PEGI 16 rating if there is erotic nudity or sexual intercourse without visible genitals or a PEGI 18 rating if there is explicit sexual activity in the game. Depictions of nudity in a non-sexual content do not require a specific age rating, and this descriptor would not be necessary.

Drugs - The game refers to or depicts the use of illegal drugs, alcohol or tobacco. Games with this content descriptor are always PEGI 16 or PEGI 18.

Discrimination - The game contains depictions of ethnic, religious, nationalistic or other stereotypes likely to encourage hatred. This content is always restricted to a PEGI 18 rating (and likely to infringe national criminal laws).

We think that is important to point out the the following statistics.

Age Class	2017	%	Since 2003	%
3	441	22,3%	11531	39,6%
7	455	23%	4877	16,7%
12	535	27%	6701	23%
16	362	18,3%	3886	13,3%
18	185	9,4%	2148	7,4%
Total	1978	100%	29143	100%

Table 1 - *Number of products rated, by age category until end of 2017.*[16]

According to the latest available data shown in *Table 1*, which are processed by PEGI, the percentage of video games grouped according to the PEGI age system can be seen.

---

[16] Pan-European Game Information Statistics, https://pegi.info/page/statistics-about-pegi, 04.03.2019.

Platform	3	7	12	16	18	Total
Violence		430	417	301	185	1333
Bad Language			232	115	125	472
Fear/Horror		96	37			133
Sex			72	24	9	105
Drugs/Alcohol				34	9	43
Gambling			8	2	3	13
Discrimination					0	0

Table 2 - *Number of products per content descriptor*[17]

In Table 2, data on grouping of video games for the same period according to their contents are displayed. You can clearly see that games with elements of violence dominate absolutely.

The World Health Organization and International Classification of Diseases

The World Health Organization (WHO) decided to add „gaming disorder" to its list of mental health conditions. WHO is stating that gaming behavior could qualify as problematic if it interferes significantly in other areas of people's lives. Although some types of games offer benefits, including the potential to improve people's ability to pay attention and process visual information, the decision was made on the basis of their conducted research, based on which it was concluded that there are links between playing video games and violent behavior.[18]

The World Health Organization in June 2018. released its new International Classification of Diseases (ICD-11). The ICD is the foundation for identifying health trends and statistics worldwide, and contains around 55 000 unique codes for injuries, diseases and causes of death. It provides a common language that allows health professionals to share health information across the globe. ICD-11 will be presented at the World Health Assembly in May 2019 for adoption by Member States, and will come into effect on 1 January 2022. This release is an advance preview that will allow countries to plan how to use the new version, prepare translations, and train health professionals all over the country.[19]

The World Health Organization gaming disorder to its globally recognized compendium of medical conditions and diagnoses despite the objections of the video

---

[17] *Ibid.*

[18] Kevin Loria, *How playing video games affects your body and brain*, Business insider, www.businessinsider.com/video-games-and-violence-2018-3, 05.03.2019.

[19] World Health Organization, WHO releases new International Classification of Diseases (ICD 11), www.who.int/news-room/detail/18-06-2018-who-releases-new-international-classification-of-diseases-(icd-11), 05.03.2019.

game industry and many researchers who have studied the issue, and believe the scientific evidence for the classification is weak at best. Gaming disorder is listed under „disorders due to addictive behaviors".[20]

ICD-11 defines gaming disorder: „Gaming disorder is characterized by a pattern of persistent or recurrent gaming behavior ('digital gaming' or 'video-gaming'), which may be online (i.e., over the internet) or offline, manifested by:

1) impaired control over gaming (e.g., onset, frequency, intensity, duration, termination, context);

2) increasing priority given to gaming to the extent that gaming takes precedence over other life interests and daily activities; and

3) continuation or escalation of gaming despite the occurrence of negative consequences.

The behavior pattern is of sufficient severity to result in significant impairment in personal, family, social, educational, occupational or other important areas of functioning. The pattern of gaming behavior may be continuous or episodic and recurrent. The gaming behavior and other features are normally evident over a period of at least 12 months in order for a diagnosis to be assigned, although the required duration may be shortened if all diagnostic requirements are met and symptoms are severe".[21]

There are many views that disapprove this decision by WHO, especially pointing out that there is insufficient evidence to support the need for a gaming disorder.[22]

In theory, we can see the stance that indicate that countries such as China and South Korea had considered gaming addiction a scourge for years, and had worked to address the issue through laws and other means, and that they still work on it.[23]

At the end of this part of the paper, we will also point out that based on the data from the end of 2018, and on the basis of 24 studies which were conducted between 2000 and 2017 across the U.S., Canada, Germany, and Japan. They included a total of 17,000 students between the ages of 9 and 19 years. The researchers analyzed the results of all of those studies to determine whether there is a link between violent video games and physical aggression. Based on their findings it is clear that violent video game play is associated with subsequent increases in physical aggression. The same source indicates that video games have become more realistic and have a variety of violent elements.[24]

---

[20] Sarkar Samit, 'Gaming disorder' classified as a mental health condition, but is the move premature?, www.polygon.com/2018/6/19/17475632/video-game-addiction-gaming-disorder-who-icd-11, 05.03.2019.
[21] *Ibid.*
[22] *Ibid.*
[23] Brandy Berthelson, *Game Industry Experts Weigh In on WHO's Gaming Disorder Classification*, SuperParent, https://superparent.com/article/182/game-industry-experts-weigh-in-on-whos-gaming-disorder-classification, 05.03.2019.
[24] Don Reisinger, New study claims to find link between violent video games and adolescent aggression, Fortune, http://fortune.com/2018/10/02/violent-video-games-study/, 05.03.2019.

The legislative framework in Serbia and the question of violence in video games

In the Republic of Serbia there is a lack of legislative regulation when it comes to this area, but given that this issue can be viewed from several angles, we will point out some specifics.

In the opinion of the author, one of the ways in which this issue can be regulated is to accept PEGI categorization (we remind that it is on a voluntary basis or some other similar ways used in the USA) and that it prohibits the sale of video games to persons which are less than the age of the indicated categorization.

This opinion, which is very subject to detailed analysis, is based on the principle of the application of Article 24 of the Consumer Protection Law, which foresees the prohibition of selling, servicing and giving alcoholic beverages, including beer and tobacco products and pyrotechnics, to persons under the age of 18. In the case of a suspicion that the consumer is a person under the age of 18, the trader is not obliged to sell or serve alcoholic beverages, beer or tobacco products or pyrotechnic articles until the consumer provides the trader with an insight into a valid identity card, passport or driver's license. The penal fine provided for this offence is from 300,000 to 2,000,000.00 dinars (Article 160). We do not suggest the same penal policy to be implemented, but we just wanted to show mentioned as a model.

If the legislator had included a new act in the mentioned Code, it would be necessary to determine how the content of video games could be sold to persons under the age of 18 years. Will we form a new body (commission) that will determine the content of video games or our legislative policy will be based on PEGI categorization. Also, the further issue is that in this way the legal issue would be solved solely for minors (assuming there is a need for this by the WHO or in the course of the conducted studies, etc.).

Essentially, any form of violence, is regulated by the criminal policy of criminal or misdemeanor law. If the violent behavior was prompted by virtual violence, this should in no way constitute an aggravating or mitigating circumstance for the already existing crime of murder, rape, serious theft, robbery, involvement in a fight, or any other violent behavior.

Significant shift could be in the specific prohibition of certain video games if on a global or European level, undoubtedly turns out to be definitely an initiator of violence in real life, of course this is the assumption that it is a foreign publisher and developer. Since this area has not been regulated in domestic legislation, there is ample room to regulate this area at least by substantive law, which should be specifically considered.

Final considerations

This research was aimed to primarily observe modern and latest available aspects that create relation between violence in video games and real violence and their legislative regulation.

We have concisely shown some conclusions of the studies that confirm and challenge the hypothesis of the study to find the causal link.

Given that the video game industry is very powerful and widespread, it can not be expected to significantly reduce or fully stop producing video games with segments of violence, especially when taking into account their demand from players.

Having in mind that currently there are more than half a billion people worldwide playing computer and videogames at least an hour a day (183 million in the U.S. alone). And that 99% of boys under 18 and 94% of girls under 18 report playing videogames regularly. The average young person racks up 10,000 hours of gaming by the age of 21 or 24 hours less than they spend in a classroom for all of middle and high school if they have perfect attendance. 5 million gamers in the U.S., in fact, are spending more than 40 hours a week playing games, and that is equivalent of a full time job.[25]

If mentioned has become a form of modern life, then we should aproach this topic in such way.

Although the WHO has been included in its list gambling disorder, many more studies will be conducted to determine does virtual violence encourage violence in the real world. We will remind that similar discussions took place in the 1980s regarding the television program, which today has more elements of violence than back then.

In the legislative sense, this issue is not regulated in domestic legislation, while in some parts of the world it is, but it exclusively refers to the sale of video games of certain content to persons under the age of 18, possibly prohibiting the distribution and sale of certain video games.

In this paper we have gave a suggestion on how to begin considering the legislative regulation of this area, if, based on reliable studies concerning violence in video games, it turns out that it is necessary to regulate this area.

References:

1. Anderson, C. A. & Dill, K. E. *Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life*, Journal of Personality and Social Psychology, 78, 2000, pp. 772–790.

---

[25] Jane McGonigal, We spend 3 billion hours a week as a planet playing videogames, www.ted.com/conversations/44/we_spend_3_billion_hours_a_wee.html, 04.03.2019.

2. Bandura, A., Ross, D., & Ross, S. A. *Imitation of film-mediated aggressive models*. Journal of abnormal and social psychology, 66(1), 196, pp.33–11.

3. Berthelson, Brandy, *Game Industry Experts Weigh In on WHO's Gaming Disorder Classification*, SuperParent, https://superparent.com/article/182/game-industry-experts-weigh-in-on-whos-gaming-disorder-classification, 05.03.2019.

4. Briefings & Statements of the White House, Video games (do not) provoke violence?, https://www.b92.net/tehnopolis/aktuelno.php?yyyy=2013&mm=01&nav_id=678273, 04.03.2019.

5. Briefings & Statements of the White House, Violence in Video Games, https://m.cdm.me/tehno-nauka/igrice/snimak-o-nasilju-u-video-igrama-koji-je-prikazan-donaldu-trampu/ 04.03.2019.

6. Bushman, B. J. & Huesmann, L. R.. *Effects of televised violence on aggression*. In D. Singer & J. Singer (Eds.), Handbook of children and the media, Thousand Oaks, CA: Sage, 2001 pp. 223–254.

7. Entertainment Merchants Association, Regulation of Violent Video Games and DVDs, http://www.entmerch.org/government-affairs/ema-position-statements/regulation-of-violent-video.html#.XJo_QKR7m9I 04.03.2019.

8. Ferguson, Christopher, *Violent Video Games, Sexist Video Games, and the Law: Why Can't We Find Effects?*, Annual Review of Law and Social Science, Volume 14, 2018, pp 411-426.

9. Gentile, D. A., Craig, Anderson, C. A. *Violent Video Games: The Newest Media Violence Hazard*. U: Gentile, D. A. (ur.) Media Violence and children, 2003, pp 131–152.

10. Jeftić, A. i Savić, M, *Povezanost igranja nasilnih video-igrica i vršnjačkog nasilja kod adolescenata u Srbiji*, Psihološka istraživanja, Vol. XVI/2013, str. 191-208.

11. List of banned video games in Australia, https://ipfs.io/ipfs/QmXoypizjW3WknFiJn KLwHCnL72vedxjQkDDP1mXWo6uco/wiki/List_of_banned_video_games_in_Austra lia.html 03.03.2019.

12. Loria, Kevin, *How playing video games affects your body and brain*, Business insider, www.businessinsider.com/video-games-and-violence-2018-3, 05.03.2019.

13. McGonigal, Jane, *We spend 3 billion hours a week as a planet playing videogames*, www.ted.com/conversations/44/we_spend_3_billion_hours_a_wee.html, 04.03.2019.

14. Murray, J. P. *Media Violence The Effects Are Both Real and Strong*.American Behavioral Scientist, 51(8), 2008. pp.1212–1230.

15. Pan-European Game Information Statistics, https://pegi.info/page/statistics-about-pegi, 04.03.2019.

16. Pan-European Game Information, https://pegi.info/page/pegi-age-ratings, 04.03.2019.

17. Reisinger, Don, New study claims to find link between violent video games and adolescent aggression, Fortune, http://fortune.com/2018/10/02/violent-video-games-study/, 05.03.2019.

18. Sarkar, Samit, 'Gaming disorder' classified as a mental health condition, but is the move premature?, www.polygon.com/2018/6/19/17475632/video-game-addiction-gaming-disorder-who-icd-11, 05.03.2019.

19. Smith, S., Lachlan K., & Tamborini R. *Popular video games: Quantifying the Presentation of Violence and it's Context*, Journal of Broadcasting & Electronic Media, Vol. 47, 2003, pp. 58–76.

20. Supreme Court of USA, Supreme Court says video games are protected free speech, https://www.theverge.com/2011/6/27/2515183/supreme-court-video-games-protected-free-speech-analysis, 04.03.2019.

21. The Economic Times: RapeLay banned for sexual content, https://economictimes
    .indiatimes.com/magazines/panache/rapelay-banned-for-sexual-content-manhunt-for-
    gore-pokmon-go-could-be-next/articleshow/53516123 .cms?from=mdr 03.03.2019.
22. The Gardian: Hatred shooter removed from Steam gaming site: www.theguardian
    .com/technology/2014/dec/16/hatred-shooter-removed-from-steam-gaming-site
    03.03.2019.
23. World Health Organization, WHO releases new International Classification of Diseases
    (ICD 11), www.who.int/news-room/detail/18-06-2018-who-releases-new-international-
    classifica tion-of-diseases-(icd-11), 05.03.2019.
24. Zakon o zaštiti potrošača Sl. glasnik RS", br. 62/2014, 6/2016 - dr. zakon i 44/2018 - dr.
    zakon

ВИДЕО ИГРЕ И ПРАВНИ ПОРЕДАК – КРИМИНОЛОШКИ И КРИВИЧНО ПРАВНИ АСПЕКТ НАСИЉА У ВИДЕО ИГРАМА

Сажетак: Видео игре представљају један од савремених неизоставних облика свакодневнице, са свим својим позитивним и негативним аспектима. Разни су мотиви играња видео игара, почевши од разоноде, едукације, дружења са осталим играчима и сл. У видео играма се одавно обрађују многе тематике из реалног живота, али постоје и оне које своје приче заснивају на апсолутној фикцији. Било о којој врсти игара да је реч, најчешће доминирају елементи насиља, што је и приказано у раду кроз поједине статистичке податке. Већ више деценија разматра се питање да ли виртуелно насиље проузрокује и насиље у реалном животу, што се посебно разматра када се након неког насиља то лице позове управо на неку од видео игара у којој је вежбао свој акт или сл. У раду су концизно размотрени и приказани поједини аспекти, закључци и ставови који потврђују и оспоравају хипотезе тих истраживања да се може пронаћи узрочно последична веза. Затим поред поменутог приказан је значај ПЕГИ категоризације која ипак не представља обавезан сегмент описа видео игара, док је посебан део рада посвећен и указивању на чињеницу да је Светска здравствена организација је одлучила да дода „поремећај играња" у своју листу менталних стања и болести. На крају овог истраживања изнети су базични ставови аутора на који начин би се могло законодавно уредити ово питање, али са указивањем комплексности ове тематике, посебно ако се има на уму да не постоји јединсвен став, нити дефинитиван, а који се односи на питање да ли виртуеално насиље може да изазива или подстиче реално насиље.

Кључне речи: видео игре, правни поредак, кривично право, прекршајно право, насилничко понашање, ICD-11

ANA STEVANOVIĆ[*]
National Assembly of the Republic of Serbia
Belgrade

VIDEO GAME AS A CULTURAL PHENOMENON

Summary: In this article, we are dealing with video games as popular culture phenomenon in terms of their social, cultural and technological significance. There is a discussion about what video games actually are. Some scholars claim it is an art form, other claim it is a medium. We are discussing about a position of video games in contemporary culture, accepting that a video game is created and manufactured in some society and often reflects, in subtle and sometimes not easily recognized ways, the beliefs and value system of the society in which it is made. There is also a discussion about video game culture as it has been defined as a subculture marked by certain tastes and as an art form. We are also dealing with video games as new technology phenomenon because playing electronic games on a personal computer, a game console, a handheld device, or on the Internet is a relatively new, but increasingly popular, kind of mediated entertainment. Observing video games, identification and popular culture we might say that far less attention has been devoted to game content. A small number of research projects have been done to analyze the way the world is represented in video games. Herein we argue for a critical cultural study of games, rather than a study of game culture as such.

Key words: video games, cultural phenomenon, art form, technological phenomenon, popular culture

Introduction

> *„Each successive generation of video games has become more technologically sophisticated, more realistic, and more violent. The newest wave of video games, based on CD-ROM technology is, in face becoming more like film and television than what we traditionally expect of a video game. This is a major evolutionary step beyond the simple graphics of the classic Space Invaders arcade game so popular fifteen or twenty years ago, or the tiny animated cartoon figures of the Nintendo system that have dominated the video game market in the recent years."*
>
> Eugene F. Provenzo, Jr (Steinberg and Kincheloe, eds, 1997:104)

---

[*] Е-маил, телефон

Much like cultural studies, the study of video games has relied on borrowing techniques from other disciplines, including anthropology, economics, philosophy, psychology, film studies, and so on (Boellstorff, 2006; Mortensen, 2007). Although they are both interdisciplinary fields, however, game studies has not drawn deeply as it might from cultural studies, particularly its critical and reflexive tendencies though notable exceptions do exist (Shaw, 2010:405). This is problematic as cultural studies could help video game studies approach the field in very productive ways.

What is video game culture, however? What does it mean to have a culture defined by the consumption of a particular medium? Moreover, what are the implications of defining this culture in a particular way? While there has been a great deal of ink split on video game culture, the actual definition of the term is often treated as common sense. Unpacking the discourses surrounding ''video game culture'' allows us to see the power dynamics involved in attributing certain characteristics to it, as well as naming it ''video game culture'' as such. This has implications for how video games are studied and is connected with how culture is studied more broadly. By critically examining how video game culture has been defined in both press and academic articles, this paper illuminates how this definition has limited the study of video games and where it can move.

There is some confusion about what video games are. Are they an art form with many different genres, similar to the novel or some kind of medium? There are decent arguments that can be made for both positions. Video games are interactive, but there are other texts and media that are interactive. The novel is an art form using medium of print that has many different genres – everything from genre stories such as mysteries and science fiction stories to non-formulaic, non-genre stories about individuals and their relationships. Thus, there is a wide spectrum of novels – everything from tough guy mysteries like Mickey Spillane's *I, the Jury* to James Joyce's *Ulysses* (Berger, 2017). We would like to suggest that video games are probably best understood to be similar to the novel in that there are many different genres of video games; both novels and video games are then, art forms.

Grasping the implications of this means moderating, or even giving up some of the available positions within cultural and media theory, especially those that are associated with the analysis of discourse or with the insistence on interpreting everything as if it were a medium of communication implicated in the circulation of ideology (Kirkpatrick, 2011). In place of this, the video game asserts a revived role for the concept of form, which has itself been much neglected in recent aesthetic theory.

We would like to consider that all video game studies must approach games as culture, but that those scholars that do approach video games through the lens of culture should adopt the same critical and reflexive approaches to culture that cultural studies has (Berger, 2017). Herein we argue for a critical cultural study of games, rather than a study of game culture as such.

A position of video games in contemporary culture

Defining video game culture serves to separate it from ''the regular'' culture, much as mass culture was separated from high culture in earlier critiques. One di-

chotomy set up in both academic and press discourses, as seen in cultural critiques more generally, is a distinction between video games as popular and video games as art. Much of the effort to get video games ''taken seriously" has relied on arguing for their aesthetic or moral value (i.e., serious games). This is done by showing the video games are worthy of academic study (Shaw, 2010) or can encourage social justice. To be relevant then, video games must mean something outside of their entertainment medium niche. If game studies are to learn anything from cultural studies, however, it should not take for granted the ways in which certain types of games, modes of play, and types of players are used to validate this field of study.

More Americans are well aware of the existence of video games. There are occasionally articles about video games in newspaper and the New York Times regularly carries a feature on new video games every Thursday in its „Circuits" section. There are also articles on the industry and various games in magazines such as Time and Newsweek, and there are many magazines devotes to video games and hundreds (if not thousands) of Internet sites on every conceivable aspects of video games (Berger, 2017).

When scholars write about video games, they often use the term „form" to discuss them. For example, Jay David Bolter and Richard Grusin write, in their book *Remediation: Understanding New Media* use the term remediation to deal with the ways in which new media refashion prior media forms (Berger, 2017). This concept may help us understand how to categorize video games.

Another author, Eugene F. Provenzo, also uses the term „form" in dealing with video games. He writes his essay „Video Games and the Emergence of Interactive Media for Children":

„We argue here that video games represent a new frontier for media in our culture. Video games are complex and rapidly evolving form – one that most parents and adults pay relatively little attention to."(Provenzo, 1997)

The video game is created and manufactured in some society and often reflects, in subtle and sometimes not easily recognized ways, the beliefs and value system of the society in which it is made. These values are filtered through personalities, social class, beliefs and values of those who actually design and create games. This means that works of art, in all media, always contain elements of the personalities and life experiences of their makers and also of the societies in which their makers grew up. Video games are played in many countries, so they have to also relate to the interests of players all over the world. For example, many popular video games are created in Japan but are popular in the United States and many in other countries (Berger, 2017). Video games makers must keep in mind the nature of their audiences – in particular how old the players will be – and their particular interests.

From books that look at Gaming as Culture (Williams, Hendricks, & Winkler, 2006) to journals such as Games and Culture (SAGE), there is a great deal of academic buzz about video game culture. There has been a great deal of ''cultural" work done around video games, particularly in the past 10 years. Authors look at video games in relation to thinking learning, gender, children, war and so on. The

41

great majority of recent work on video game culture centers on massively multi-player online games (MMOGs) like Everquest, World of Warcraft, or SecondLife (Shaw, 2010:404). In these areas, authors look at video games with regard to knowledge acquisition, identity and performance, representation, and the relationship between media and audiences.

What is video game culture, however? What does it mean to have a culture defined by the consumption of a particular medium? Moreover, what are the implications of defining this culture in a particular way? Although there has been a great deal of ink spilt on the subject of video game culture, writers usually treat the actual definition of the term as common sense. As King and Krzywinska point out, however, ''the most potent ideologies achieve precisely this status, being taken for granted as part of the 'commonsense' understanding of particular regimes, rather than recognized as ideology'' (2006, p. 188).

The study of video games as cultural texts or the culture of video games relies on many of the differing understandings of culture outlined above. Video game culture has been defined as a subculture marked by certain tastes and as an art form. Some look at games as social practice. Analyses of the video game industry are also used to define game culture, for instance, define video game culture by way of the major discourses used by members of the video game development industry.

Dovey and Kennedy (2006), for instance, define video game culture by way of the major discourses used by members of the video game development industry: ''Games culture is ... a critical site where discourses around technology, technological innovation, and technological competence converge with dominant conceptions of gender and race''. They describe how these discourses shape who is allowed into the industry (as acculturation is a requirement for entry into the field) and the effect this has on the products. These examples demonstrate how video game culture has been defined in the academe. Video game scholars, however, tend to write about the culture from the inside, as many of them identify as gamers. Journalists, however, tend to write about video gaming from this outside. Game studies academics often try to describe video game culture against the mainstream discourse. Likewise, journalists often quote, or misquote, game scholars. To get a sense of what is meant by games culture, we must take account of how it has been described in the popular press as well as the academe (Shaw, 2010).

What They Play Beyond studying games culture, Steinkuehler (2006) argues that games can also be studied as cultural artifacts. It is logical then, that the second category used to define video game culture in the press is the textual products the culture produces. The news articles emphasize a predilection for violent fare elaborately created fantasy worlds, fast-paced high action games, and MMOGs. Sports games are mentioned but largely in the context of games changing ''real sport'' culture, rather than being part of video game culture. This is important, as the texts we use to define video game culture affects what we deem worthy of study.

Press discourses about video games further affect the study of games as video game academics tend to study the games that are most controversial, like a recent edited volume on Grand Theft Auto, or that get the most news coverage, like World

of Warcraft and SecondLife. The work of journalists and scholars has also helped construct a history of video games in which particular game texts, like Pong, Space Invaders, and so on, have been canonized. What is important here is not that particular game texts and images have become exemplars for what gets defined as video game culture. The problem is the lack of reflection on which objects earn that status. Early games like Space Invaders and Pong did not just emerge out of the ether, nor did SecondLife or World of Warcraft. The complex interweaving of social networks, mainstream and video game press coverage, marketing, economics, and so on, all go into what makes a game popular. Moreover, ''[a] considerable part of how games mean as cultural artifacts depends on how agent/reviewers apply a variety of influential forces in the work they do of evaluating titles for agent/consumers'' (Shaw, 2010:406) and, for example, demonstrates how the marketing for the game Tomb Raider limited the potential feminist readings of Lara Croft and anchored her image as a pinup rather than a hero.

Beyond the games, a certain geek style has also been correlated with video game culture. Articles mention the pervasiveness of symbols of video game culture in the ''rest'' of culture, like pixilated characters from early video games or digital music. Such assertions ignore the intertextuality of most media and the interrelationship between different media industries, like film, television, video games, toys, and so on. Shaw (2010) offers a very specific definition of gamer culture as ''marked by modes of dress, specific linguistic jargon, and a sense of solidarity. Gamers often wear clothing that references specific games, comics, television shows, or movies that are not widely known outside of a small following''.

Describing video games as a subculture on the basis of style and taste markers is not wrong per se. However, it only tells part of the story. It also often results in not looking at this subculture as part of a larger culture. Cultural studies offer a rich history on which game studies could build in this regard. In his book Subculture, the Meaning of Style, Dick Hebdige (2010) moves beyond just the fashions and musical tastes that mark youth punk subculture by tracing these expressions of culture to class identities and tensions. Placing video games within larger cultural discourses is important, as video games themselves are the product of larger cultural contexts. King and Krzywinska (2006) assert, for instance, that although game play in some ways is a subculture of subcultures, it is also a part of mainstream culture. ''If game playing has an array of niche cultures, and the broader subculture of self-identified 'gamers,' it has also established a place in the much wider landscape of popular culture and entertainment in recent decades'' (p. 222). Cultural studies have been subject to much internal debate and critique, and although game studies have come to draw on the concepts and subjects of cultural studies, it has not taken on the conflicts.

Are video games an art form?

Video games are not communications media in any standard sense but objects that furnish us with particular kinds of experience. These experiences are a variety

of game, or structured play, but they are also something more than this. What this 'more' is, what it consists in, is the enigma that has triggered the most heated academic debates about the video game and how we should study it and I argue that it is best understood as a historically specific instance of aesthetic form (Kirkpatrick, 2011).

Starting in the late nineteenth century, modern art tested the limits of the aesthetic paradigm by opposing form to semblance and presenting its audience with a different kind of puzzle. With conceptual art, which has been dominant since the 1960s, it became clear that the sensory aspects of the work were no longer central and could not play the criteriological role assigned to them by classical theory, to such an extent that some argued liter- ally anything could now be art. The location of the work in an institution and not the way the work plays with us to generate pleasing sensations of form and pattern, tells us what art is and what is not. This can be viewed as a liberation of art from aesthetics. But if we assume that play and form are things that humans naturally find pleasurable, surely we are justified in asking what has become of them if they are not to be found any longer in art? In the midst of these changes, Theodor Adorno (Kirkpatrick, 2011) suggestively alluded to popular culture and electronics as possible alternative locations. Drawing on Ranciere's (2007) concept of the art image, the chapter suggests that the video game object mirrors it and that its inner workings exhibit tensions that require the subject of traditional aesthetic theory in order to function. In this way, the video game makes a kind of call to art and aesthetic theory.

Kirkpatrick (2011) claims that the video game is in some ways an inversion of the modernist artwork. The latter presented itself as a puzzle to the viewer. It remained physically static but presented us with an experience of form. This form we traced out internally by following the order, or script, set out by the work. The whole process was informed by a sense of semblance – the idea that the work resembles or represents something else – that constantly receded. In its abstraction, its refusal of semblance, the modernist work left us dissatisfied but almost teased by the possibilities it opened up. The experience of form turned against semblance in modernist works was a reminder that a better world is possible. Kirkpatrick (2011) also cites Adorno's phrase, the work 'points beyond itself '. With video games, the game object is never static. It presents images and sensations that are familiar, that seem to resemble. But it too is a puzzle. The challenge of the video game lies in extruding play and form, which are no longer located internal to the subject, but have to be performed through manipulating the controller. This active play differentiates video games from 'new media art', which is usually appreciated only contemplatively. Through play, we activate the game and deepen our understanding of its true structure. This takes us past the scattered shards of meaning that seemed, when we first started playing, to be part of a coherent image, perhaps of a virtual world. In the depths of this process, we are no longer in touch with the game's fiction, but endeavour to master its routines. Games often leave us with a feeling of guilt, of having wasted too much time on something meaning- less and empty. This feeling is integral to video game aesthetics and reflects their profound ambivalence when viewed in the perspective of contemporary cultural politics.

Speaking about form, Berger (2017) says that authors use the term „form" because there are so many different genres of video games. Just having different genres, however, is not a proof that we are dealing with an art form. Media such as film, radio, and television also have many different genres, so there is a logic to arguing that video games are a new medium. What is most important is that we analyze video games and try to understand their impact on the people who play them and on society at large.

We can think of each video game as a text, a work of popular art that is created collectively (like films and television programs). Video games are created by teams of writers, artists, musicians, and various kinds of other technician. In critical parlance works of art are calls „texts' to make easier for writers and scholars to talk about them without having to name them or describe them every time. These video games are created by authors (teams of writers and artists) and created in particular society, directed toward a specific audience and players on a familiar medium – the television screen or computer monitor screen(Berger, 2017).

There are particular audiences for video games. That explains why there are many different gender or kinds of video games. If we take an art form such as the popular novel, we may see that there are many different genres of popular fiction, such as detective novels, science fiction novels, romance novels, spy novels, western novels and adventure novels.

The same applies to video games. There are many different genres of video games such as action adventure, sports, science fiction, simulations and role-playing. It is difficult, at times, to assign a particular genre to a video game because in recent years video game designers have mixed genres together, in the same way that many novelists have (Berger, 2017).

Trying to decide which genre a given game should be put in is worth doing, since it tells us something about the nature of the game, but we must keep in mind that as in other kinds of texts, sometime a game has elements of several different genres in it. For example, many games are combinations of action and adventure or adventure and role playing, though usually one of the two blended genres is dominant.

It makes good sense to think of video games as a kind of text that comes in many different genres and blended genres – and thus as an art form – rather than seeing video games as a new medium. There are many video artists who use video to make texts of all kinds, some of which are very avant garde. These texts are not games, however.

Contemporary art practice has reduced aspirations in relation to what Jacques Ranciere (2009) calls the 'regime of aesthetic art', and this can be seen in its retreat from form. Through play and form the modern artwork of the late nineteenth and early twentieth centuries was a political intervention that worked on the human sensorium to shape and alter our expectations. The 'free play' of the artwork was a reminder of the role of imagination in shaping reality, while the resulting form spoke of a better world to come. Now discussion of play in the work of art has become exclusively conceptual. Formerly art played with its viewers, heightening the activity of the imagination and presenting various kinds of challenge to cognition. Now

play is rarely discussed as an important part of the response triggered by the artwork in its human audience. Instead, its playfulness concerns the medium (which can be anything); the exhibition space (is it art just because it's in a gallery?), and the artist in society (is it art because she made it?). Similarly, the concept of form has been denounced and renounced in much of art practice since the early 1960s. This was also the time that the video game was invented; when William Higginbotham created the first tennis-based game and Steve Russell made 'Spacewar!. No doubt that is a coincidence, but it is also a curious fulfillment of prophecy. Long before the rise of conceptualism, Walter Benjamin (Kirkpatrick, 2011) envisaged a time when imagination might run free from the constraints set by art and thought this might be a good thing. Perhaps there is a space in the culture for expressive experimentation that works with some of these neglected elements of the artistic tradition. When imagination is liberated it gives rise to play and form and in so doing calls forth new containers for those things. If the video game is such a container then the questions raised by its success for cultural politics are not the ones we thought we had to ask when we were preoccupied with whether games are violent, or sexist, or whatever. It is this starting point that distinguishes the aesthetic approach to video games within contemporary cultural theory.

Video games as new technology phenomenon

The books Comic Book Culture (Pustz, 1999) and Television Culture (Fiske, 1989) provide two different versions of discussing media culture. The first, like video game studies, relies on a conception of fan culture as a singular entity defined by its own language, rituals, and tastes. The essence of the book is an effort to make respectable an often undervalued medium and readers. This is a valuable goal but perhaps, like video game studies, a bit too reactionary. Putz's focus is on what others have said about the author's in-group, rather than critically reflecting on the ways in which the comic book culture has been structured. This is particularly reflected in the erasure of women and queer comics' histories from his historical overview. Fiske's book, however, situates the codes and representations of television within larger social and cultural ideological structures. Fiske discusses the specific qualities of television in relation to broader issues like gender and class. He also offers a much broader analysis of different types of television programming, something game studies does only cursorily. Shaw (2010) argues that play is an intrinsic part of culture, not something separate from it. Indeed, other authors work attempts to situate video games in a larger convergence culture. Only one press article, however, describes video games in relation to a broader national culture. In doing so, it affirms an East/West distinction between games that are produced and popular in North America and those in Asia.

Playing electronic games on a personal computer, a game console, a handheld device, or on the Internet is a relatively new, but increasingly popular, kind of mediated entertainment. The popularity of video games[1] has arisen alongside the public's expression of serious concerns, in particular with respect to the effects of violent games (Thompson, 2002). The scientific community has responded to these worries

by executing dozens of studies about the effects of playing video games (Jansz, J., & Martis, 2007).

So the medium of video is not the only important thing as far as understanding what video games are. The important thing is to analyze the video game phenomenon and certain important video games and see what they tell us about ourselves. What has happened is that as the technology of video games has evolved, from diskettes to CD-ROM s and DVD discs, the nature of power of the games has changed considerably. The technical quality of the images and sounds in these games has improved to such a point that it ca be suggested that they represent something relatively new in the entertainment world – *interactive narrative texts with multi-dimensional characters.* These texts now have the capacity to involve players to an extent unknown in earlier days, when the technology of these games was much more primitive.

The remarkable development in video game technology have led to what, one might suggest, is a new entertainment form. It is one that now closely approximates film in terms of the qualities of image and sounds generated by the new video games devices but it is different from film in that players now can immerse themselves into the film-quality texts and participate in them (Bergen, 2017).

What is interesting to note is that now films are being made from popular computer games. Films may make „lousy" computer games, as Card asserts, but we don't know yet whether computer games will make „lousy" films. A number of films, of uneven quality, based on video games, have already been made and others, such as one based on *Tomb Rider* are currently in production.

According to many critics, all texts are related, in various ways, to previous texts and to older media. We do not want to suggest that the new video games are totally different from any of the games that were created before them. But the new machines make possible a considerably different game playing experience from earlier games, such as *Pong* and *Pac-Man.* That is the point to be made.

It is far to argue that video games, in general, are a new popular culture phenomenon, and the more recent video games are major transformations of the earlier games. We've had video games for something like thirty years, but it is only recent years, with the development of new consoles with incredible powers, that video games have been able to evolve into much more powerful and sophisticated works.

Unit operations are segments of code that define an action structure for the video gameplayer and for users of programmed artefacts more generally. As Bogost points out, such chunks of programmed activity are becoming increasingly salient in the culture, almost to the point of indiscernibility in some contexts. For Bogost, these operations are inherently meaningful, because they are agreed upon by human beings in a cultural setting. Indeed, he goes so far as to see unit operations in games as constituting 'procedural rhetorics' (Bogost 2007), or arguments that motivate action. This seems to me to overload the concept with content it does not need to have in order to play the important role of clarifying the formal pleas- ures of video gaming and, indeed, to help develop a theoretical conception of the character of contemporary life and culture.

Video games, identification and popular culture

The content of games is an understudied area in social scientific research about video games. Previous research on game content has revealed that stereotypical masculine characters dominate video games and that those characters are generally White. Nowadays, quite a few video games have women in leading parts; *Tomb Raider's* Lara Croft is the prototypical example. In their study Jansz and Martis (2007), investigated the so-called 'Lara phenomenon,' that is, the appearance of a competent female character in a dominant position

Far less attention has been devoted to game content. A small number of research projects have been done to analyze the way the world is represented in video games. Generally, the results of these content analyses show two things: first, the ubiquity of violence, and second, the stereotypic portrayal of gender and race – men hold dominant positions, women are submissive, and the majority of game characters are White (Jansz, J., & Martis, 2007)

New definitions of game culture are never used to question the constructed past of video game culture's insularity, maleness, and youthfulness.

Acknowledging broader types of gaming seems to be mainly the province of marketers, for whom having a wider range of gamers is more profitable. Similarly, World of Warcraft's popularity is tied to its appeal to both hardcore and casual players (Shaw, 2011).

The implication of narrowly defining video game culture, even while simultaneously acknowledging the expansion of this category, is that game studies scholars who study the ''others" to this dominant definition are forced to talk about their subject in relation to the perceived center. This is often the case with studies of women gamers (Cassell & Jenkins, 2000). Most studies of gender and video games take it for granted that ''girls" and ''boys" play differently and that 408 408 finding ways of dealing with that can help make video game culture more accessible to female players (Cassell & Jenkins, 2000).

Cultural predominance which includes, as one of its key features, a particular way of seeing the world and human nature and relationships. Drawing from such a thesis, Herbert Schiller, a pioneering critic of cultural imperialism, examined the role of American mass communication systems and policies. He criticized the capitalistic U.S. media and their dominance through the global export of TV programs (Chen, 2013). Schiller's view, which agrees with other critical views from the Third World, is known as ''cultural imperialism." After more than three decades since the introduction of cultural imperialism, many researchers have adopted this thesis to examine the dominance of the United States and the consequential decline of indigenous cultures. For example, Dorfman and Matterlart (Chen, 2013) claimed that American cultural products, imbued with a capital ideology, helped normalize and naturalize the social effects of Western capitalism inless developed countries. A study of high school students in the Philippines concluded that American TV programs could influence the students to embrace U.S. value over their own . Another

study involving Israeli adolescents found that heavy viewers tended to hold a better image of American life, with wealth and a higher standard of living being prominent. Media imperialism has also stirred restless debates because of its simple assumption of one-way flow of global media (from the West to the rest), especially as the global cultural economy became increasingly complex in the late 1980s. In a study on Brazilian TV programming and transnational reception, Straubhaar argued that media flows in the global economy are not only one way and that audiences are inclined to choose national or regional TV programs rather than American imports on account of ''culture proximity.'' Critics further asserted that global cultural flows involved a complex, overlapping, and disjunctive order and incorporated the dynamic movements of ethnic groups, technology, ideology, and other facts (Chen, 2013). Recent developments in media and cultural globalization theories emphasize the form of cultural hybridization rather than dominance. Hybridization demonstrates local resilience and the capacity to assimilate and incorporate foreign culture into domestic life. This theory argues that indigenous cultures have been stimulated and innovated instead of declining.

Research on the portrayal of gender and race in entertainment media is particularly relevant because of the way in which media content is received by its users. Previous researchers from a variety of backgrounds have shown that media representations provide an important source for the construction of meaning in everyday life. People actively interpret what they have seen in the media to attribute specific meaning to, for example, their social relations or their identities (Jansz, J., & Martis, 2007). In the case of video games, the reception of media content has a specific character because of the games' interactive nature. Players are largely in control of what they experience. They can change what happens in the game by some motor action via a controller, joypad, keyboard, or another kind of interface. When players stop interacting, the game falls dead.

Interactivity has two distinct consequences for the reception of game content. First, enjoying a video game generally means that players are drawn into the represented world and become less aware of the mediated quality of the experience. The resulting feeling of 'being there' is generally referred to as a state of „presence". Presence conceivably may intensify the gamer's reception of game content in order to construct personal meaning. Second, interactivity may also have consequences for the gamer's identification with characters represented in the game. Many video games enable their players to enact identities in the most literal sense of the word. Gamers can actually 'be' their characters in a playful virtual reality. The opportunities for playfully probing identities are unique (Jansz, J., & Martis,2007).

Whereas many reception studies about traditional entertainment media underline the importance of identification with media characters, research on identification with game characters still is in its infancy. The possible identification with video game characters provides an important rationale for research about game content, in particular about the kinds of roles and identities that are portrayed in games (Jansz, J., & Martis, 2007).

Conclusion

Drawing on Angela Ndalianis's (Kirkpatrick, 2011) thesis of a contemporary, neo-baroque, it suggests that we find in video games an excess of form that over-rides and negates meaning even as it repeatedly invokes it. Games need meanings; fictions and resemblances are integral to them, but the activity of playing games is powerfully corrosive to these fictions and analysis of these processes undermines the idea of mimesis in the video game object. Moreover, it reveals that the process of corrosion, of dispelling meaning, is essential to gameplay.

Video games are profoundly ambivalent for cultural politics. The experience of form they offer us is not articulated to any future that is different from the world we are in now. At the same time, their challenge awakens in us a sense of our own agency and its importance to activities of 'world-making'. Choosing to play video games still has the power to annoy and to cause controversy and can be a form of deviancy or norm-subversion.

Observing video games in cultural and technological context, we might say that video games permeate education, mobile technologies, museum displays, social functions, family interactions, and workplaces. They are played by many if not all ages, genders, sexualities, races, religions, and nationalities. Not all of these types of play and players can be encompassed in a study of an isolated gamer community. Moreover, the reification of certain types of game texts over others limits the field of study. Finally, the concerted effort of game academics to disprove the negative con-notations of video game play and not the positive ones is problematic. This is prob-lematic as cultural studies could help video game studies approach the field in very productive ways.

We would like to consider that all video game studies must approach games as culture, but that those scholars that do approach video games through the lens of culture should adopt the same critical and reflexive approaches to culture that cul-tural studies has.

References:

1. Berger, A. A. (2017). *Video games: A popular culture phenomenon*. Routledge
2. Boellstorff, T. (2006). A ludicrous discipline? Ethnography and game studies. *Games and Culture*, 1(1), 29-35.
3. Bogost, I. (2007). *Persuasive games* (Vol. 5). Cambridge, MA: MIT Press.
4. Cassell, J., & Jenkins, H. (Eds.). (2000). *From Barbie to Mortal Kombat: gender and computer games*. MIT press.
5. Chen, C. Y. (2013). Is the video game a cultural vehicle? *Games and Culture*, 8(6), 408-427.
6. Dovey, J., & Kennedy, H. W. (2006). *Game cultures: Computer games as new media: computer games as new media*. McGraw-Hill Education (UK).
7. Fiske, J. (1989). Moments of television: Neither the text nor the audience. *Remote con-trol: Television, audiences, and cultural power*, 56-78.

8. Hebdige, D. (2012). *Subculture: The meaning of style*. Routledge.
9. Jansz, J., & Martis, R. G. (2007). The Lara phenomenon: Powerful female characters in video games. *Sex roles*, 56(3-4), 141-148.
10. King, G., & Krzywinska, T. (2006). *Tomb raiders and space invaders: Videogame forms and contexts*. IB Tauris.
11. Kirkpatrick, G. (2011). *Aesthetic theory and the video game*. Manchester: Manchester University Press
12. Mortensen, T. E. (2007). Mutual fantasy online: Playing with people. *The Players' Realm: Studies in Video Games and Gaming*, 188-211.
13. Provenzo Jr, E. R. (1997). Video games and the emergence of interactive media for children. *S. Steinberg, & Kincheloe (Eds.)*, 103-114.
14. Pustz, M. (1999). *Comic book culture: Fanboys and true believers*. Univ. Press of Mississippi.
15. Rancière, J. (2007). *The future of the image* (p. 109). London: Verso.
16. Shaw, A. (2010). What is video game culture? Cultural studies and game studies. *Games and culture*, 5(4), 403-424.
17. Steinkuehler, C. A. (2006). Why game (culture) studies now? *Games and Culture*, 1(1), 97-102.
18. Thompson, C. (2002). Violence and the political life of video games. In L. King (Ed.), *Game on: The history and culture of videogames* (pp. 22–32). London, UK: Barbican.
19. Williams, J. P., Hendricks, S. Q., & Winkler, W. K. (2006). Introduction: Fantasy games, gaming cultures, and social life. *Gaming as Culture. Essays on Reality, Identity, and Experience in Fantasy Games*, 1-18.

ВИДЕО ИГРА КАО КУЛТУРНИ ФЕНОМЕН

Сажетак: У овом раду бавимо се видео играма као феноменом популарне културе у смислу њиховог друштвеног, културолошког и технолошког значаја. Још увек траје дискусија шта су заправо видео игре. Неки научници тврде да су уметничка форма, док други тврде да је медиј. У раду разматрамо положај видео игре у савременој култури, констатујући да видео игра осмишљена и произведена у одређеном друштву често рефлектује, на веома суптилан и тешко приметив начин, уверења и вредности друштвеног система у ком су настале. Рад се наставља анализом културе видео игре, са аспекта супкултуре коју прате одређени елементи, као и видео игром као уметничком формом. Видео игра је и технолошки феномен, јер подразумева играње електронских игара на рачунару, конзолама, бежичним уређајима и на Интернету, што је нова али изузетно популарна врста медијатизоване забаве. Разматрајући видео игре, идентификацију и популарну културу, можемо да закључимо да је јако мало пажње усмерено на садржај видео игара. Мали је број истраживачких пројеката који су анализирали начин на који је свет представљен у видео играма. На крају дајемо аргументе за неопходност критичке културолошке студије видео игара пре него студија играчке културе као такве

Кључне речи: видео игре, културолошки феномен, уметничка форма, технолошки феномен, популарна култура

ŽELJKO Đ. BJELAJAC [*]
Faculty of Law
Novi Sad
BORO MERDOVIĆ [**]
Ministry of Interior - Republic of Serbia
Belgrade

INFLUENCE OF VIDEO GAMES ON PRO-SOCIAL AND ANTI-SOCIAL BEHAVIOR

Summary: Development of information technologies and the Internet brought many changes in habits of children and adolescents, which carry numerous advantages but the risks as well. Among numerous techological achievements that reached the children and adolescents through the Internet and modern devices are video games with myriad of various themes and contents. The influence of video games on psychosocial development of adolescents is well-researched. In the majority of studies conclusions about harmful effect of video games in which the violent themes are dominating were drawn. Nonetheless, in recent time there are more and more studies that show that influence of video games on development and behavior of adolescents is positive and that playing video games is desirable as it develops thought process of children, empathy, pro-social forms of behavior, develops logic, social component of behavior etc. The goal of this paper is to point to positive and negative influences of video games on development of children and adolescents by comparative overview of the studies and the results the science achieved so far.

Key words: video games, pro-social and anti-social behavior, development of children, aggression

Introduction

Today it has become unimaginable that a day passes without mobile phones, films, TV, Internet, video games etc. What is offered in these contents is very diverse, and as many research show, sensationalist and negative blueprints dominate, which have negative influence both on younger and older members of society. With development of science and technology, means of mass communication are developed, and the adolescents do not resist them nearly at all. So nowadays less and less children spend their free time outdoors, doing sports or other recreational activities together with their peers, but they spent more and more time in front of a computer, with mobile phone, on the Internet, in arcades, in front of a TV, playing video

---

[*] zdjbjelajac@gmail.com
[**] boro.merdovic@gmail.com

games. At all of those places they are wxposed to content that is not suitable for their age and psychosocial level of development. Children and adolescents try to adapt and accept what is offered to them, without critical approach and without any selection or control from the adults (Merdović, 2019: 129). A special place among that content belongs to video games. With development of science and technology, and information technology in particular, the video game industry had total expansion over the recent years. First video games appeared in 1980s and had educational character in order to allow the children to learn something new through playing and having fun. Nonetheless, it was clearly visible from the beginning that video games aside from its educational function can be used for massive entertainment, especially the younger part of the population. With development of technology the themes and the purpose of video games changed as well. The topics of vieo games underwent a change and have achieved level of near-lifelike realism through which an individual can experience nearly every situation that life can bring. Through expansion of quantity a qualitative change happened as well, and today the topics and contents that dominate are aggression, violence and other antisocial forms of behavior which simultaneously demolish some of the basic moral and ethical tenets. Playing video games on various consoles, computers, tablets and phones are present in our culture for more than two decades.

With development in themes and content of video games number of users meaning players changed and widened significantly. From the pre-school, school and adolescent age all the way to mature adults, video games have significant influence on behavior and development of each individual regardless of age. Playing video games is most common among children and adolescents, but the influence they have on this part of population is the greatest because of properties of psychosocial development. Because of that the influence of video games on children behavior is large and in some cases decisive, and is reflected on adoption and formation of moral value system. By spending time in front of the computer or in arcades, children become more alienated from the real world. Aside from all the positive potential carried by development of the information technologies and the Internet we have to be careful and critical towards content carried by video games. Some video games became so realistic and can mimic real life in so realistic fashion that it „supports" users to spend their free time, and often a large portion of time in general in virtual space. There are many classifications of video games in regard to their themes. We have action, strategy, adventure, sports, educational, racing, simulation games etc. Every one of these games has influence on behavior of an individual while playing the game, brings out certain feelings, develops certain abilities, but all of that is often reflected to behavior of a player in his real life and life situations as well.

Individuals who play video games learn content of the games they play. If they play educational games, they learn educational contents and can use it in school, if they play violent games, they learn violent content and can apply it to daily life situations. The context of video game can create various effects. One type of context within the game can be seen in video games with violent content whether the game is single player or multiplayer (Counter Strike i.e). In both cases it can be equally violent, but playing single player games can create more aggressive

thoughts, lower level of empathy and greater desensitization. If the context of a game demands players to cooperate in order to achieve goals, it can help development of skill necessary for team work and social cooperation and coordination. Therefore, the effects of the same game can be differing and depend on the way the game is played, on the personality of a gamer, on social surrounding, and even the place where game is physically played.

Influence of video games on anti-social behavior

Computers, laptops, smartphones and tablets represent the daily life of children, naturally, provided to them by their parents. By not wanting their children to be outside of the cliché their peers proclaim and playing of popular video games, parents buy certain video games to their children without critical approach. In the beginning these games are a substitute for parental care and oversight and give the parents a „possibility" to rest as the children are occupied by playing. Later it grows into worries about too much time spent in front of computer, arcades, poor academic results in school, loss of work habits, alienation from their peers and the society, creation of gamers subculture and numerous other consequences which affect behavior of children in real life. As the most harsh consequence of such frequent playing of video games is creating an addiction which becomes more important in the modern society and often requires serious intervention by experts of various profiles. Because of high level of aggression present in certain games, there is a fear that children might emulate actions and behavior of the game characters, create desensitization to violence and justify violence in everyday life. Significant number of experts warn about possible connection of video games and aggression in children. (Bilić i dr. 2010: 202).

Entertainment and gaming industry earns vasts sums of money annualy, which is measured in billions. Because of that, video game creators tend to attract the attention of the consumers with their products and their content, often without regard what consequences that product can have on children and adolescents who are majority of the players. It is necessary to understand and conclude by doing researchs what elements attract so much attention from children and adolescents, why children spent so much time playing video games each day and why the attention of the youth is directed to video games where violence and aggression dominate. The majority of completed studies and analyses of video game influence shown that if the violent elements dominate the game, that elements corelate with violent forms of behavior in children. The largest number of studies researched this component in particular. The most frequent video games are action games with potentially violent content.

Reasons why children and adolescents play video games are varying. Children most often want to escape reality, the games often gives them feeling of success and vicorty, but belonging to a certain community as well, through rewards through points earned by completion of certain levels, then visual effects where certain moves and activities are congratulated on which gives the players a feeling of en-

couragement and rewards. Some of the negative attributes are decrease of social interaction outside the gamers' circle, danger of somatic diseases of bones as a product of long hours spent sitting, as well as certain stressful situations arising from failures in gaming. There is no general consensus among the scientists and experts in this field about harmful effects of video game influence on anti-social and asocial behavior in adolescents, among which violence and aggression have special place. Some scientists deduced that strong effects of violence in video games on aggressive behavior of adolescents are confirmed in large part of population, and particularly in adolescents (Anderson et al. 2008, Anderson, 2004). Children who often play violent video games get involved in quarrels and fights more often and generally saying in time become more verbally and physically aggressive, not only to their peers, but to their parents and teachers as well (Bjelajac, 2017: 538). On the other hand, there are studies and research whose results have shown that aggression in video games does not have a dominant influence on aggressive behavior of adolescents but that it is only one of the factors that increase aggression in those cases where children and adolescents were already exposed to violence from other factors (Giumetti, Markei 2007; Kirsh 1998; Markei, Scherer 2009). Critics of these research reacted by their own research that shown that effects of violence and aggression in video games have no influence on aggressive behavior of players whatsoever but that it is a consequence of other factors which are not related to video games. They also claimed that the research that confirm the influence of aggression in video games on adolescent behavior have numerous ommisions and question their methodological concepts, as well as that they did not include numerous important variables that influence the behavior (Durkin, Barber 2002; Kutner, Olson 2008; Savage, Iancei 2008; Sherri 2007; Unsvorth et al. 2007). According to some research done in the USA in time when video game industry dominated by themes and elements of violence and aggression saw expansion, the society saw significant decrease in number of crimes with elements of violence toward minors.

In scientific and expert literature, we can outline three basic theoretical viewpoints that explain connection of video game violence and aggressive behavior of adolescents.

– Exposure to violence in video games have causal effect based on learning with aggressive behavior of minors that shows later
– Minors who have already shown some forms of aggressive behavior and violence tend to play video games dominated by violent content. This viewpoint explains that an individual searches certain forms and content and himself choose video game genre dependable on his or her personal characteristics, which is not passive but active process (McCovn et al. 1997; Rentfrov, Gosling 2003).
– Any connection between violence in video games and aggressive behavior of adolescents who play these video games is a consequence of external factors that are not related to video games but to individual personal characterisctics, family situation, peer groups etc. (Beaver et al. 2009; Pinker 2002).

Some therorists are keen to viewpoint that the expression of aggressive behavior and violence at persons who play video games are consequence of a large number of factors which corelate and intertwine. The „Catalyst" model suggests that

serious aggression and violence are consequence of genetic factors and close outside influences (such as family and peers), but that indirect factors of surroundings, such as media, have little influence on behavior (Ferguson, 2011: 380).

One of the basic attributes of playing video games is that player actively participates in the event and has a feeling of creation of certain situations and events. In a certain fight, action or game, the player moves to next levels more quickly while receiving rewards for it (better weapons, gear, currency, points etc) which stimulates the player to get immersed into the adventure and give their best in order to achieve the score as high as possible. According to research done in schools, nearly every adolescent had experience of playing video games (Colwell, Payne, 2000.; Wood at al., 2004.). If the virtual character is more like the players themselves, then identification with the character is stronger and it will have larger influence on players' behavior in the real life. In video games there is a greater chance for certain behavior patterns to be adopted since there is numerous repeating of certain levels or situations, and by such repetition of aggressive behavior there is an increased likelihood of repeating that aggressive behavior in the real world (Gentile, Anderson, 2003: 141). One of such examples is a massacre in a Colorado, USA high school where after detailed investigation it was concluded that the murderers, prior to execution of the massacre, have played video games with violent content that they „copied" into the real world up until such detail that the investigators were fascinated. According to research made after various school shootings it was determined that the perpetrators spent much time on the Internet. Their interests were prior mass murders or shootings, video games with violent content, interests for weapons and other violent content (Bjelajac, Merdović, 2019: 572).

As we already stressed, one of the most serious consequences of playing video games is forming of addiction, which is not yet considered a disease despite having all the symptoms as the other forms of addiction. Playing video games creates a special chemical reaction by increased dopamine levels which causes a person to feel pleasure, while on the other hand it increases a desire to play. Aside from this component, a psychological addiction is very visible, similar to other addictions. Dependence on video games and the Internet is a field interesting to scholars and researchers. Poor social competence and impulsiveness of the player are factors that can cause pathological addiction on video games (Gentile at al, 2011: 325). Video game addicts spent on average 31 hour weekly while playing video games and show lesser degree of pleasure with their real life, while they are happier in their virtual life, which is another indicator of addiction (Gaetan, Bonnet, Pedinelli, 2012). Gaming addiction is not yet perceive in our public as something that represents an important problem of adolescents while in some other countries it is considered a serious problem which demands serious reaction of the state. Therefore South Korea banned gaming after midnight with a goal to be proactive and prevent forming of dependence on video games of adolescents. In some other countries, such as China and the Netherlands, there are specialized clinics for treatment and prevention of video game and Internet addiction. A research made in Sweden with sample of 7,757 adolescents aged 13-18, with a goal to research amount of spent time and motives for playing video games shown that the majority of adolescents are with negative consequences.

They are reflected in lack of time for school obligations, poor sleep quality and insufficient sleeping, fights with parents and peers, poor organization of free time (Hellström, at al. 2012).

As we can see, there is much evidence in existing literature that suggests that exposure to video game violence increase aggressive behavior and other aggression-related matters. Nonetheless, lack of empirical data, together with various methodological problems and inconsistencies clearly suggest the need for additional research (Dill, K., Dill, C. 1998: 421). According to some theorists, virtual violence can replace real-life violence. They think that if a child satisfies its need for aggressive „release" through a video game, then the need for such behavior in real life will be much smaller. Still, it is impossible to a priori say whether playing of violent video games removes or complements aggressiveness, violence and antisocial behavior. With that in mind, it is possible that violent video games attract otherwise violent persons. Independent from the fact whether violent video games cause change in behavior by making the individual more violent, they can replace the time spent on violent activities and decrease total amount of violence performed.

Proving the causal relation between violence-dominated video games and aggressive behavior of the players is made more difficult by legislative, psychological, social and medical aspects of the problem. In addition, statistics show that despite the increase of video game sales from 4 billion USD in mid-1990s to more than 7 billion in 2004, the level of violent crime (rape, robbery, murder) dropped significantly in the USA. How much is then certain to make a connection between exposure to violent video games and aggressive behavior (Porter G, at. al. 2007: 422)? One of the criticisms attributed to frequent playing of video games not related to concept and content of the video game is that it negatively affects physical development and body musculature. Often the muscles are weakened and the spine is not in adequate position if physical activities of the children are disregarded. Therefore there must be a harmony beteween mental and physical health. Parents and teachers must create a balance until the child itself creates habits and understands that physical activity is as important as playing video games through which it develops numerous other skills.

Influence of video games on prosocial behavior

It is obvious that video games are a constant, dominant and dynamic phenomenon in experiences of children and adults, which necessarily influences development of a person, and indirectly influences development of culture and cultural values of a society. Contrary to numerous criticisms of negative influence of video games to children development there are other points of view that propagate the understanding that video games have positive influence on numerous thought processes at children. Some research and studies are focused on potential positive effects of video games, such as educational games and simulation games (Laniado, Pietra, 2005). Most often the arguments are pointed to usage of child's motivation to play video games, with changes only in themes of video games. Potential gains and usage

of electronic games are best understood in context of motivating children to play. The parents choose appropriate games for free time, educators search for games to complement teaching in classrooms, game programmers create games for educational purposes and mental health experts who use games in clinical situations, they all must know what will motivate a child and what emotional or developmental needs a young person can (consciously or not) develop and satisfy through video games (Von Salisch, Oppl, Kristen, 2006: 151). Advantage of video games is a new approach to learning. Educational games offer great source of information. Every learning through playing is easier, and what is learned is longer remembered as it is a part of personal experience, in contrast to classic sitting with a book in hands. With or without proof that supports learning from certain video games, since majority of pupils is very motivated to play video games outside of school, teachers should be motivated to integrate video games in their lessons wherever it is possible. Still, because the pupil has an opportunity to play video games and enjoy them only for fun, there are no guarantees that the pupils will accept similar activities in the classroom with joy (Salaway et al., 2007). Elaborate and well-designed games implemented in scientific fields and activities in learning offer a possibility to pupils to actively accept concepts, culture and practice of scientists and science institutions. Thoughtfully created surroundings for learning based on games and set in virtual worlds have a potential to satisfy unique and specific needs of pupils by providing clear information, possibilities for applied practice, feedback and good combination of inner and outside motivators customized to each pipil, who works on a task or works in ateam with other pupils (Hirumi, 2010: 161). Video games develop imagination, creativity, concentration, attention, stimulate thought processes, associative and hypothetical thinking and help in coordination of movement (Laniado, Pietra, 2005:45).

Although it is evident that video games can have educational properties there are numerous obstacles to their implementation in the teaching process. Primary barriers for implementation of innovations are not technical nor economical, they are psychological, organizational, political and cultural. The degree that all the interested parties have overcame these obstacles will determine to what degree video games will be applied in the teaching process. This is particularly important from teacher aspect, who are slow to adapt new teaching materials and learning concepts, while keeping to traditional methods of lectures and relation teacher-pupil. Not all is up to teachers, as commercial video games often contain concepts and activities that teachers want pupils to adopt, but they also contain elements that lead to watering down the ciontent with unnecessary information or inappropriate activities teachers and pupils cannot remove or ignore (Kirriemuir, McFarlane, 2004). Topics and contents that motivate pupils shall be represented in video games, in order for them to spend significant time honing their skills (Bruning at al. 2004). pupils and children often like to learn things through trial and error and they yearn for engagement and interactivity. With regard to popularity of video games and their influence on players, the apologists of educational video games believe they are offering sustainable alternative form of teaching to traditional activities of learning focused on teaching. Nonetheless, studies of efficacy of educational games for increase of academic level

of pupils are scarce. It is necessary that teachers use materials they consider relevant, which would sometimes mean leaving of the field of traditional learning, in order to study communications and expression skills of pupils through media and information technologies. It is necessary for students to accept to apply different strategies of reading and learning, to analyze and understand the problem, as well as to choose a method for solving the problem (Alvermann, 2002: 199).

Due to scientific and technological revolution, development of information technologies and the Internet, the expansion of video games with various themes attract children and adolescents to spent more and more time playing, thinking, creating strategies, developing logical thought for solving problem situations. Prensky (Prensky, 2001: 160) compiled a list of attributes of video games and gfeelings they cause in the adolescents:

- Games are a form of entertainment (sense of pleasure and satisfaction)
- Games have rules (sense of structure and organization)
- Games have goals (supports motivation)
- Games are interactive (sense of responsibility)
- Games have goals and feedback (helps with learning)
- Games are adaptable (possibility of participation to different users)
- Games have conflict, competition, challenge, opposition (causing excitement and adrenaline rush)
- Games demand problem solving (creativity)
- Games demand interaction (developing group and team work)
- Games have themes and story (emotions)

Video games shall be used for nurturing discussions and debates, while allowing pupils to actively participate in search for solutions for problems and gaining life experiences. As teachers ask their pupils to learn to be active and to think about their social roles and responsibility in the community and environment, it is equally important that teachers are active and flexible when it comes to inclusion of video games into existing teaching curriculums. In that way video games offer great potential for engagement of pupils (Hirumi, 2010: 193).

Some video games with violent content, action games, imply very quick movements, high perceptive and motor stress, unpredictability and accent on details. In several completed studies it was proven that these games influenced various aspects of perceptive work, including multitude of following spatial resolutions and capabilities of central and peripheral sight. Constant need for player to „scan" the screen in order to see differences and detect threats within the game direct the attention itself to these details, which helps development of perception and attention. These are specific skills that can be applied to similar situations (such as perception skills), but not to the other areas of cognitive function (Bavelier, at al. 2011: 763). Greatest value of games in education is in fact that they are able to attract and keep the attention of children to the content, as well as to motivate them to be active and be involved in certain activities. The game has a quality that lacks in traditional teaching the most, and that is the motivation coming from the game itself.

Video games allow progression through a string of tries and overcoming obstacles. Development of critical thinking, as well as solving of concrete problems or adaptation to a certain situation comes out of that fact. Through video games child can change its emotional state and develop empathy. Child chooses video game that will help its positive mood and help to avoid negative emotions which are often a burden to children in the real world. By that video games offer a possibility of emotional control and self-regulation. Therefore video games can be considered as virtual environments children and adolescents can choose and can help their emotional balance. Because of that reason, certain video games are used by psychologists and psychotherapists in function of emotional control when a child is depressed. Games as virtual surroundings offer special possibilities. Pleasures occurring from playing video games are based on hedonism. The immersion into activities itself helps to draw the outside attention from inner feelings and decrease negative feelings (Pennebaker, Brittingham, 1982: 121). Aside from that, some children and adolescents do not want to establish new contacts or talk with people they know in real life. Online space and playing of video games gives them a chance to be alone or in group where they feel good during playing. Some video games are conceptualized and designed to be used in clinical treatments of children with special needs, especially children with autism. Children with developmental issues are facing significant hardships and are a challenge to their parents, guardians or teachers. Depending on nature of their challenge, communication skills are often limited, their cognitive processing is atypical, their behavior is difficult to control, they are emotionally unstable and usually they don't have interaction with outer world. Still, according to research, these children show interest for video games. As a result of time spent in from of a display where the child follows the video game, such children sit still and show larger level of attention and concentration (Durkin, 2101: 131). Some children suffering from autism are attracted to strong lights, glittering effects or rotated objects (Leekam et al., 2007: 900). Certain video games are used for treatment of children with sight deficiencies as stimulators for development of perception, attention, peripheral vision etc.

Numerous scientists and experts in field of video games and its positive influence on development of children think that video game designers should leave up to pupils to select the difficulty level of the game. This is important because when moving from easier to harder level, the game becomes more interesting and presents greater challenge to the player, but influences their motivation as well. Teaching model based on games is today used very successfully especially in developed countries of the West. These methods have many uses and functions, and recently research is focused on possibilities, advantages and limits of its use in education and learning.

Conclusion

Although we can read sensationalist headlines about effects of video games on development of children on a daily basis, this phenomenon should be analyzed

more realistically as the term video game does not have a unique construction or definition that science can confirm. We can hardly discuss general effects of video games while we know there are thousands of individual games, hundreds of genres and subgenres, and they can be played on computers, consoles, tablets and phones. Therefore if we want to discuss effects of video games we have to be ready to include numerous details on which the way they influence each individual depends, while taking into consideration numerous other individual and social factors. Majority of scientific research on effects of video games is focused on dimensions of content and less on other variables that can influence behavior. From that fact criticism and disputing of results of many studies done in developed Western countries comes.

Modern societies became massively engaged with media and dependent of it, through an immensely short period of time in our history. Among them video games found their place regardless of the way they are played, on consoles, computers, phones, tablets, online or offline. There is a great interest for playing video games, not only with children and adolescents, but the adults as well. Motivation of children is various, and it should be used for education, learning and practicing certain skills. As we stated, certain research and practical experiences show success in treatment of certain neurological problems, autism, damaged sight through specially designed and conceptualized video games. Still, pioneer work and enthusiasm of some experts is not enough to show the effects of application of video games in rehabilitation and education. Therefore it is necessary to deepen the research, take all aspects of video game into consideration, including its conceptual content, personality traits of players as well as factors of surroundings. Under pressure of scientific and expert public, authors and designers of video games turn more often to educational and clinical applications where educational and medical practitioners participate in creation process. The goal of this cooperation is to develop entertaining and attractive activities that would have educational or rehabilitational influence asked for by experts in their respective fields.

It often seems that playing video games is fun without any consequences. Still, despite being questionable, available data suggest that playing video games can be tied with aggressive, antisocial and sometimes criminal behavior. Research of this relation calls for multidisciplinary approach. Mental health experts, psychologists, sociologists, pedagogists and other relevant scientists should regularly study aggression adn violent personality traits on which video games have effects through research, especially at children and adolescents. Focus shall be put on at-risk groups meaning children and adolescents who in addition to some aggressive personality traits have generational and genetic predisposition for violent behavior, children from families where expressing aggression and violence is possible. Playing video games with elements of violence with such persons can become significant predictive factor for expression of aggression and adopting a behavior model dominated by violence. When we sum results of numerous research we come to conclusion that it is necessary to control the time spend playing video games, as well as cotent of the games children play. The greatest responsibility is on the parents and teachers. The fact that clinics for Internet and video game addiction treatment are being opened is

a strong indicator that video games can have very negative influence and degrade psychosocial development of children. What is beyond any doubt is that video games cannot be avoided in this day and age and that children inevitably have to use modern technological achievements through which playing video games is inevitability. Therefore it is necessary to find balance between playing video games and the content presented in them, positive influences and helping education, learning and development of logical components of personality on one hand and possible negative consequences in aggression, alienation, isolation from social surroundings, lack of empathy, pathological dependence on playing up to physical deformities of the body.

Early prevention, education of parents and teachers and efficient education is one one the main preconditions for healthy growth with new information and communications technologies.

Literature:

1. Alvermann, D. E. (2002). Effective literacy instruction for adolescents. Journal of Literacy Research, 34, 189–208
2. Anderson, C. (2004). An update on the effects of playing violent video games. Journal of Adolescence, 27, 113–122
3. Bavelier, D., Green, C. S., Han, D. H., Renshaw, P. F., Merzenich, M. M., Gentile, D. A. (2011). Brains on video games. Nature Reviews Neuroscience, (12), 763-768
4. Beaver, K. M., Shutt, J. E., Boutwell, B. B., Ratchford, M., Roberts, K., Barnes, J. C. (2009). Genetic and environmental influences on levels of self-control and delinquent peer affiliation: Results from a longitudinal sample of adolescent twins. Criminal Justice and Behavior, 36, 41–60.
5. Bilić, V., Gjukić, D., Kirinić, G. (2010) Mogući učinci igranja računalnih igrica i videoigara na djecu i adolescente // Napredak. 151, 2 ; str. 195 - 213.
6. Bjelajac, Ž., (2017), Bezbednosna kultura - umeće življenja, Pravni fakultet za privredu i pravosuđe, Novi Sad
7. Bjelajac, Ž., Merdović, B., (2019), „Mass shootings" - motiv i osnovne karakteristike, Kultura polisa, бр. 38, godina XVI, 567-576
8. Bruning, R. H., Schraw, G. J., Norby, M. M., Royce, R. R. (2004). Cognitive psychology and instruction. Upper Saddle River, NJ: Pearson Prentice Hall
9. Colwell, J., Payne, J. (2000.). Negative correlates of computer game play in adolescets. British Journal of Psychology, 91, 3, 295 – 310.
10. Dill, K.E., Dill, J.C. (1998) Video game violence: A review of the empirical literature, Aggression and Violent Behavior, 3 (4), pp. 407-428.
11. Durkin, K. (2010) Video games and Young People With Developmental Disorders. REVIEW OF GENERAL PSYCHOLOGY, 14(2), 122–140.
12. Durkin, K., Barber, B. (2002). Not so doomed: Computer game play and positive adolescent development. Applied Developmental Psychology, 23, 373–392.
13. Ferguson, C. J. (2011). Video Games and Youth Violence: A Prospective Analysis in Adolescents. Journal of Youth and Adolescence, 40(4), 377–391
14. Gaetan, S., Bonnet, A., Pedinielli, J.L. (2012). Self-perception and life satisfaction in video game addiction in young adolescents (11-14 years old). Encephale-Revue De Psychiatrie Clinique Biologique Et Therapeutiqu, 38 (6), 512-518.

15. Gentile, D. A., Anderson, C. A. (2003.). Violent video games: The newest media violence hazard. U: D.A. Gentile (Ed.) Media violence and children (131 – 152). Westport, CT: Praeyer Publishing.

16. Gentile, D.A, Choo, H., Liau, A., LI, D., Fung, D., Khoo, A. (2011). Pathological Video Game Use Among Youths: A Two-Year Longitudinal Study. Pediatrics, 127 (1), 319-329.

17. Hellström, C., Nilsson, K.W., Leppert, J., Íslund, C. (2012). Influences of motives to play and time spent gaming on the negative consequences of adolescent online computer gaming. Computers in Human Behavior 2012, 28(4), 1379-1387.

18. Hirumi, A. (2010). Playing Games in School : Video Games and Simulations for Primary and Secondary Education (Vol. 1st ed). Eugene, Or: International Society for Technology in Education

19. Kirriemuir, J., McFarlane, A. (2004). Report 8: Literature review in games and learning. Bristol, UK: NESTA Futurelab

20. Kutner, L., Olson, C. (2008). Grand theft childhood: The surprising truth about violent video games and what parents can do. New York: Simon & Schuster

21. Laniado, N., Pietra, G. (2005). Naše dijete, video igre, Internet i televizija. Studio TiM: Rijeka

22. Leekam, S. R., Nieto, C., Libby, S. J., Wing, L., Gould, J. (2007). Describing the sensory abnormalities of children and adults with autism. Journal of Autism and Developmental Disorders, 37, 894–910

23. McCown, W., Keiser, R., Mulhearn, S., Williamson, D. (1997). The role of personality and gender in preferences for exaggerated bass in music. Personality and Individual Differences, 23, 543–547.

24. Merdović, B., (2010), „Socijalno-patološka obeležja maloletnih počinilaca krivičnih dela", Magistarska teza, Fakultet za specijalnu edukaciju i rehabilitaciju, Univerzitet u Beogradu

25. Merdović, B., (2019), „Faktori prevencije kriminaliteta", Pravni fakultet Univerziteta Privredna akademija, Novi Sad, Mala knjiga

26. Pennebaker, J. W., Brittingham, G. (1982) Environmental and sensory cues affecting the perception of physical symptoms. In: A. Baum and J. E. Singer (Eds.), Advances in Environmental Psychology (Vol. 4, pp. 115-136). Hillsdale, NJ: Erlbaum

27. Pinker, S. (2002). The blank slate: The modern denial of human nature. New York, NY: Penguin.

28. Porter, G., Starcevic V. (2007) Are violent video games harmful? Australasian Psychiatry: Bulletin Of Royal Australian And New Zealand College Of Psychiatrists; 15(5):422-426.

29. Prensky, M. (2001). Digital game-based learning. New York, NY: McGraw Hill.

30. Rentfrow, P., Gosling, S. (2003). The do re mi's of everyday life: The structure and personality correlates of music preferences. Journal of Personality and Social Psychology, 84(6), 1236–1256.

31. Salaway, G., Caruso, J. B., Nelson, M. R. (2007). The ECAR study of undergraduate students and information technology. Boulder, CO: EDUCAUSE Center for Applied Research

32. Savage, J., Yancey, C. (2008). The effects of media violence exposure on criminal aggression: A meta-analysis. Criminal Justice and Behavior, 35, 1123–1136.

33. Sherry, J. (2007). Violent video games and aggression: Why can't we find links? In R. Preiss, B. Gayle, N. Burrell, M. Allen, J. Bryant (Eds.), Mass Media effects research: Advances through meta-analysis (pp. 231–248). Mahwah, NJ: L. Erlbaum.

34. Unsworth, G., Devilly, G., Ward, T. (2007). The effect of playing violent videogames on adolescents: Should parents be quaking in their boots? Psychology, Crime and Law, 13, 383–394
35. Von Salisch, M., Oppl, C., Kristen, A. (2006). What attracts children? In P. Vorderer, J. Bryant (Eds.), Playing video games: Motives, responses and consequences (pp. 147–163). Hillsdale, NJ: Erlbaum
36. Wood, R. T. A., Gupta, R., Derevensky, J. L., Griffiths, M. (2004.). Video game playing and gambling in adolescence: common risk factors. Journal of Child & Adolescent Substance Abuse, 14, 1, 77 – 100.

УТИЦАЈ ВИДЕО ИГАРА НА ПРОСОЦИЈАЛНО И АНТИСОЦИЈАЛНО ПОНАШАЊЕ

Сажетак: Развој информационих технологија и интернета унео је велике промене у навикама деце и адолесцената који са собом носе бројне предности али и ризике. Међу бројним технолошким достигнућима које су путем интернет и савремених техничких средстава (компјутери, таблети, паметни телефони) нашли пут до деце и младих су видео игре са најразноврснијим садржајима и темама. Утицај видео игара на психосоцијални развој младих је испитиван бројним студијама. Готово увек су извођени закључци о штетности видео игара у којима доминирају теме насиља. У последње време све више студија настоје да покажу како је утицај видео игара на развој и понашање младих позитиван и да је играње видео игара пожељно јер развија мисаоне процесе деце, емпатију, мисли, осећања, просоцијалне облике понашања, развија логику, социјалну компоненту понашања и сл. Циљ овог рада је компаративним прегледом досадашњих студија и резултата до којих је наука дошла указати на позитивне и негативне утицаје видео игара на развој деце и младих.

Кључне речи: видео игре, просоцијално и антисоцијално понашање, развој деце, агресија

ALEKSANDAR FILIPOVIĆ
Faculty of Economics and
Engineering Management
Novi Sad
MARTIN BJELAJAC
Video Game Theory Center
Belgrade

VIDEO GAME AS A METAPHYSICAL CONSTANT OF THE ICT

Summary: Information and communications technology were primarily developed for needs of information transfer and communication between people and information systems. Nonetheless, the authors of this paper claim, in commercial sense that reason was quickly overcame by a new entertainment industry phenomenon – video games. Authors point out to consequence of that phenomenon, new relations between people, new rules, new world, new present, but new future as well. Authors especially stress that virtual reality technologies developed in a symbiotic relationship of video games and the ICT allow a switch of perception of reality to desired way, which opens problems of the ontological status of virtual objects.

Key words: Video game, the ICT, gamification, technology, VR, ontological being

Introduction

World we live in shall more and more be interpreted in plural. So, not „world", but „worlds we live in". Real, surreal, parallel, virtual, possible, impossible, and all the other worlds that are in constant collision and in constant struggle for the souls of the subjects that populate it. But soul is decreasingly important, what is now important are opinions of the subjects since soon the world will not be ruled by ones with the most money or largest army, but ones who master the technology of manufacturing and editing opinions of the faceless and alienated masses into which the people is rapidly turning. The most successful weapon for that struggle are the ICT and the video games as their most fluttering postulate.

Therefore we introduce to our story an interesting dialectical opposite which we will not explore in detail due to the constraints of the form, and that is the opposition of omnipresent gamification of the world and also omnipresent information and communications technologies. There hardly is anything more egotistical than the

---

 sasha.filipovic@gmail.com

player playing a video game. He turns into his avatar during the play and necessarily becomes completely alone, but both of them exist together with a game due to pre-conditioned existence of the ICT.

Contemporary digital culture brings significant changes in all areas of life, and especially in ways we communicate. For decades scientists research changing connections of the modern man with digital culture while showing how mobile technologies, social networks and humanoid robotics change work, family and identity, as well as relations between generations, sexes, employers and employees, A modern theory describes technology as „an architect of our intimate sphere", which creates disturbing relations between friends, lovers, parent and children and causes changes in understanding of privacy and community, intimacy and loneliness.

Over the last twenty years, the majority of social communication is done with minimal usage of human body. Millions of people socialize, confess, learn, play and fall in love most often using only their eyes and tips of their fingers in the process of receiving and sendding information in technological world that seem unimaginable and social reality that seems endless. Communication between people is enormously massive, the amount of sent and received data is impressive, but also is impressively shallow and cognitively useless. All that communication is like the skies painted with airplane trails that dissapear over the next several minutes. As expected, such situation fundamentally changed relations between people all across the social gamut, and furthermore questions moral understandings and postulates, while demaning new solutions for such fundamental elements of human life, like parenting, education, marriage etc.

Video games

Video game only recently became a cultural phenomenon, despite the fact it exists for almost 70 years, albeit in various forms[1]. Its older, and in every aspect rudimental predecessors managed to achieve certain popularity and presence in daily life, but video game became a part of cultural needs only when it reached a certain level of technological development which in turn provided much-increased level of realism and immersiveness into the game, which in turn allowed constant improvement of video game playing experience. It was immensely important, since exactly in game playing experience lies the fact that separates video games from every other media, where interactivity is only one of the factors, and represents means to get the game playing experience.

As video games are products whose defining and studying has to be a topic of multiple scientific and art disciplines, theoretical approach has to be adequately and proportionally complex as well. In addition to everything else video game is, it is, *per se,* a game, then it is logical that in the absence of developed and scientifically verified video game theory, theoretical sources shall be found in general game the-

---

[1] Games on early and primitive computers, arcade coin-op games, console games, computer games, mobile games...

ory, or, since that is a young science as well, in works of theorists who, among other things, researched and wrote about the game. And as the game drew human attention and was a part of daily life since the dawn of civilization, so the first comments and thoughts about the game can be found in works of ancient Greek philosophers[2], great fathers of Theologiae Biblicae[3] and Patristicae[4], as well as medieval and rennaisance Christian philosophers, that practically establish continuity of theoretical consideration of the game all the way to modern day and modern theorists.

Video game theory is a young science, so young that still there is no scientific consensus whether it is a separate science, and is called in expert public by various names, such as ludology[5] or video game studies. As there still is no generally accepted methodology of video game theory, researchers use methods borrowed from other sciences, particularly from the film theory. Still, certain properties of video game make it too complex for valid scientific analysys by using methods from other sciences.

Video game has its undisputable origins in the game. It keeps nearly every mandatory element of game, but hase some additional properties and elements that are particularly visible in the ontological being of video game and which make up primary criteria of video game and its being. Although this is not a paper treating video game as a philosophical category, we must mention *sine qua non* existential criteria of video game: space and time (1), material nature (2), beings of video game and their activities (3), validity (4) sense and purpose (5) and narrative (6).

Considering that video game is still constructed around the ontological being of the game, the theory characterizes the game as a term widely applied in social and humanist sciences. In philosophy it has metaphysical, ontological and epistemological meaning, but is related primary to antropology and aesthetics. Ever since Heraclites and Plato[6] game marks a time in human life and coming-of-age, or an elaborate way for developing thought and coherence (λόγος). In aesthetical manner the game receives meaning of a plot that is pleasant and noble for itself, and for Friedrich Schiller[7] it is a way of human communication with the beauty. ona je način čovekovog ophođenja sa lepotom. Artistic game as a creative production for Friedrich Nietzche is an establishing of whole world as a game, which gets the meaning of „a symbol of the world" (Eugen Fink). It is not established, meaning it does not

---

[2] Heraclites, Plato, Aristotle....,

[3] Theological teaching of the Christian church based on the Bible. According to „Catholic Encyclopedia" it ended around 100 CE

[4] Theological teaching of the Christian church based on the works of the Great Fathers - *Magnus Ecclesiae Patribus* (The Great Fathers of the Church) and particularly St. Augustine (Aurelius Augustinus Hipponensis, 354 - 430) whose work „De civitate Dei" (The City of God) was the basis of dogmatic Christianity for nearly a thousand years. It wass succeded by Theologia Scholastica

[5] Game and gaming studies, especially of video games, does not research story and discourse but actions and events, http://www.oxforddictionaries.com/definition/english/ludology, retrieved on 24.03.2019

[6] Plato (Πλάτων, 427 BCE – 347 BCE), an ancient philosopher from Athens. One of the most influential people in the history of Western civilization. A student of Socrates, founder of the Academy, first institution of its kind, where Aristotle studied.

[7] Johan Friedrich Schiller (1759-1805)

have its rational cause, but it happens as a „convenience of being"[8] (Martin Heidegger). In the Anglosaxon phylosophy (J. Dewey) the game is seen as a freedom from having a purpose, while Karl Gross in it sees its ilussory influence. Game theory in lingustic view of Ludwig Wittgenstein implies contingency and arbitrary nature of linguistic constitution of sense and meaning, while in epistemological sense it suggests that rational decision making does not rely on individual will, but it is dependable on influence of all the participants of the interaction[9].

The sense and the goal of video game, seen through the prism of phenomenon of the game is playing the game, meaning the video game itself, which is more present than with traditional game. Video game is more than a traditional game and more than any other form of playing and it is a purpose and a goal in itself. The exaltation of the video game players and their alienation from the real world and any reality can be compared only to play of a child that has just formed a consciousness[10]. For video game players nothing else exists, nor is any other goal important. Not even a victory in games categorized as *agon,* but unspeakable pleasure of spending time in an alternative virtual world and activities within it, meaning the pleasure of playing.

Information and communications technologies (ICT)

The ICT is a broad topic whose concepts are being developed on a daily basis. The concept includes all the products that will store, download, manipulate, transfer or receive information via electronic devices in digital form (personal computers, digital television, e-mail, robotics, etc). A hierarchy of the ICT is established, where all levels of hierarchy „contain certain degree of togetherness in the fact that they are technologically related to ease distribution of information and various forms of electronically mediated communications[11]". Theoretical differences between interpersonal communications technologies and mass-communications technologies are identified by philosopher Piyush Mathur[12]. The framework of skill for the information age is one of the many models for describing and management of competences for the ICT professionals in the 21st century.

Information technologies (IT) are process that uses a group of methods and means to gather, register, transfer, accumulate and process information based on software and hardware dedicated to solve managerial tasks. The basic goal of automatized technology is to get information of new quality by processing primary information, in order to develop optimal managerial decisions. That is achieved by

---

[8] Heidegger, Martin: Vom Wesen der Wahrheit, Frankfurt am Main, 1986, p. 29.
[9] Croatian Encyclopaedia, http://www.enciklopedija.hr/Natuknica.aspx?ID=26978
retrieved 23.02. 2019.
[10] „a man becomes closest to himself when he reaches such seriousness as a child has while it plays",
Heraclites
[11] Zuppo, Colrain M. „Defining ICT in a Boundaryless World: The Development of a Working Hierarchy". International Journal of Managing Information Technology (IJMIT). p. 19
[12] Piyush Mathur, *Technological Forms and Ecological Communication: A Theoretical Heuristic*, Lexington Books, 2017

integration of information, securing its relevancy and consistency, by using modern technical means for introduction and functioning of qualitatively new forms of information support to managerial body.

The information technology combats significant increase of amount of processed information and shortens the processing time. The IT is the most important component of process of using information resources in management. Automatic information systems for information technology is basic surrounding whose elements are means and methods of data conversion. The IT is a process consisting of clearly regulated rules for doing work on information that circles inside the information system and depends on many factors that are sorted by contemporary criteria of classification.

The ICT are both scientific discipline and a practice that first occurred in late 20th century with transition from industrial to information era. With constant development of new technologies its use is rapidly developing and spreading. It has enormous influence on all aspects of human society. It is difficult to give a true definition what the information technology is, but we can say that the IT encompass all forms of technology ised for creation, storage and exchange of information in various forms (business data, speech, sound, pictures, multimedia etc.)[13]

Information technology is defined by American Association for Information Science and Technology[14] as „studying, design, development, implementation and support to computer information systems, software apps and hardware". Information technology uses computers and their software for secure conversion, storage, protection, processing, transmission and search of information.

The term ICT is also used to refer to convergence of audiovisual and telephone networks with computer networks with a cable or a system of connections. There are large economical stimulations (large saving of expenditures due to elimination of the telephone network) for connection of telephone network to the system of computer network by using a single system of cables, signal distribution and management.

The ICT and the change of ontological status of video games

The relevance of studying of virtual worlds of video games is due to fact that in relation to development of the ICT, the relation between the real and the virtual is greatly actualized[15]. Today, virtual reality technologies (Oculus Rift, PlayStation VR, HTC Vive, Samsung Gear VR) enable the change of perception of reality to a designed reality, which opens a problem of ontological status of virtual objects. This trend is bolstered by understanding of reality within post-modernist philosophy: polyontic reality is recognized, which is a possibility of existence of plurality of

---

[13] Mitić,Mirjana, *http://miticmirjana.weebly.com/104810501058-*
10901077109310851086108310861075108011121077.html, retrieved *22.11.2018*
[14] Association for Information Science and Technology (ASIS&T) www.asist.org
[15] Галанина Е.В., Акчелов Е.О. Виртуальный мир видеоигры: культурфилософский анализ // Философская мысль. — 2016. - № 7. - С.97-111.

equal world with their own attributes of truth. The modern man communicates not only with objective reality, but with a large number of symbollic and virtual constructions as well that are already present in the sociocultural space. Virtual worlds are nothing less significant to a modern man than the real objects. There is a virtualization of society and culture, and reality is substituted by its „information doppelganger" of the world where the subject exists[16]. The key attribute of the modern culture is construction and immersion of a man into various kinds of virtual, mythological worlds. A vivid example of this immersion are virtual worlds of video games created by using the ICT. Video games now are a significant phenomenon of the modern culture and have important influence on mass consciousness. Video games create numerous worlds with their own laws of time and space, virtual objects and characters, values and social norms. Video games construct world where the boundary between the real and imagined is sometimes erased. Elements of space of tha game are moved into the real world, and existence and communication in the virtual world ofter supplants the importance of real life phenomena and events. The question of defining boundaries between the virtual and the real, the ontology of virtual worlds is particularly relevant in situations when video games become a research topic due to its enormous popularity. According to a research portal statista.com, a number of video game players in the world will amount to nearly 2,5 billion in 2019. Video game science is a new interdisciplinary field of research crossing the methods of philosophy and culture studies (general game theory by Huizinga and Callois), linguistics (understanding video games as narratives), social sciences (theory of sexes, dependence on video games, economics of video games), and on the other side, applied mathematics and information science (programming, artificial intelligence) and others. Video game studies originated in teh USA during the 1980s as a part of media studies. Research of video games in Europe begun in 1990s in Denmark, opening a new branch of scientific work called game studies. The first researcj and educational center was opened in Denmark, Video Game Research Center, while in 2001 the first specialised scientific magazin called Game Studies began with work. With development of video game industry and by understanding of importance of this phenomenon for modern society, research labs for studying video games are opened around the world, in Canada, the USA, Finland, Poland etc.

In mid 2000s an international organization was formed, called Digital Games Research Association, which is an association of scientists and professionals from video game industry that are involved in video game studies. Well-known researchers of video games are J. Bogost, J. McGonigal, E. Aarset, G. Frasca, M. Eskelinen, J. Juul, M.-L. Rian.

Video games are studied in Russia at Research laboratory for computer games at Research university of Faculty of Medicine in St. Petersburg, Video game research center at Faculty of philosophy of Moscow State University, Innovative research laboratory of virtual space and ontology of virtual space, as well as individual researchers.

The scientific problem is in a fact that the modern man is confronted with increasing number and diversification of virutal worlds constructed by video games,

---

[16] Ibid

but as such there is no understanding of the essence of these world and their influence on society and culture. Virtual world of video game did not become a separate topic of cultural and philosophical studies, but existing methods borrowed from other sciences, as well as individual work of video game theorists are used to formulate a framework for such studies.

Specifics of video games in contrast to other segments of the ICT

This is a good moment to point to one of the crucial differences of video games from other segments of the ICT – in video games, strength is in numbers, whether of members and diversification of creative teams, whether computer units where the product is created, as it is very difficult to create a competitive product without a large team and expensive hardware[17]. Development of wireless devices and their growth somewhat diminished these requests and allowed smaller companies to make competitive products as performances of handheld devices are significantly lower than computers and gaming consoles, so the expectations of the audience were lower, compared to expectations from computer and console games[18]. Simple games distributed over social networks opened a new branch of video game industry which grows immensely and has significant participation in total reveues of the industry[19]. The important characteristic of these games is that they are free in their basic version, with possibility or even suggestion to pay for premium content, which varies from game to game. Spreading of video games over social networks brought a significant increase in total number of gamers, by creating appealing product which by its initial simplicity had strong appeal on previous non-players. Naturally, we should not overlook the fact that the new players generally keep only to games on social networks, without desire to try and play some much more complicated game, even when it means it is only a more massive version of the games they play on social networks.

Availability and possibility to play whenever you want and as long as you want is another specific attribute of video game. Although the majority of video games are still played on computers and consoles, development of smartphones and other powerful handheld devices with complex operating systems allowed people to carry an information system in his pocket, so good that the large video game publishers port their games to Android or iOS, despite being less sophisticated and less powerful than handheld gaming consoles, like Nintendo 3DS[20]. This segment of the

---

[17] Filipović, Aleksandar, „*Video igre kao najozbiljniji biznis kreativne industrije na početku 21. veka*", Megatrend revija / Megatrend review, Vol. 10, No 2, 2013, ISSN 1820-3159, UDK / UDC 3, UDK 338.46:004.42; 004.42:794, pp. 177-192.

[18] For instance, PES 2013, a soccer simulation game, requires a 2,6Ghz Core2Duo processor, advanced graphics and large amount of RAM memory, while the same game, ported to handheld devices runs a processor of less tha 1 GHz frequencz, which means that handheld games are adapted to the size of a device, while requirements are only in operating system version installed on a device

[19] During 2010 mobile gaming sector grew 15%, and it was estimated that the segment will grow 20% annualy, www.gartner.com, retrieved 23.02.2019

[20] Nintendo 3DS is a portable video gaming system of the eight generation. Such gaming systems gained worldwide popularity with Nintendo's Game Boy in 1990s. They use physical media to run

video game industry continued to grow, and today some 500 games are uploaded to Apple's App Store daily[21].

Still, the basic specificity of video game industry, which is simultaneously a limiting factor and an instrument of progress, is its unconditional connection with computer hardware industry. Whether the case is about personal computers or gaming consoles, it is guaranteed that every new generation of hardware will bring better video games, as the basic difference of video game from all the other products of creative industries is its interactivity, which leads to identification and immersion which is one of the goals of escapism, while the interactivity is amplified by graphic realism, size of the game world, possibility of various interaction and a number of interactive objects in the game world which is pre-conditioned by capability of given hardware configuration to process such amount of information per unit of time and allow uninterrupted playing.

In the moment when majority of global media are stagnating or dropping in business results, the video game industry is marked by its growth. In 1970s, the video game industry was worth only a few billion of dollars annually, but it grown uninterrupted, so in the 1990s only from software sales (video games), while excluding sales of machines necessary to activate the software, the industry crossed 10 billion USD margin. Only a few years later, in early 2000s, total revenue of the industry crossed 20 billion USD per annum. And when additional revenue from selling online subscriptions is added to revenue earned from selling software units on a medium, the number for year 2008 was north of 40 billion USD[22]. On a specialized statistics website[23] it was published that total revenue of video game industry came close to 70 billion USD in 2012, with projections that in this year[24] the total revenue will be doubled. A report by a company for video games and entertainment industry research DFC Intelligence estimates that the global video game marketplace will grow to 82 billion USD in 2017, and more than 150 billion USD in 2020, and the largest growth is expected in sector of video games for handheld devices[25].

All these facts allow us to say that the video games are the most valuable entertainment medium in the world, surpassing the sales of films on BluRay and DVD discs, music, and total cinema box office revenues. For comparison purposes, box offices in the USA earned 10,71 billion USD in revenue in 2012, with 1,37 billion of tickets sold[26]. With advent of content streaming, the film industry increasingly relies of gigantic blockbusters to generate large incomes, but all of that does not mask the fact that with great variety of entertainment choices film is losing its dominance to video games.

---

games and they are much more advanced compared to other handheld devices whose primary purpose is not gaming (phones, tablets, etc.)

[21] https://www.gamasutra.com/view/news/267645/Over_500_games_now_submitted_to_iOS_App_Store_every_day.php, retrieved 24.03.2019

[22] Chatfield, Tom: *Fun Inc: Why the Games Are the 21st Century's Most Serious Business,* Virgin Books, London 2010, p. 27

[23] http://www.grabstats.com/statmain.aspx?StatID=430, retrieved 23.02.2019.

[24] 2019

[25] http://finance.yahoo.com/news/video-game-industry-set-growth-122000072.html, retrieved 23.02.2019.

[26] http://www.the-numbers.com/market/, retrieved 23.02.2019.

What suits video games much more than other products of creative industries is that they are, *per se,* already optimally aligned with the digital era. Many cultural movements and paradigms had certain forms of cultural production at their epicenter, so these forms in a way embodied the most important characteristics of these movements and paradigms. So the film, but not in its totality but in its more avant-garde forms, like *Man with the Movie Camera*[27] by Dziga Vertov (*Дзига Вертов*), has materialized modernism, while television stood as an important foundation of post-modernist culture, allowing its consumers to see fragmented infinity of various cultural discourses by changing channels. It is similar with the video games and the coming cultural model, digimodernism. Attention to the fact that video games pre-date digimodernism shall be ignored, as the same situation was with film and modernism and television and post-modernism[28].

Conclusion

Traditional creative industries base majority of their revenue on sales of physical products at points of sale, whether the case is about books, newspapers, magazines, music, film, theater or television, and accelerated migration of consumers to digital formats brings significant decrease in their profitability. There is an unwritten rule in business practice – product price depends on distribution price, and when the means of distribution are the Internet – the cost is near zero. Video games are once again fantastically suited to the new dominant distribution method. Even when we include the problem of piracy, video game industry has less damage because they are harder to pirate. Nobody will watch a pirated copy of a film if it is missing some parts, so no one would play such video games, that are far more complex when it comes to copy protection, content and elements it is consisting of. Naturally, there are pirate copies of nearly all titles, but generally such copies do not have identical functionality as the original. Pirate PC games do not have possibility of online playing, because when you connect a pirated copy of a game to the Internet, severs will immediately recognized a copy that is not genuine and will prevent further playing, with additional consequences that vary by case. It is even more difficult to pirate console games, and in order to play a pirated game on your console, you must adapt its software, which once again removes the online component, but also carries potential damage to the gaming system whose price is not low, while risking other repercussions, so all of that makes piracy problem in video games to have far smaller negative financial effect.

What is the reason of such galloping trend of domination of video games in revenues of entertainment industry? Part of the answer is in psychosocial properties of video game as a medium. Out of all products of creative industries, video games are probably most addictive, due to numerous deeply rooted desires and needs of humankind. Video game offers the consumer a chance to satisfy its desires for play-

---

[27] Dziga Vertov, „Человек с киноаппаратом", silent experimental documentary film initially released in 1929 in USSR. With its experimental approach the film materialized basic ideas of modernism
[28] Kirby, Alan: *Digimodernism*, Continuum, New York, 2009, p. 167

ing, winning, competition, escapism, control, and many others, as well as the initial simplicity that slowly introduces a player to more and more complex world. A good example is video game Tetris, one of the most popular games of all time. The secret of its success is in part in combination of high sophistication and immaculate simplicity. You can learn how to play Tetris in matter of seconds, but the challenge this game poses is unattainable. In mathematical sense, Tetris is a NP-Hard problem[29], which means that playing Tetris is mathematically endless endeavor, where even the most successful players are doomed to inevitably lose. Here, in its most simple form lies one of the fundamental tenets of video games – they can be easy to understand, but they cannot be easy to master or to complete.[30] Therefore the most addictive games are those without end, like massive multiplayer online games, or social network games such as Farmville. These games have no ending, by playing one gathers experience and resources, but does not come closer to the end, and the consumers keep returning to play.

Drastically increased availability of video games and availability of devices on which the games are played is another crucial reason of total growth of video game industry. Phones and tablets additionally amplify an important characteristic of video games, the fact that you can play them at any moment and as long as you want. Naturally, presence of the devices brought the constant growth of selection of games for handheld devices in online stores, where for very small amount of money, or no money at all, you can download a game you want and to enjoy it several seconds later without any boundary except for those embedded in the game.

References:

1. Chatfield, Tom: *Fun Inc: Why the Games Are the 21st Century's Most Serious Business*, Virgin Books, London 2010,
2. Croatian Encyclopaedia, http://www.enciklopedija.hr/Natuknica.aspx?ID=26978,
3. Filipović, Aleksandar: *Video igre kao najozbiljniji biznis kreativne industrije na početku 21. veka*, Megatrend revija Vol. 10, No 2, 2013,
4. Galanina, E.V, Akčelov, E.O: *Виртуальный мир видеоигры: культурфилософский анализ*, Философская мысль. — 2016. - № 7,
5. Heidegger, Martin: *Vom Wesen der Wahrheit*, Frankfurt am Main, 1986,
6. Kirby, Alan: *Digimodernism, Continuum*, New York, 2009,
7. Mitić,Mirjana: http://miticmirjana.weebly.com/104810501058-109010771093108510861083108610751080111121077.html,
8. Mathur, Piyush: *Technological Forms and Ecological Communication: A Theoretical Heuristic*, Lexington Books, 2017,
9. Platon: *Timaeus*, Eidos, Vrnjačka Banja, 1995,
10. Schiller, Johan Freidreich: *Briefe überdieästhetische Erziehung des Menschen. Schillers philosophische Schriften und Gedichte*, Leipzig 1910,

---

[29] non-deterministic polynomial-time hard problem, a part of a class of problems in computational complexity theory
[30] Chatfield, Tom: *Fun Inc: Why the Games Are the 21st Century's Most Serious Business,* Virgin Books, London 2010, p. 42

11. Zuppo, Colrain M: *Defining ICT in a Boundaryless World: The Development of a Working Hierarchy,* International Journal of Managing Information Technology (IJ-MIT),
12. www.gartner.com
13. http://finance.yahoo.com/news/video-game-industry-set-growth-122000072.html
14. http://www.grabstats.com/statmain.aspx?StatID=430
15. http://www.oxforddictionaries.com/definition/english/ludology
16. http://www.the-numbers.com/market/
17. https://www.gamasutra.com/view/news/267645/Over_500_games_now_submitted_to_iOS_App_Store_every_day.php

ВИДЕО ИГРА КАО МЕТАФИЗИЧКА КОНСТАНТА ИНФОРМАЦИОНО - КОМУНИКАЦИОНИХ ТЕХНОЛОГИЈА

Сажетак: Информационо комуникационе технологије су се примарно развиле за потребе преноса информација и за комуницирање међу људима. Међутим, тврде аутори овог рада, убрзо их је, у комерцијалном смислу, потпуно преузео нови феномен индустрије забаве - видео игре. Аутори нарочито указују на последицу тог феномена, на нове односе међу људима, нова правила, нови свет, нову садашњост, али и нову будућност рланете за коју не знамо каква ће да буде, утопијска или дистопијска? Аутори посебно указују да технологије виртуелне стварности које се развијају у симбиози видео игара и ИКТ омогућују божанску или дијаболичку замену перцепције стварности на жељени начин, што отвара проблеме онтолошког статуса виртуелних објеката.

Кључне речи: Видео игра, ИКТ, гејмификација, технологија, ВР, онтолошко биће

IVANA FILIPOVIĆ[*]
Video Game Theory Center
Belgrade
KRISTINA CVETKOVIĆ
Belgrade Business Academy for Applied Studies
Belgrade

VIDEO GAMES AS AN APOGEE OF CREATIVE INDUSTRIES

Summary: Video game industry is one of the most dynamic and fastest-growing industries in IT sector and in creative industries sector in general. The authors of this paper try to explain the reasons why video game is a commercial pinnacle of creative industries. Furthermore, they analyze influence of new technologies, interdependence of hardware and software industries, as well as new habits of consumers which create every mobile phone or tablet into a gaming system. The authors also analyze demographic data on video game players that might determine the future of video game as a medium. The paper concludes with estimation on further progress of video game industry in technology of virtual and extended reality.

Key words: Video game, entertainment, creative industries, technological advancement, consumer habits

Introduction

The fact that is already undisputable is that the video games are the most significant global phenomenon to start this century with, not only in domain of culture, but life in general. The most expensive product of entertainment industry is video game Destiny. Total costs of production and promotion amounted to 500 million USD[1], which is much higher figure than the budget of the most expensive movies (*Pirates of the Caribbean: At World's End)*, with a budget north of 300 million USD. In addition, tenth most expensive video game to be produced was Tomb Raider from 2013 which costed 102 million USD[2].

Although virtually non-existent until 50 years ago, video games became planetary business whose revenues grow annually like a clockwork. Video game

---

[*] Ivanuska0502@yahoo.com
[1] http://www.businessinsider.com/the-most-expensive-video-games-ever-made-2014-7#destiny-500-million-10 retrieved on 06. 06. 2018
[2] Filipović, Aleksandar: *Paradigma kulturološkog pozicioniranja video igre*, doctoral dissertation, Faculty of Dramatic Arts, University of Arts, Belgrade, 2016

industry will generate more than 100 billion USD this year in revenues. The industry applies immense influence on industry of computer hardware and gives impetus to that branch of the industry which couldn't be possible without the money of hundreds of millions of players. With vast financial investments, video games are getting better and better, more interesting and more desirable, and it creates a magical *circulum vitiosum* of game as a species-aged human dream and dependence of virtual world managed by ourselves, and where unlike anywhere and anytime before in the real world, one can be everything, even a god. Development of nanotechnology creates hardware so tiny and powerful that tens of millions of people play video games on their handheld devices. Accelerated growth of all branches related to video game industry makes predicting long-term trends practically impossible, but the fact that neither recession nor the prolonged financial crisis did not diminish returns or growth of the industry, so the question arises what can stop these trends and remove people from video games as a dominant model of entertainment in 21st century.

All indicators point that video game industry already surpassed other creative industries, and even Hollywood. The fact that in the time of digitalization and displacement into digital cultural space video game is the most suitable form, like it waited since its inception for all the pieces to fall to their places and create a picture which tells that the industry will continue to grow, and it is hard to predict an event that could jeopardize the situation.

Available data illustrate the fact that the players of video games are nearly permanent category, as the average age of the most frequent buyers of video games is 40 years, while average age of player is 34, and they play video games for the last 12 years. That means that the largest number of people who once started with playing video games never ceased to play, with a constant influx of new players, coming from both young people who are coming of age and people who were traditionally non-players who entered the world of video games through social networks and handheld devices. Large film studios have established their interactive divisions that produce video games, and some of them, like the *Warner Bros. Interactive* [3] found their footing in the new field, but that field is an arena where the main players are already known, and these are publishers who built their position for years exclusively in the field of video games.

Hardware manufacturers continually release more and more powerful components, which constantly increases the quality of video games for computers, while console manufacturers are always preparing for the next generation. The console war is now fought between three sides – Nintendo, Microsoft and Sony. Nintendo leads in sales of both console and dedicated games, despite being somewhat technologically inferior to their main competitors. Next-gen consoles planned by Microsoft and Sony will push the boundaries once again, while they constantly release new models of the consoles of the current generation. When Nintendo released its Wii console, it was perfectly timed with motion control input device revolution. Previous generation of consoles by Sony and Microsoft followed the 3D entertainment trend, while new models of the current generation are designed to support 4K HDR gam-

---

[3] *Warner Bros. Interactive* Entertainment (WBIE)

ing. Consoles have a longer life cycle than the computers, as Sony presented Play-Station 3 in 2006, PlayStation 4 in late 2013, which is in line with previously adopted life cycle of seven to eight years between releasing brand-new consoles. There are rumors that Sony will release its ninth-generation console tentatively titled PlayStation 5 in 2020, but that is yet to be officially confirmed. That differs strongly from the release practice of computer hardware manufacturers, who push the boundaries every year with their next-gen products. Yet, the consoles remain in the race without significant improvement of hardware, and the games that are published are getting better. That is due to elaborate design of the consoles, which offer potential the software makers cannot completely use at the time of the release because they are yet to create products that can use larger percentage of existing computing power in the consoles. It remains to be seen whether the accelerated growth of the industry in whole will push the timetables of console manufacturers, but as we could see over the last three generations, their life cycle remains similar to what was projected two decades ago.

Video games

If the first theoretical thought about games is dated to the age of Heraclites [4], then we have descriptions and definitions of game spanning two and a half millennia. Regardless of accuracy and applicability of these theories, they still do not contain and do not reflect the current zeitgeist[5]. Humankind has changed, and the world has changed. Even in times when Huizinga and Callois gave their definitions of game, there was no professional sports, nor electronic games. Physical and mental efforts modern athletes apply daily are bringing the modern sport, which is still considered a game, to apocalyptical dimension of a corporate game depicted in a cult classic movie Rollerball[6].

While keeping everything that is fundamental and unchangeable as much as a man is unchangeable, the theory and definition of the game shall be refreshed and improved with elements which we now *in flagranti* have, as well as with elements we can say with certainty we will have in near future. Our definition of game, with short theoretical framework, which in addition to traditional and already defined elements includes virtual reality games could be said as:

Game is a free activity of conscious beings that due to demands of the being of the game are consciously moved to spatially and temporally limited reality in physical or virtual reality, while accepting previously defined rules of the game, or, if the being of the game allows or envisages it, creating the rules on the spot[7].

---

[4] 535–475 BCE

[5] Filipović, Aleksandar: *Paradigma kulturološkog pozicioniranja video igre*, doctoral dissertation, Faculty of Dramatic Arts, University of Arts, Belgrade, 2016

[6] Rollerball is a sports science fiction film depicting dystopian society in the USA in 2018. The hero of the story is Jonathan E, the best player of Rollerball in the world. Film was made in 1975, written by William Harrison and directed by Norman Jewison   о свoju причу „Roller Ball Murder. Протагонист филма je James Caan (Џонатан)

[7] Filipović, Aleksandar: *Paradigma kulturološkog pozicioniranja video igre*, doctoral dissertation, Faculty of Dramatic Arts, University of Arts, Belgrade, 2016

Unconditional acceptance of changed reality and respect to the rules of the game are mandatory condition of the game, and the goal of the activity is the game itself as a real activity, or as a meta-activity in mandatory meta-reality. Aesthetical, ethical and logical reception of the being of the game as a phenomenon temporarily situated in „meta-reality within the reality" is based on customized adequate strategies that create the world of the game with in any other place impossible relation of the player, life (reality) and game, with meta-activities equally susceptible to sensory as much as to higher cognitive forms of aesthetical and ethical processing. Existence of the being of the game is limited only by existence of the player and the game, and the being of the game is given and unchangeable as much as is the[8].

Video game is something more, despite primary being a game. It is an integral part of social and ontological corps of a game. In his doctoral dissertation Aleksandar Filipovic wrote a definition of video game, which says that video game is a game created in the form of software and played using appropriate hardware and is a designed ethical object in which one or more players, using their own experience of playing the game completes its goals by using already existing mechanics and rules of the game that cannot be changed by will of one or more players outside already embedded values[9].

The same work continues with studying of specifics and unique aspects of video game, so the more abstract definition follows, oriented to interactivity and relation between the player and the world of a video game.[10]

Video game is a game in a virtual reality, oriented to player without whom it cannot exist, where the player, interacting with hardware, activates already defined game software, and together, within inner space and time of the game create its alternative-reality world whose visible being is shown on the display of an electronic device while virtual being remains inside the parallel world of the game together with the player's avatar, with either being not being aware or dependable on the other.

Creative industries

The term itself, often synonymous with terms creative economy or cultural industry, generally refers to certain economic activities tied with creating or exploitation of knowledge, creativity and information. Usage of the term began some two decades ago, to logically integrate several creative activities comparable in size and revenues to traditional industries but employing human creativity as a resource. It comprises advertising, architecture, art, crafts, design, fashion, film, music, performing arts, publishing, R&D, software, toys and games, TV and radio, and video games[11]. Since the usage of the term began it became a bit controversial, as many artists dislike their work being deemed industrial.

---

[8] Ibid

[9] Filipović, Aleksandar: *Paradigma kulturološkog pozicioniranja video igre*, doctoral dissertation, Faculty of Dramatic Arts, University of Arts, Belgrade, 2016

[10] ibid

[11] *Howkins, John (2001),* The Creative Economy: How People Make Money From Ideas*, Penguin, pp. 88-117*

Central term for understanding creative industries is a concept of intellectual property, meaning the value of the idea that can be protected by copyright, patents, logo or other legal or regulatory mechanism to prevent its copying or transformation in commercial value without permission of author or property holder. Basically, it is the exchange of finance for rights in intellectual property[12].

It is important to stress that development of creative industries is an important component of forthcoming Industrial Revolution 4.0, which mean increased automation of manual labor, meaning potential to increase the revenues and increase the value of life of people around the world by giving routine jobs to the artificial intelligence. People living in developed countries already enjoy the perks of interconnected world, as well as new items or services created to exploit the potential of technology.

This new era is a complementary process, consisting of overtaking of routine labor by robots and artificial intelligence, which will leave time and space to humans to work on creative jobs, which will be protected for automation, because no existing algorithm can think creatively. Vestiges of the Industrial Revolution 4.0 will affect the global employment. Research by University of Oxford estimate that 47% of jobs in the USA will be replaced by robots in the next 20 years, but the research of Nesta called Creativity versus Robots claims that the creative sector is immune to this threat to some degree, with 86% of creative jobs in the USA and 87% in the UK have low or no risk of being obsolete due to automation.[13]

Video games as the most lucrative business of the creative industries

We are witnessing the fact that hundreds of scientists and inventors permanently work on creation and implementation of new inventions and technologies. Much of that effort never come to fruition, but it represents an inception of something someone other will make to work and who will be remembered as bringers of something new and better. Therefore, we have an unwritten rule that for generations some products or ideas are presented as completely original in fact are not[14]. Nearly every new product, with properties that are authentically and endemically their own, actually carries numerous elements from various products from the past, while following the complete unbroken string of circumstances that brings each thing to each moment in time. It is the same with video games. Video games are a sum of different artistic and technological achievements from the past, which caused their genesis and existence. What happened later, and what is still happening is evolution, differentiation and specialization of the video game as a product of cultural industries. With increasing recognition and popularity starting from its early days, video game

---

[12] *Lash, S; Urry, J (1994),* Economies of Sign and Space, SAGE, p. 117

[13] https://www.nesta.org.uk/report/creativity-vs-robots/

[14] For instance, strategic games are present in every modern culture, but they are not their invention. The oldest ones are chess, from Europe and Middle East, go in Asia or less-known game mankala in Africa. All these games are based on a principle of confronting different strategic systems where turning opponents weaknesses to own advantages is a path to victory

increased its value as a part of cultural industry and became a dominant factor of its own growth, independent from anything other, and it didn't stop there. Through symbiotic relationship video game helped all the branches that made it into existence and became a catalyst for their respective growth. Video game became an important part of the IT industry, and a catalyst for technological progress of certain parts of computer hardware industry, especially in fields of graphics processing and physics processing.

Said symbiotic relationship is a game with a positive sum[15], to use the term from game theory, because in addition to technological advance which guarantees better product,[16]. We shall have in mind that the limit on visual, design, narrative and every other quality of a video game is determined by current hardware capabilities, because when it comes to software, it is always possible to make a game more realistic, complex or interactive, with only remaining question being how much information per second dedicated processors can process, whether they are installed in a computer or in a gaming console. It is questionable whether the Moore Law[17], according to which computing performances double every 18 months would still be true if the software manufacturers did not set harsh hardware configuration requests and by doing that forced consumers to buy new hardware. Again, the most important role in that process was played by video game, although we cannot overlook the myriad of professional software, which is purchased by less people than video games, but their individual prices are much higher and so is their revenue.

The abstract video game production model is similar to abstract production models of several performing arts. Production cycle includes pre-production, production where several different groups of professionals work on certain aspects of the final product, post-production, marketing and sales. Organizational structure depends on the size of the production company, and in companies whose good results lead to growth, which is a bit complicated as horizontal and vertical growth are combined.[18] Similar to film industry, in video games industry production companies need distributors, called publishers in video games, and who are, like in film, main cogs of the industry and major financiers to production companies. There is an independent scene as well, consisting of relatively small video game manufacturers who use Internet as the distribution channel and work almost without marketing, so their share is not significant, especially when compared to independent film scene that has recognition and following, if not money.

---

[15] According to mathematical game theory, a game with a positive sum is a game where all the players get something, in contrast to games with a negative sum, where all the players lose something, or games with zero sum, where one players wins everything while other players lose everything

[16] Video game manufacturers often set too steep hardware configuration for playing the game, whether it is a new set of graphics chips or only an ability the new generation of hardware has, and by doing that the stimulate sales of graphics cards, whose main application is in video games

[17] Gordon Moore, one of the founders of Intel, in an interview from 1965 formulated a thesis that, if then-current trends continue, processor manufacturers will be able to place two times more transistors on the same space every 18 months due to decrease in size. His position was explained by one of the Intel directors David House when he said that it means that processor performance will double every 18 months, as a direct consequence of doubled number of transistors. Although Moore predicted the trend will last for 10 years, it is still applicable, so that Moore's thesis is therefore called the Moore Law

[18] Maričić Nikola: *Menadžment radija*, Beograd 2007, 54

Conclusion

The statements on importance of video games as a part of creative industries, and that it left other creative industries far behind are best told through numbers. American Entertainment Software Association publishes annual reports on video games industry, and for the last year, some interesting facts from that report follows:

– 64% of American households own a device that they can use to play video games
– The average gamer is 34 years old
– 45% of gamers in the USA are female
– Gamers older than 18 years old represent more than 70% of video game playing population
– 60 percent of Americans play video games daily
– The total consumer spend on the video game industry in the USA was 36 billion USD in 2017
– There are 2,711 video game company locations across 84 percent of the congressional districts in America
– There are now 65,678 workers directly employed at game software publisher and developer locations in the US.
– Employees in the industry earned an average compensation of $97,000 per year
– The US video game industry's value added to US GDP is more than $11.7 billion[19]

Here we shall stress that the ESA research surveyed only the United States, and while some trends, like demographics, will remain the same when viewed globally, some numbers would be multiplied, total revenue in the first place. Here are some facts from another research that compiled numerous researches from all over the world to provide statistics on a global scale:

– The video games market is expected to be worth over 90 billion U.S. dollars by 2020, from nearly 78.61 billion in 2017
– There are more than 2.5 billion video gamers from all over the world
– Asia Pacific reached a revenue of 51.2 billion U.S. dollars, making them the largest gaming market in 2017
– China covers 41% of the video game market revenue worldwide, making them the first on the list as of October 2017
– United States covers 32% of the worldwide gaming market revenue as of October 2017[20]

As we can see, the numbers are fascinating, and tell a story of a fast-growing industry whose stakeholders are a third of the world's population. When technological innovations are added to the existing mix of the perfect form of escapism, interactivity and freedom, it is easy to predict that the video game industry will continue to grow both horizontally and vertically. The Internet of things, or the Fourth Industrial Revolution will bring new ways and new means of play, combined with increased quality of displays will make it even easier to immerse in meticulously detailed game worlds. Next generation of gaming consoles are around the corner, and

---

[19] http://www.theesa.com/wp-content/uploads/2018/05/EF2018_FINAL.pdf
[20] https://www.wepc.com/news/video-game-statistics/

they will even bring support for 8K displays in high dynamic range. 5G cellular network technology that provides broadband access will create new possibilities for mobile gaming. And as we said earlier, video games have always been a catalyst for all the fields that helped it to come to be, so it is safe to say that we live in the Golden age of gaming.

References

1. Filipović, Aleksandar: *Odrastanje nintendo generacije: Kako je video-igra postala važan element popularne kulture*, Medijski dijalozi, časopis za istraživanje medija i društva, godina VI, broj 17, 2013,

2. Filipović, Aleksandar: *Paradigma kulturološkog pozicioniranja video igre*, doctoral dissertation, Faculty of Dramatic Arts, University of Arts, Belgrade, 2016

3. Filipović, Aleksandar: *Video igre kao najozbiljniji biznis kreativne industrije na početku 21. veka*, Megatrend revija Vol. 10, No 2, 2013

4. Harrison, William: *Roller Ball Murder,* Morrow, First Edition, 1974

5. Howkins, John: *The Creative Economy: How People Make Money From Ideas*, Penguin, 2001,

6. Lash, S, Urry, J: *Economies of Sign and Space*, SAGE, 1994,

7. Maričić, Nikola: *Menadžment radija*, RDU-RTS, Beograd, 2007

8. https://www.nesta.org.uk/report/creativity-vs-robots/

9. http://www.businessinsider.com/the-most-expensive-video-games-ever-made-2014-7#destiny-500-million-10

10. http://www.theesa.com/wp-content/uploads/2018/05/EF2018_FINAL.pdf

11. https://www.wepc.com/news/video-game-statistics/

ВИДЕО ИГРА КАО АПОГЕЈ КРЕАТИВНЕ ИНДУСТРИЈЕ

Сажетак: Индустрија видео игара је једна од најдинамичнијих и најбрже растућих у ИТ сектору и сегменту креативних индустрија уопште. Ауторке у овом раду настоје да објасни разлоге који видео игру чине комерцијалним врхом индустрије забаве. Ауторке анализирају утицај нових технологија, међузависност индустрије софтвера и хардвера, као и нове навике корисника које од сваког мобилног телефона или таблета стварају платформу за играње. Ауторке дају и демографске податке о играчима видео игара који би могли да одреде будућност видео игре као медија, будућност која је иначе одређена технолошким напретком. Ауторке предвиђају даљи прогрес индустрије видео игара у технологији виртуелне и проширене реалности.

Кључне речи: Видео игра, забава, креативна индустрија, технолошки развој, потрошачке навике

PREDRAG MIRKOVIĆ[*]
JELENA STOJŠIĆ DABETIĆ
Faculty of Law
Novi Sad

THE PRODUCTION OF VIDEO GAMES IN RELATION TO BUSINESS ETHICS AND LIABILITY

Summary: Video games are mainstream entertainment today and also the fastest growing entertainment industry. The world of video games today counts over 1.8 billion gamers in the world, which makes for about a quarter of the world's population. Playing video games engages consumer mentally as well as physically, making him experience different emotions, dilemmas and conflicts. This is the main point where discussion on ethics in video games production and publishing comes into focus. Authors analyzed ethical question that arise in context of producing, marketing and selling of video games. Also, final section of the paper shows the difference in perception of video games, which will impact current ethical dilemmas as well.

Key words: video games, ethics, player, production of video games, creation of video games

Introduction

Video games can, and in reality they do, have a large impact on individual as well as on society, therefore an ethical question is a legitimate one. The producers of video games, authors or publishers must act in accordance with certain ethical norms, but in practice this provides a numerous questions with less then ideal answers. First of all, there is an ethical dilemma of producing a video game, and, on the other hand, an ethical dilemma from the standpoint of a player. Therefore, the answer should shed light on both sides of the problem, but it is commonly understood that prime responsibility is on the creator of a video games, rather than on a player as person that only plays the game. In this context, we take a chance to try to determine substance of an ethical question from the standpoint of game creators, and if there is such a question, is that a legitimate one.

Video games as social phenomenon

Video games are defined as, basically, games that use player's actions as input, putting these actions as well as surrounding through computer processing, and

---

[*] mirkovic@pravni-fakultet.info

the end result is presented via video signal on display screen back to player. Hence the name „video" games. These games are complex works that contain many artistic forms (music, lyrics, scripts, videos, pictures, characters) which involve human interaction to play a game via computer program (Georgieva, 2016). They are divided into three categories – console, computer and on mobile devices. Today, video games represent final complex work that contain audio elements, video elements and computer code (source code and object code) as its components (Lipson and Brain, 2009).

Today, video games have become mainstream entertainment. Moreover, video industry is the fastest growing entertainment industry nowadays. The world of video games today counts over 1.8 billion gamers in the world, which makes for about a quarter of the world's population. Furthermore, the average gamer is 35 years old, and only 56% of gamers are male. Only decade ago the average player was ten years younger, so we can see how fast the consumer element in video games industry is changing. In terms of revenue granted, video games industry is surpassing the music industry, and is in close competition to motion picture industry.

Video games are quite realistic today. Human motions are captured and mapped to computer game avatars which makes animations and motions in games increasingly realistic. Motion capture actors act out the desired motions and bring a virtual character to life. Thereby players use their own motions and emotions to form the virtual character. Therefore, playing video games engages consumer mentally as well as physically, making him experience different emotions, dilemmas and conflicts. This is the main point where discussion on ethics in video games production and publishing comes into focus. But, firstly, a brief survey on legal context of video games is in order.

Video games as objects of intellectual property law (legal context)

In legal context, video game is complex copyrightable work and enjoys copyright law protection. Copyright law protects the specific form of expression of the elements enumerated above (audio elements, video elements and computer code), not the elements themselves. Therefore, methodologies, themes, ideas, concepts and colors in the process of creation of video game are not protected copyright objects. Their protection is provided via patent protection, i.e. as industrial property objects, but it is not always the case. The European Patent Convention (art. 52) expressly excludes computer programs, artistic creation, plans, rules and methods of mental activity, playing games or business activities, the presentation of information, discoveries and mathematical methods from the scope of the definition of patentable inventions. Nonetheless, video games can enjoy patent protection as parts of other inventions. Also, however, despite the cited European Patent Convention, the European Patent Office has registered a number of software patents, including video-games.

The controversy in defining a video game – is it a multimedia, an audio – visual work or a software program extends to its legal protection. In some countries[1]

---

[1] Argentina, Canada, China, Israel

jurisprudence perceives video games mostly as computer programs (due to dependence on software), in other countries[2] separate legal protection is afforded in respect of each intellectual property object.

Legal regulation in respect of video games also goes towards protection of minors and other social categories as consumers. The European Commission has published a Communication on the protection of consumers, in particular minors, in respect of the use of video games (2008). Earlier, in 2002, the European Council published a Resolution on the protection of consumers through the labelling of certain video and computer games according to age group. The self regulatory Pan European Games Information age rating system (PEGI) was adopted in April 2003 as a voluntary, self regulatory system designed to ensure that minors are not exposed to games that are unsuitable for their particular age group. The system replaced a large number of existing national age-rating systems. Today vast majority of EU Member States use PEGI, even if not all of these countries have specific legislation in place. In the United Kingdom, the computer games industry uses PEGI for most video games. Video games with material of a sexual nature, or portraying gross violence, are subject to the approval of the British Board of Film Classification (BBFC) which then awards age-related classifications that differ from PEGI. In France, PEGI is used to classify labelled video games, and recent amendments to French criminal law provide for age classification and labelling of video games according to age group. Belgium, Bulgaria, Denmark, Estonia, Hungary, Ireland, Spain and Sweden all apply PEGI.

Also, vast majority of the EU Member States have specific civil and criminal provisions concerning the physical sale of video games with content harmful to minors and there are various penalties to enforce these provisions. France, Sweden and the Netherlands prohibit certain violent video games under criminal law, and, for lawful games, Swedish retailers have agreed to follow the PEGI rating system for sale. A number of countries still, however, have no specific legislation governing the sale of video games.

Majority of Member States still do not have specific legislation for online video games, like World of Warcraft, that allow players to interact with each other online. In Ireland, for example, offline and internet video gaming activities are treated equally under the law and a hotline has been set up to report any illegal or harmful material on the internet.

As we can see, video game industry is developing much faster than legislation can follow. Therefore, it is useful to include ethics, as deeply rooted social element, in processes of creating and producing video games.

Production of video games in relation to social environment – the role of business ethics

Over the years certain ethical issues have been raised in relation to production and reception of video games. Consequently, serious, socially related, questions and

---

[2] Belgium, Brazil, Denmark, France, Germany, Sweden, United States

interests have been raised in the video games development process, including creation of individual copyrightable components of the video game and the video game itself.

The popularity and importance of video games effects general state and behavior of the „player", not only in the context of (increased) violent behavior. There are serious studies that show that substantial number of video games have been developed as a means of improving the player's mental state and increasing his self-esteem (Georgieva, 2018). Today, there are games for seniors to combat declines in mental function. Playing games contributes to promoting analytical and strategy skills and makes young people accustomed to interaction with information technology. European Union even defines possibility of using video games as bearers of cultural diversity.

Nevertheless, video games can also be a means for spreading illegal and, particularly for minors, harmful content, and that creates specific challenges in terms of protecting young people, especially in the context of Pan European Games Information age rating system (PEGI). Video games have a large impact on the consumer's perception for acceptable and forbidden behavior. Popular game Grand Theft Auto has faced scrutiny over highly abusive language, violence, racism and what it entails for an individual player. Another video game „Counter Strike" faced similar criticism, Germany even tried to legally ban this game in 2007. The debate concentrated on issues of desensitizing players to violence, bad social habits (smoking, drinking alcohol, taking drugs) and normalizing prostitution and violence against women (Stokes, 2011). Many video games are under scrutiny due to many consumers who become fans of a media product, go out in public and commit several crimes such as school shootings, vandalism etc.

Producers of video games must ensure certain level of ethics in producing a video game, but the question is to what extent, having in mind the necessity of respecting their right to freedom of speech and creativity (Takahashi, 2014). On the other hand, producers of video games must be very well aware of the effect the game and its playing may have on the consumer. But, how can producers make sure that their audiences are aware of the difference between virtual reality and the real world? Is it reasonable and just to hold producers liable for the actions some consumers may have in reality after playing a video game? Also, while expressing creativity and enjoying freedom of speech, as any other artist, producers of video games have to take into account that they are distributing a video game that goes international and not every society will appreciate certain aspects of it due to cultural differences.

It must be understood and accepted that culture and society affect the way producers create video games and also the way audiences or consumers perceive it. Consumers act on immoral or moral judgments within the game due to their social upbringing and cultural background, because what is seen normal in one society may not be so in another. The discussions on which kind of ethical code should be used for computer games is ongoing and is constantly adapted to new situations, technologies or applications. Suggestions have been made that „game devel-

opers should follow an ethical consensus because they reach a large population of young people"(Dodig-Crnkovic, Larsson, 2005). Other authors argue that the distinction if a game is unethical or not depends on the „eye of the beholder" (Kade, 2014). It is furthermore stated that consumers steer the market and in some cases even demand violent games so the gaming industry feels the pressure to comply with this demand to not loose market share to other competitors in the field.

Some authors ask what does it mean to talk about ethics in the video games and ask if there are ethical norms that creators of video games should uphold (Zagal, 2009). Zagal asks is it the same to discuss about the ethics of a game or about those in a game? How about the ethics of playing a game? These are some of the many perspectives involved in understanding the ethics of games. One, maybe the only way to address these issues, is from the standpoint of game creators and the companies that are publishing video games.

In the context of business ethic, we must first answer the question whether it is the creator of video game or the publisher that must uphold an ethic norm. As we can conjure, a company is the one that is liable for the content of creation that is publishing. Also, from the legal point of view, a legal responsibility lies on the publisher as legal entity, and not on the creators of video games. The company that is in the business of publishing video games faces numerous ethical questions that must be addressed. In the order of origin, company must take into account following questions:

– how do we create a game,
– how are we producing a game,
– how do we foresee a market, and
– how are we selling games

Ethical dilemmas are incorporated in the core of every line of business that one company is associated, because every one of them has their own agendas and goals, and the ethical principles are imbedded in the way they conduct their business. Same can be said for companies that are in business of producing and publishing video games. In the order of the questions above, the ethical approach of producing a video game and selling one, is questioned and in need of answers.

The first ethical question raised above is how a company creates a game. Even though that question is the first one, it is fundamentally in line with the other important one, whom is the company creating a game for. The game industry is very large and the diversity of games genres on the market is growing every year. The obvious answer lies is the affiliation of a game with an age of consumer. The PEGI ratings is a good tool for classification of games once they hit the market, but the company that is creating a video game has to take into account every aspect of its creation, especially the ethical aspect and its implications for consumers. We can all agree that there is different approach applied in creating a video game that, for example, has a goal to educate a person that is playing a game, from the one that is creating a sport simulation game (football etc.), or the one that is creating a first person shooter game with violent scenes and experience for the person that is playing that kind of game. So, ethical dilemma is valid one, because on the one side, a company can

create a product that is not only one which will bring revenues, but can also educate a player, but on the other side, if a company is producing a video game with violent experience for the gamers, then the way of conducting a business can be ethically and morally questionable. So to be clear, there are no legal issues with producing this type of games, but in terms of ethics, there is a big difference and it is the one that a creator of this type of games must take into account.

Revenues in game industry are associated with the quality of the product, but this market also shows the correlation between a certain type of game and its position on the market. In other words, the market of video games clearly rewords games that have a certain level of violence over the other types of games. So, if the company that operates in video games market wants to be a successful one, then the market is clearly indicating what type of games are more likely to bring success and revenues for company. That is not to say that other type of video games are not going to bring success to a publishing company, but a clear market indicators show that a success is more likely if a company produces a type of game that has a certain level of violence, over the other nonviolent games. Therefore, the ethical dilemma in first question is directly in correlation with all other questions, because when a company decides what type of games is going to produce, then all other question are affiliated with this decision.

How the companies produce a game is mostly determined in relatuin to the needs of the market, so if the company wants to be successful in video game industry, than a question of ethics in creation of certain type of video games is indeed a business question, more than any other one. A creation of video game is, and always will be, a business decision, and, therefore, an ethical approach to the creation of the game is determined on the grounds of market needs, not by the ethical conduct of creators of video games. One can say, if those companies don't produce this type of games, than a video market games would have a lesser video games of this type, but that is only in theory, because in real business other companies would fill a market with what it needs. Therefore, on the one side if companies want to be more ethical when it comes to nature of its products - video games, than they have to take all of the above into consideration, and make a decision to produce more ethical games, but at a coast of producing a video game that is not going to be the one that a video games market wants. This type of ethical dilemma is not only a question for companies in video games market, but also a question for all companies in the world of entertainment (movies, talk shows, other forms of digital media).

In the context of creating and producing a video game, ethical aspect that lies on a company is addressed in previous discussion which ended with conclusion that ethics in creating and producing a video game is in correlation with a certain genre of video games. Ethical dilemma that one company can have is associated with the needs of a market. Indicators in video game market show what type of video games has better chances to be successful and bring bigger revenues to the company. Other questions, how does company foresee a market of video games, and how is it going to sell a produced video game for certain type of market, is also addressed as a question from ethical point of view. Questions that arise are interconnected, so to foresee a market of video games and the business strategy to sell this product, causes same

ethical dilemmas. Let us address them. For example, if a certain company has created and produced a certain video game, the genre of this game will massively influence business decisions on how to foresee a market and how to sell it. Ethical questions are more likely to be seen in the context of creation of a video game, but that is not to say that there are no legitimate ethical questions for a company with regards to its business decisions on how to distribute and sell this product. How to foresee a market and how to sell a video game is mostly determined by the publisher. What one has to acknowledge is what type of video game is produced, and on that merit a company must make decisions for what kind of market is this product made and how to sell it. Previously we concluded that ethical questions are more likely to occur if the product is video game with violent elements in its game core, opposite to those that are non violent. Company that produces violent games has, therefore, also an ethical dilemma in the way of foreseeing a market for this type of game, and its business strategy to sell this type of video game. Regarding business logic, a company must embrace every market possible where it can generate sale. But, globally speaking, are the markets of Asia, America or Europa same markets, and do those markets have same type of consumers? The answer is no, because every market, and therefore every consumer from certain market is a different one. Values that one society upholds are translated into ethical behavior of individual. As we know, the liberties of western societies are greater than those in other parts of the world, especially if we consider Asian countries, and its more conservative values that are transferred to individuals, especially to young people. So, if a company wants to analyze global market for its video game, one must take into consideration previous issues. The company must consider ethical norms of specific parts of global or regional market, so the analyses of the market must be in line with a type of video games that a company wants to sell and specific ethical norms of certain societies and its markets[3].

Selling a video game is the last stadium of video game production cycle, and therefore an ethical behavior of company in this regard is the one with less implications from ethical point of view. Ethical norms have high influence in video game creation and production, but ethical norms and companies behavior in regards to selling of games is very limitedly connected. Selling a video game is a very important issue that involves logistic and marketing approach. From the standpoint of ethical norms, company is only obligated to make marketing strategy for specific games in regards to the needs and standards of specific markets. Therefor, ethical question of selling video games is only valid from the stand and standards of marketing a certain game for variety of potential consumers. Previously, we addressed ethical norms in process of creation of video games with violent elements. Marketing strategy, and therefore a company behavior, must take into account a specific

---

[3] Global sale of Grand theft auto video game is good example of this. While the success of this game is a global one (most popular game in the world), the majority of gamers are from the western countries. On other side, the violence and other type of game experience from the player stand have not been presented as the type of ethical and other values in other parts of the world (specially in eastern countries). Therefor, the ethical norms of certain regions or countries are those that have had and still do impact on the sale of this particular video game.

impact that this type of games have on the consumers. Ethical question in this matter is what kind of marketing strategy is going to be applied. From the view of the company, but also from the view of the society, how the company is marketing its product and how is selling one, is the only valid question, but the ethics of its conduct is very limited. As long as the selling strategies, that also include a marketing strategy, are in the line with the true nature of specific video games, then there are no real ethical issues in this regard. Only ethical misbehavior that comes into account is if company-selling strategies disregard the nature of its product, and misrepresent the true nature of it.

New perception of video games

In the last ten years the perception that video games are shallow, violent and childish has changed. Interactive video games are now perceived as tools for positive change. As early as fourteen years ago Asi Burak developed a video game designed to encourage opposing parties in the Israel-Palestine dispute over land to better understand – even empathies – with each other's point of view.

Recent statistic show that collectively the world now spends one billion hours every day playing video games. Meanwhile, the average young person racks up 10,000 hours playing video games by the age of 21, only slightly less than the time they spend in secondary education. So, statistics clearly show how powerful video games are nowadays. There are authors that go as far as to state that games can effect change in problems ranging from depression and obesity to global issues such as poverty and climate change . „Gaming does seem to be persuasive in changing people's thoughts, attitudes, feelings and actions in a way other mediums cannot." (McGonigal, 2011). Author points to a virtual reality game developed at Georgia University which places the player in the sights and sounds of computerized woodland and gives them a virtual chainsaw. They are then required to cut down a tree using a vibrating controller. After the tree falls, the forest goes quiet and birds stop chirping. „Just two minutes changed people's real-world environmental behavior for an entire week," says McGonigal. „They used 25% less paper products." People who simply watched a video of trees being cut down did not change their behavior.

A separate study at Stanford University's Virtual Human Interaction Lab simulated disabilities such as colour blindness. Researchers found that people who experienced blindness not only expressed more empathy but contributed time to volunteer efforts.

Even international organization such as International Committee of the Red Cross has come to an awareness that video games can be useful tools in popularization of its work and achieving its international goals. Game developer Bohemia Interactive has, for over seven years now, worked closely with the International Committee of the Red Cross (ICRC) on creation of new ways to spread awareness of International Humanitarian Law (IHL). Cooperation in question aims to create ways to integrate certain elements of IHL into popular war games[4], in order to replicate

---

[4] Namely Arma series of video games, link…

realistic war scenarios. Without spoiling the gaming experience, the idea is to expose players to an extra layer of complexity present in war, namely roles and responsibilities of real soldiers in context of IHL. Having in mind the statistics mentioned above, decision of the ICRC can be viewed as reasonable and quite innovative, as well as socially adequate. In this way both sides win – players get realistic and full experience, while significant social impact has been achieved, having in mind that, according to Bohemia Interactive statistics, Arma series games includes over 3,2 million gamers.

Via video games millions of people can be familiarized with substantial issues that represent significant social trends and desired outcomes. As we have mentioned, the cooperation between ICRC and game developer resulted in integration of complex legal rules into very popular video games, without degrading the gaming experience. Basically, great added value to video game. But, new perceptions lead to new challenges, and it is yet to see how ethical issues will be accommodated to new trends.

Concluding remarks

Playing video games frequently involves social and interpersonal experiences which can have ethical ramifications. Video games are particularly compelling media for the study and practice of ethics because of the specific nature of their design. They provide an authentic content within which to practice and experience ethical dilemmas and critical thinking and decision making. They have been the center of a lot of media attention as a causal factor of a lot of society's ills, including youth violence, child obesity, and social alienation. Science and video games producers community has yet to develop best practices for designing and studying games that enable the practice of ethical thinking and reasoning skills. It is necessary to develop a deeper understanding of the ethics of videogames, and this paper is modest contribution in this respect.

Refferences:

1. Dodig-Crnkovic, G., Larsson, T. (2005). „Game ethics-homo ludens as a computer game designer and consumer", *International Review of Information Ethics*,4(12), 19–23.
2. Georgieva Radkova, Hristina (2016). „Video games / objects of intellectual property. Comparative law Analyses", *Proceedings of University of Ruse*, Vol. 55.
3. Kade, D., (2014). „Ethics of Virtual Reality Applications in Computer Games Production", IACAP 2014 - Conference of the International Association for Computing and Philosophy, Thessaloniki, Greece, 2-4 July 2014.
4. Lipson Saunders, A., Brain R (2009). „Computer and Video Games Law – Cases, Statutes, Forms and Materials", *Carolina academics press*.
5. McGonigal, J., (2011) *Reality Is Broken: Why Games Make Us Better and How They Can Change the World,* published by Jonathan Cape.

6. Zagal, J., (2009), Ethics in Videogames, DiGRA '09 - Proceedings of the 2009 DiGRA International Conference: Breaking New Ground: Innovation in Games, Play, Practice and Theory

7. Stokes. „Grand Theft Auto and the Problem of Evil." Overthinking It. 2011. Web. 7 Sept. 2014. http://www.overthinkingit.com/2011/03/03/grand-theft-auto-evil/.

8. Germany seeks common EU rules on violent video games, https://www.macworld.com/article/1054905/euvidgames.html .

9. Takahashi, D. „Ethics of Game Design." Gamasutra – Ethics Of Game Design. 2014. Web. 7 Sept. 2014. http://www.gamasutra.com/view/feature/130594/ethics_of_game_design.php?print=1 .

10. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the protection of consumers, in particular minors, in respect of the use of video games, COM (2008) 207, Brussels.

РЕЛАЦИЈА ПРОДУКЦИЈЕ ВИДЕО ИГАРА И ПОСЛОВНЕ ЕТИКЕ И ОДГОВОРНОСТИ

Сажетак: Видео игре су данас део мејнстрим забаве, као и најбрже растућа индустрија забаве. Свет видео игре данас чини преко 1,8 милијарди играча, што је четвртина светске популације. Играње видео игара је и ментално и физичку захтевно, и играчи доживљавају различите емоције, дилеме и конфликте током играња. Ово је главна тачка у којој етика у продукцији и дистрибуцији видео игара долази до изражаја. Аутори анализирају етичка питања која се намећу у контексту продукције, маркетинга и продаје видео игара. Такође, завршни сегмент овог текста указује на разлике у перцепцији видео игара, што утиче и на савремене етичке дилеме.

Кључне речи: видео игре, етика, играч, продукција видео игара, стварање видео игара

MILAN POČUČA*
SANJA VOJNIĆ
Faculty of Law
Novi Sad

EDUCATIONAL FUNCTION OF VIDEO GAMES

Summary: Academic world and schools entered the ICT era long ago. Educational video games and virtual learning surroundings became a standard and brought new dimensions to the field of education. In order to achieve its purpose and justify the work and money invested, contemporary teaching has to adapt to trends, to make itself capable of introducing new information technologies and adapt a more attractive teaching form suited to the students with new demands. Authors in this paper point to significant possibilities of increasing level of teaching and learning efficacy by application of contemporary educational video games and virtual learning surroundings. Educational games, other than entertaining function, can crucially affect the learning process itself and influence psychomotor, sensory, cognitive abilities and social development, logic, thought, as well as other diverse skills and abilities. Such methods have good results in increasing of concentration and motivation of students, so it is desirable to apply them to achieve improvement of education as whole. School authorities should adopt a positive attitude to this way of gaining knowledge, and application of technology as a companion form of education to traditional education.

Key words: Video games, education, gamification, learning, technology

Introduction

Usage of video games in teaching and education is not new. Even in early 19th century in Prussia a tabletop variant of strategy game *Kriegspiel* was used in military schools, a game developed by Georg von Reisswitz[1]. The essence of this game was to create a real battlefield situation in the classroom for education of young officers, that was supposed to give them basic knowledge of military skills before they leave the training. According to Prussian sources, *Kriegspiel* became an important factor of German military successes. The game was one of the first documented examples of usage of games in the educational process.

Appearance and usage of video games as electronically generated images brought to creation of new form of educational gaming activity – interactive educational

---

* pocucabmilan@gmail.com
[1] Georg Heinrich Rudolf Johann von Reisswitz (1794-1827), a Prussian army officer regarded by many as the father of wargaming

entertainment. Still, despite new possibilities that were increasing on a daily basis, possible approaches to implementation of function of learning by using video games and gaming remained unchanged, and they are mostly based on modelling of events and imitating situations that arise in the real world at certain times.

Gamification of education

Gamification of education, or gamification of learning is a contemporary educational concept and approach that tries to improve level of students' engagement by using systems and design elements of video games. It relies on application of those elements of video games that are fun and create longer dedication to the game in educational context and teaching plans, which positively affects behavior of the students with goal for them to become more active and motivated and to make teaching more fun.

First studies on use of video games in educational process appeared in the United States of America in 1970s. Over the school course of history and sociology, the students could play a computer game about life of the pioneers of American West, called *Oregon Trail*[2], set in 19th century. The students played the game where they led large virtual caravan of settlers along with baggage and livestock on a road 3,500 kilometers long. Based on legendary real-life Oregon Trail[3] expedition of Lewis and Clarke, the students could relive the experience of life on that trying quest. The game allowed students to master rational approach to different problems – if buffaloes moved faster, they would arrive to the destination earlier and earn extra points. Since the real-life route went over the American North, it was important to pass the area before the harsh winter arrived. But at the same time, increased speed meant the carriages were broken more often, or horses or buffaloes would die due to overworking. Another challenge young players faced was rational distribution of food among the caravan members. If the food was distributed too fast, there would be nothing left before the travel ended, but at the same time, undernourishment and hunger led to diseases of people and livestock. At the destination, the game calculated points students earned, based on number and health condition of surviving members of the caravan, remaining goods, livestock and money. Wide usage of video game *Oregon Trail* in American schools and the gain students had from playing it made video games to be looked at as an educational tool[4] for the first time in their history, and the game itself became exemplary and an icon of educational video games.

---

[2] https://playclassic.games/games/adventure-dos-games-online/play-the-oregon-trail-online/, retrieved 21.05.2019

[3] The Oregon Trail is a 2,170-mile (3,490 km) historic East–West, large-wheeled wagon route and emigrant trail in the United States that connected the Missouri River to valleys in Oregon. The eastern part of the Oregon Trail spanned part of the future state of Kansas, and nearly all of what are now the states of Nebraska and Wyoming. The western half of the trail spanned most of the future states of Idaho and Oregon.

[4] Lussenhop, J. Oregon Trail: *How three Minnesotans forged its path*. January 19, 2011. URL: http://www.citypages.com/news/oregon-trail-howi-three-minnesotans-forged-its-path-6745749, retrieved 24.05.2019

Basis of every video game is gameplay – component responsible for interaction of game and player. Today there are two basic approaches of studying and creating video games: ludology aspect, based on theory of game, and narratology aspect, based on narrative theory. Both approaches offer their answer to question what is the basic element of a video game? Ludology insists on supremacy of game mechanics, while narratology insists on story-driven games, where the task of gameplay is to help to tell the story with inner gaming tools. On the other hand, presence or absence of relation between the gameplay and the narrative brought to creation of two concepts in game design[5]: endogenous and exogenous. Endogenous video games are designed in such way that narrative or story is directly connected with gameplay. With exogenous games gameplay and narrative do not overlap in any way, and the story is but an additional element in the game that does not reflect activities of players within the game in any way[6].

Based on endogenous and exogenous approaches to creation of video games, all educational video games can be divided to following groups:

Direct education (endogenous games), within which goals and expected results of the teaching process are clearly set. These are high-budget games dedicated to direct education, and entertainment and gaming aspects are there to attract the players and provide commercial success of the game. The bulk of these video games are serious video games, although there are many small narrative games directly dedicated to education process. The best example for serious games is various simulators, like *Microsoft Flight*, used for training of real-life pilots. Numerous armies in the world use video games for simulation training, and one of the most important functions of video games in soldier training is desensitization of killing of another human being[7].

The other example are games that offer introduction and explanation of known natural and social systems, such as *The Oregon Trail,* or studying of laws of physics in video game *Supercharged!*[8] The third example might be miniature video games for school children that interactively help in learning certain school courses (foreign languages, mathematics, biology, physics, etc.)

Background education (exogenous games). The vast majority of video games belong to this group, and the general association on video games are games from this group. Their basic purpose is – playing them in its elementary meaning and essence. A player will entertain himself when playing these games, but naturally he will learn something while playing as well. During playing of these games, the players are not given detailed explanation of what is happening, but the learning process happens, nonetheless. In such games a player usually becomes involved in certain events, gathers personal experience and forms a personal view of the world. For instance, pseudo-historical video games, such as games from Assassin's Creed[9]

---

[5] Rouse R. Game Design: Theory & Practice. Plano: Wordware Publishing, 2004.
[6] Squire K. From content to context: Videogames as designed experience // Educational Researcher. 2006. No. 35 (8). P. 19–29.
[7] Filipović, Aleksandar: *Paradigma kulturološkog pozicioniranja video igre*, doctoral dissertation, FDU, Belgrade, 2016
[8] http://web.mit.edu/mitstep/projects/supercharged.html, retrieved 24.05.2019
[9] https://assassinscreed.ubisoft.com/game/en-us/home, retrieved 24.05.2019

franchise can provide relatively general information on historical events and people from that time and can create interest in players to research the time period when the game is set. Other games can in similar way to create initial and basic knowledge on global-scale relationships and mechanisms they are formed, to interpersonal relationships, or models of behavior in certain situations.

Internal education (both endogenous and exogenous games) is the learning of the rules of a game. The knowledge itself in necessary within the game and useless outside it. Here we talk about various tutorials, educational and introductory missions at beginning of a game. Every high-budget game has such element. Internal learning allows lowering the threshold of skills needed to start a game, without learning complete game mechanics at one, but offered in parts accompanied by explanations, commentary or examples.

Generally, researchers state that endogenous games are the most efficient type of video games to realize direct education of educational games[10]. In such games the content is directly connected with game mechanics that allow better assimilation of specific information and the form of necessary skill for deeper in-game immersion.

One of the good examples of smaller video games that can have important educational and civilization role is educational ecological game „Homo Ludens - Igrač kao čistač"[11] (Homo Ludens – Player as a Cleaner) of Serbian author Jovana Mirković, that treats the problem of waste disposal. The goal of the game, that combines photography, animation and game is introduction to current European standards on gathering, sorting and disposal of secondary materials. In that way a civilizational need of ecological education of population is promoted through a video game. „In formation of ecological culture of contemporary man a system of ecology education has significant role, where ecological consciousness about basic characteristics of the environment is formed and developed, as well as to environment itself, its protection and preservation, rational usage of natural resources, with mandatory development of critical positions about permanent degradation of the environment"[12].

Here another important aspect of educational function of video games shall be taken into consideration. Video games are currently the most lucrative business of creative industries[13]. Video game industry consciously creates an ideological discourse through militarism present in video games, that creates narrative, parallel history and help to form opinions of young generations. The cult of war visible in the best-selling video games has not been seen since the rise of fascism between the WWI and WWII. Such openly militaristic ideology does not seem out of the ordi-

---

[10] Squire K. From content to context: Videogames as designed experience. Educational Researcher, 2006, no. 35 (8), pp. 19–29

[11] http://www.seecult.org/vest/homo-ludens-igrac-kao-cistac, retrieved 24.05.2019

[12] Bjelajac, Željko, Počuča, M., & Marković, M. (2012). *Politika EU u oblasti zaštite životne sredine s osvrtom na krivino-pravne aspekte i ulogu porodice u razvoju ekološke svesti.* Strani Pravni život, *56*(3), 525-543. Retrieved from https://www.stranipravnizivot.rs/index.php/SPZ/article/view/372, retrieved 24.05.2019

[13] Filipović, Aleksandar: *Video-igre kao najozbiljniji biznis kreativne industrije na početku 21. veka,* „Megatrend revija" vol 10 (2) 2013, Beograd, p. 177

nary nonetheless, as armed conflicts are rationalized and present in form of global latent „War on terror". Militarism that is present in video games has young adults as their target group and represents an alternative educational frame to official educational system[14].

Citizens of aggressive Western countries were subjected to an avalanche of information for years that had a goal to convince the citizens that aggressive militarism is the only feasible strategy for maintaining „our way of life". After a short quiet after the Vietnam War ended, a strong residential campaign began in the United States, with a message that the USA keeps and saves the world, and by that its way of life. And the means to keep it that way is the army. Not knowledge, not science, not culture, not even the money, but with raw military force[15].

Video games like *Mortal Combat* or *Ultimate fight* teach close combat, *Wolfenstein, Quake, Doom* or *Perfect Assassin* show the conflict of individuals in the situation of real armed combat. For other organizational types and potential future managers or soldiers there are gaming franchises like *Command & Conquer: Generals, Tiberian Sun, Generals, Age of Empires, Civilization, Caesar*[16].

The Pentagon publicly funds Institute for Creative Technologies[17] at University of Southern California[18]. There is no data about projects the institute developed for the American army but at the Institute's website it was published that the contract value for 2011 was 135 million USD. Divna Vuksanović states that American *Defense Advanced Research Projects Agency*[19] „currently lists around 40 games made directly for military use, around 25 deemed useful but not made directly for military use, as well as several modifications, and all of them can serve the needs of military-industrial complex.[20] "

Educational games

Regardless if the game is played in nature, on a tabletop or on electronic device and despite not having educational purposes, there is always learning while playing – new information is learned, new skills are adopted, social skills are ways of thinking are developed. Various games help in protection of emotional development of young people. On the other side we have lack of free time and accelerated living that often causes stress, anxiety and sometimes depression. Game stimulates imagination and creativity. People enjoy playing, which motivates them to cooperate

---

[14] Kristian Lukić: *Kritičke perspektive umetnosti digitalnih igara – prilog istraživanju fenomena*, http://www.bos.rs/cepit/evolucija/html/14/igre.htm#_ftn1, retrieved 24.05.2019

[15] Not counting NATO, the USA has 737 smaller and larger bases around the world in 63 countries, with 325,000 members of military personell.

[16] http://www.bos.rs/cepit/evolucija/html/14/igre.htm retrieved 24.05.2019

[17] http://ict.usc.edu/news/press-releases/usc-institute-for-creative-technologies-receives-135-million-contract-extension-from-u-s-army/ retrieved 24.05.2019

[18] http://www.usc.edu/ retrieved 24.05.2019

[19] Defense Advanced Research Projects Agency, http://www.darpa.mil/ retrieved 21.05.2019

[20] https://dzonson.files.wordpress.com/2011/07/filozofija-medija-ii-finalna-verzija.doc. retrieved 21.05.2019

and participate. Competent researches shown that the game is most entertaining form of learning for pupils and students. Knowledge gathered through a game is much more durable than knowledge gathered otherwise[21].

For modern generations of pupils and students video games are a natural environment that draws them into virtual worlds with their dynamics and activity. Educational video games might motivate and activate current generations of pupils, as a bridge between traditional way of teaching and future approaches to that process. Even in 1980s and 1990s an awareness of fantastic possibilities of usage of computers in teaching and learning. Large countries massively equipped classrooms in schools and universities. There were almost no scientists who would claim that computers, and later hypermedia, cannot be used as teaching tool. Many of them lobbied, gave presentations, and were showing in broad strokes a myriad of other potential gains when learning is supported by computers. Learning through digital games can be applied as an additional option to classroom lectures. The intention of learning through video games is to develop new ways of design of lectures with help of information and communications technologies and simultaneously allow students to gain skills and abilities they will later use in business world. With help from video games, and educational video games in particular, students should be able to apply knowledge of facts, learning on demand and gain experiences in virtual world that can later shape their behavior and directly influence their thinking[22].

One of the early video games used for educational purposes was created in 1980s for NASA's training of astronauts and pilots. Examples of realization of teaching curriculums through video games and simulations are numerous and present at many universities and schools round the world. Students of the University of Ohio in the United States of America learn helped by a software called CASE, which stands for „computer-assisted simulation of clinical cases, and in that way, they more easily research reactions of human bodies to various types of treatment and healing.

Some video games that are suitable for educational purposes follow:
– *Environmental Detectives 02*, developed by MIT (Massachusetts Institute of Technology) and Microsoft, project of learning through a game where conceptual prototypes for next generation of interactive educational entertainment are developed,
– *Scavenger hunts*: students are divided into teams with task to find terms related to topics taught on the Internet and to compile a HTML document with found links,
– *TopSIM 02*, *TERTIA Edusoft* : various business games used in business education and expert studies,
– *MonkeyWrench Conspiracy 99*: this game brings approach to learning as discovery that can include any combination of performances and tasks, with support of necessary referential manuals and videos
– *UniGame - Social Skills and Knowledge Training framework*: offers a possibility to interested lecturers to apply their teaching. The lecturers define various topics and cus-

---

[21] Maravić, J., (2008.). Škotski primer korišćenja kompjuterskih igara u nastavi, http://www.skole.hr/nastavnici/ucionica?news_id=920 retrieved 21.05.2019
[22] Pivec, M.,(2006.). Igra i učenje: Potencijali učenja kroz igru, Edupoint časopis: http://edupoint.carnet.hr/casopis/49/clanci/1#top , retrieved 21.05.2019

tomize the game according to their needs. Students work on their assignments, cooperate, exchange ideas and learn in that way,
– *Immune Attack, Federation of American Scientists FAS*: The goal of this game is to save the patient suffering from bacterial infection,
– *Sir Isaac Newton*: students can test their knowledge related to various complicated formulas related to movement.

Contemporary approach to implementation of education in video games

One of the widest accepted principles of implementation of education in video games is the „immersion" model. The „immersion" is a very popular term dedicated to video games in scientific and popular science literature. Immersion in video games is often understood as a state of consciousness, often artificial, where the consciousness of the subject about his physical condition are diminished in reality, while the feeling of full presence within given virtual space increases in contrast[23]. Due to constraints we cannot widely elaborate on this phenomenon, but we can stress that these worlds are meta-worlds in meta-reality, which are much more desirable for the player than the real world. The „immersion" concept is thoroughly used in education. Foreign languages in many countries are learned based on video game world immersion principles: basic communication is reduced to a minimum, and teaching is conducted only in the language student learns. Therefore, there is an immersion into new linguistic surrounding[24]. In the middle of the video game immersion theory is a concept of presence in the game and involvement in the game. The player not only must believe in everything that happens on the screen, he has to become interested to play by it.

According to Ernest Adams, video game developer and consultant, immersion can be divided in following categories[25].

Tactical immersion: This kind of immersion occurs when the activities demaning great skill are performed. The players feel „shocked" when they perform activities leading to success. During this kind of immersion, the player identifies with his avatar and feels more like it than as the person in front of a display.

Strategic immersion: Intellectual activity related to solving of various problems. For instance, chess players go into strategic dive when they have to choose the right solution in wide array of possibilities. In this kind of immersion a mental concentration of the player is required as they have to see themselves as a person who plays and has abilities necessary for making the right solution.

Narrative immersion: The player is inspired with graphics and gameplay into immersion. This is similar to immersion people experience when reading a book

---

[23] McMahan A. Immersion, engagement and presence: A new method for analyzing 3-D video games // The Video Game Theory Reader. New York: Routledge, Taylor & Francis Group, 2003. P. 67–88.
[24] Baker C. Foundations of Bilingual Education and Bilingualism. Bristol: Multilingual matters, 1993. 343 c.
[25] Adams E. Postmodernism and the Three Types of Immersion. July 9, 2004. URL: http://www.designersnotebook.com/Columns/063_Postmodernism/063_postmodernism.htm, retrieved 21.05.2019

or watching a film. Similar to the first kind, the key aspect is identification, but not only with the avatar but with whole world of video game. By immersion the player becomes a part of the surrounding within the display while playing the video game he exchanges real life surrounding for the one dictated by the game narrative. Similar to Alice[26] jumping in the mirror, or when teenagers enter the game Jumanji.[27]

Educational aspects of video games

Video games slowly but steadily become a substitution for weaknesses of official education system. Whether that weakness was initiated by devastated school system or degraded family, video games have obvious capacity to fill the void and save something from uncertain future of young people.

„With appearance of television as the fourth significant paradigm the availability of various information was increased like never in history, but the possibility of interest-based influence on wide population as well. The next, and probably the most important manifestation is appearance of easily obtainable computer technologies, which, combined with the launch of the Internet allowed global, free and cheap exchange of information of every kind"[28].

Educational aspect of majority of video games inevitably includes two-dimensionality[29]. Education is looked as a determining factor, but as a consequence of doing this activity as well. Education is a determining factor of the game, as it determines the choice, its kind and the approach strategy. Every individual chooses what they will play, among other things, and based on own „educational pre-determinism" and enters all of his educational properties in the playing process. Our own pre-knowledge, computer literacy, level of abilities, practice, skills etc, are direct factor of personal choice – do I play, what I play, how I play and why I play video games? Educational effect relates to all those knowledge, skills, abilities, positions, emotions, values and other things that are consequence of playing video games. In other words, educational function of video games is reflected to educational determining factors of choice, but to educational results of playing.

Every activity that includes educational effects carries in itself a difference of activity sphere of educational content and educational intensity. In regard of context of educational goals, video games are developmental means in different spheres. They can bring development of strategic thinking, planning skills, communications, application of numbers, negotiations, group decision making, use of information,

---

[26] Alice's Adventures in Wonderland is a novel from 1865 written by English writer Charles Lutwidge Dodgson under nome-de-plume Lewis Carroll.

[27] Four high-school children discover an ancient game they never heard before. Since that moment they will become drawn into the entertaining world of jungle and become avatars of their own choice – from geek researchers to fierce warriors

[28] Milan Počuča: Uloga porodice i škole u afirmaciji bezbednosne kulture, Kultura polisa, god. XIV (2017), posebno izdanje, str. 119-131

[29] Nada Kačavenda-Radić, Tamara Nikolić-Maksić, Bojan Ljujić *Igra odraslih: Da li kompjuterska igra obrazuje u slobodnom vremenu,* Filozofski fakultet, Univerzitet u Beogradu Andragoške studije, issn 0354-5415, broj 2, novembar 2011, str. 147 -170

discovery of learning strategies, problem solving skills, use of computer, development of intellectual, visual and motor skills, as well as player's interactivity. Although there are very different specifications of benefits from playing educational video games, one research outlined following concrete skills developed through video games, whether the game is endogenous or exogenous[30]:

– *Engagement in sustainable reasoning*– relates to involvement in solving of problems that lasts for several days and demands inclusion of various resources, and many games, especially simulation games, are designed in this fashion;

– *Management of complexity* – implies carrying with complex and unpredictable systems (virtual epidemics, ecological issues etc.);

– *Solution testing* – demands the user not only to participate in problem solving, but to find solutions they would test in order to find the most suitable one;

– *Overcoming of problems arisen from application of wrong solutions* – solutions the users choose are not always correct or best;

– *Organizing and navigating information structures and evaluation of information*;

– *Collaboration*;

– *Addressing other users* – necessary for announcing individual results and work on possible collective solution;

– *Expecting the unexpected* – an important skill often tied to functioning in complex systems, often related to risk taking and planning;

– *Anticipation of changing technologies* – although technology is not in explicit focus of video games, users shall know that usage of various technology, like message exchange, modern forms of communication, spatial navigation, gathering, analysis and visual presentation of data;

– *Abstract thinking of new technologies*– the focus is not on technologies themselves, but on the way they are used[31].

Final remarks

Pupils or students, meaning persons who are educated, or just play, develop their mental and psychomotor faculties through video games. Video game seems to be the best form of learning through entertainment. It allows and increases creativity, thinking, logical deduction, solving of certain obstacles to arrive to the goal. The generation that is coming is the ICT generation, and they are young or not so young but new and different people. „They are digital indigenous population, multitaskers adapted to simultaneously use Facebook, play online games, send text messages, download music and films from the Internet. They communicate over keyboard rather than live, they sent a text more gladly than they voice call, because it is quicker and safer. The process of their separation and coming of age is now taking place under the watchful eye of the ICT"[32]. They are a generation that does not read

[30] Klopfer, E. (2008). *Augmented Learning – Research and Design of Mobile Educational Games*. Massachusetts Institute of Technology (MIT Press).

[31] Nada Kačavenda-Radić, Tamara Nikolić-Maksić2, Bojan Ljujić   *Igra odraslih: Da li kompjuterska igra obrazuje u slobodnom vremenu,* Filozofski fakultet, Univerzitet u Beogradu Andragoške studije, broj 2, novembar 2011, p. 147 -170

[32] Terkl, Šeri: *Sami, zajedno*, Clio, Beograd, 2011

from paper and has no library. They do not carry large bags full of books and note-book to school, they bring tablets instead. If we take in consideration that the text-books are decreasingly popular these days, it was necessary to create something that will be interesting to the new generation of digitally literate youth.

Contemporary people learn best when they use a computer and the Internet, and by playing video games. Nearly every game now has some sort of educational properties and allows people to learn by playing. The greatest step towards the mod-ern education are educational video games and educational software that are more and more present in kindergartens and schools. Educational games and software allow students to learn by using computer, which is their natural environment. Nu-merous researches shown that children of this century learn more efficient through the games. Educational games are imagined as an addition to teaching curriculum, and in some cases as a companion material for teaching.

Modern video games offer unique tools that allow integration into the teach-ing process. Users can enter the interaction with educational programs in various field in an interesting form. Still, that requests more detailed studies of specificity of approach to development of educational video games, that would equally be interest-ing and entertaining to the user and would motivate him to succeed in the game, education and life.

References:

1. Adams, Ernest: *Postmodernism and the Three Types of Immersion*, http://www.designersnotebook.com/Columns/063_Postmodernism/063_postmodernism. htm: pristupljeno 23.10.2017,

2. Baker, C: *Foundations of Bilingual Education and Bilingualism*, Bristol, Multilingual matters, 1993,

3. Bjelajac, Željko Đ, Počuča, Milan, Marković, Miloš: *Politika EU u oblasti zaštite životne sredine s osvrtom na krivično-pravne aspekte i ulogu porodice u razvoju ekološke sves-ti*, Strani pravni život 3/2012,

4. Filipović, Aleksandar: *Paradigma kulturološkog pozicioniranja video igre*, doctoral dis-sertation, FDU, Belgrade, 2016,

5. Filipović, Aleksandar: *Video-igre kao najozbiljniji biznis kreativne industrije na početku 21. veka*, Beograd, Megatrend revija, vol. 10 (2), 2013,

6. Kačavenda-Radić, Nada, Nikolić-Maksić, Tamara, Ljujić, Bojan: *Igra odraslih: Da li kompjuterska igra obrazuje u slobodnom vremenu*, Beograd, Filozofski fakultet, Uni-verzitet u Beogradu, Andragoške studije, issn 0354-5415, broj 2, 2011,

7. Klopfer, E: *Augmented Learning – Research and Design of Mobile Educational Games*. Massachusetts Institute of Technology (MIT Press), 2008,

8. Lukić, Kristian: *Kritičke perspektive umetnosti digitalnih igara – prilog istraživanju fenomena* E-volucija, http://www.bos.rs/cepit/evolucija/html/14/igre.htm

9. Lussenhop, J. Oregon Trail: *How three Minnesotans forged its path,* http://www.citypages.com/news/oregon-trail-howi-three-minnesotans-forged-its-path-6745749,

10. Maravić, J: *Škotski primer korišćenja kompjuterskih igara u nastavi,* 2008, Skole.hr – portal za škole: http://www.skole.hr/nastavnici/ucionica?news_id=920: preuzeto 3.03.2015,

11. McMahan A: *Immersion, engagement and presence: A new method for analyzing 3-D video games,* The Video Game Theory Reader, New York, Routledge, Taylor & Francis Group, 2003,

12. Pivec, M: *Igra i učenje: Potencijali učenja kroz igru*, Edupoint časopis, 2006, http://edupoint.carnet.hr/casopis/49/clanci/1#top: preuzeto 23. 01. 2015,

13. Počuča, Milan: *Uloga porodice i škole u afirmaciji bezbednosne kulture*, Kultura polisa, posebno izdanje, godina XIV, 2017,

14. Rouse, R: *Game Design: Theory & Practice*, Plano: Wordware Publishing, 2004,

15. Squire, K: *From content to context: Videogames as designed experience*, Educational Researcher. 2006. No. 35 (8)..

16. http://ict.usc.edu/news/press-releases/usc-institute-for-creative-technologies-receives-135-million-contract-extension-from-u-s-army/: pristupljeno 23.06.2018,

17. http://www.usc.edu/: pristupljeno 22.06.2018,

18. https://dzonson.files.wordpress.com/2011/07/filozofija-medija-ii-finalna-verzija.doc : pristupljeno 12.06.2018,

19. http://www.darpa.mil/ : pristupljeno 12.06.2018.

НАСТАВНО-ОБРАЗОВНА ФУНКЦИЈА ВИДЕО ИГРЕ

Сажетак: Школски и академски свет је одавно ушао у еру ИКТ. Едукативне компјутерске игре и виртуелна окружења за учење постали су стандард и донели нове димензије пољу едукације. Да би постигла своју сврху и оправдала намену и уложени новац, савремена настава мора да се прилагоди трендовима, оспособи се за примену нових информационих технологија и усвоји атрактивнији облик, прихватљивији ученицама нових захтева. Аутори у овом раду указују на значајне могућности подизања нивоа ефикасности учења и наставе применом савремених образовних компјутерских игара и виртуелних окружења за учење. Едукативне игре, осим што служе за забаву, могу битно утицати на сам процес учења и у великој мери утицати на психомоторне, сензорне, когнитивне способности и социјални развој, логику, мисаоне активности, спретност, различите способности и вештине. Овакве методе имају запажену улогу у повећавању концентрације и мотивације ученика, па их је пожељно примењивати у циљу унапређења образовања. У будућности је потребно радити на томе да школске власти усвоје позитивни став према оваквом начину стицања знања и примене нове технологије као пратећи вид образовања уз традиционално учење.

Кључне речи: Видео игре, едукација, гејмификација, учење, технологија

Упутство сарадницима о прилозима:

Текст послати на е-маил адресу ljubisa@kpolisa.com (или преко контакт форме на адреси www.kpolisa.com). Текст треба бити припремљен у формату B5 (17,6x25,0cm), у фонту Times New Roman, величина фонта Size: 11, тастатура Serbian (Cyrillic), једноструког прореда Line spacing: Single. Максимални обим оригиналних научних и прегледних радова је један ауторски табак (или 36300 карактера са размацима). На првој страни, изнад наслова рада, у левом горњем делу треба написати име, презиме (у фусноти доставити контакт са аутором: е-маил, тел.), установу, место а испод наслова рада сажетак (до 150 речи) и кључне речи (највише седам) на српском и једном од светских језика.

Страна имена писати транскрибована, а код првог навођења иза имена у загради ставити име у оригиналу.

   Пример: Бродел (Braudel).

Код цитирања или позивања на извор иза цитата навести у загради презиме аутора, годину издања и страницу, писмом којим је штампан извор на који се позива.

   Пример:
(Вебер, 1976: 341); (Weber, 1989: 59).
Исто правило важи и код навођења литературе у списку литературе на крају списа.

   Пример:
1. Le Gof, Žak (1997): *Vreme, rad i kultura srednjovekovnog Zapada*, Svetovi, Novi Sad,
2. Robins, Kevin (2001): Kiberprostor i svijet u kojemu živimo, *Kiberprostor, kibertijela i cyberpank: kulture tehnološke tjelesnosti, uredili Mike Featherstone i Rober Burrows*, Naklada Jesenski i Turk, Zagreb,

Фусноте користити само за пропратне коментаре.

Напомене: Радове објављене у часопису, није дозвољено прештампавати ни у деловима ни у целини без сагласности издавача. Оцене изнесене у радовима ставови су аутора истих, и не изражавају мишљење уредништва часописа.
            Рукописи се рецензирају, и не враћају ауторима. Објављени радови се хонораришу у складу са финансијским могућностима издавача.

   Излажење часописа финансијски подржао:
Покрајински секретаријат за културу, јавно информисање и односе с верским заједницама
    http://www.kultura.vojvodina.gov.rs/