Acta Ludologica

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Theory
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Journal Orientation

Acta Ludologica is a scientific journal in the field of digital games. The journal contains professional scientific reflections on digital games; it also offers academic discourses on games, especially media and digital competencies, creation, design, marketing, research, development, psychology, sociology, history and the future of digital games and game studies.

Acta Ludologica is a double-blind peer reviewed journal published twice a year. It focuses on theoretical studies, theoretical and empirical studies, research results and their implementation into practice, as well as professional publication reviews.

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Editorial

One Does Not Simply Buy a Game Anymore

It seems that games are quickly becoming something even less 'touchable' while looking at new console designs that come completely stripped of any physical media reader. At the same time, big studios are trying to launch more and more titles in an effort to act as a service. This opens a whole new set of challenges for people interested not only in playing games privately or publicly, but also for reviewers, who need to rate them gradually, because developers continuously add more content (mostly as DLC), or even for researchers, who can only capture the current state of a game at the given time. In recent months, many games (Fallout 76 and especially Anthem) suffered badly due to community outrage that echoed via social media, as players cannot grasp the concept of continuous development and are often immersed in a heavy discussion about lacking content that might even reveal many more defects and bugs.

There is also a rising a trend of services providing remote access to computing power and delivering only real-time interactive video streams to consumer's devices acting as common browsers (even literally as Google Stadia is running within Chrome). We can also observe that distributors are going wild, opening their own markets and fighting for rights to exclusive content (among established digital storefronts run by console manufacturers, Epic and EA opened their own subscription based services). Although, all this might be good for refreshing the established rules of the game market, it may be rather harsh before things will settle down, and regular gamers or 'game researchers' could end up paying monthly fees to various providers for content they don't need.

Only time will tell what these changes will mean for the research of digital games. Meanwhile, the presented issue of Acta Ludologica again offers an insight into various topics related to games and digital games. Jurczyk-Romanowska and Ilona Zakowicz present their research on the potential correlation between age and playing styles in an authorial role-playing game. Team around co-founder and managing director of GamesThatWork, Dov Jacobson, investigates impaired and empowered game design, possibly promoting social esteem, with the aim of reducing social stigma for children with physical disabilities. Zuzana Bučková's study builds on the game theory by Roger Caillois and applies his typology of game principles onto the field of digital games, demonstrating it with a case study on Mafia III. The game studies section concludes with Magdaléna Balážiková and her study focused on real-life frustration of gamers with the virtual worlds of digital games.

The interview with the president of the Slovak Esport Association, Karol Cagáň, brings a closer look at the Slovak eSport sphere – its beginnings, the current establishment of the professional eSport scene, and even visions and prognoses for the future, directed towards the World Championships. The issue also includes critical reviews of new games and game-related literary releases, as well as interesting news from the digital-gaming sector. A dot after the content is an add-on entitled "Found in Translation".

Michal Kabát
Acta Ludologica's editorial team

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Dominant Playing Styles in an Authorial Role-Playing Game in Different Age Groups

Ewa Jurczyk-Romanowska, Ilona Zakowicz

Ewa Jurczyk-Romanowska, Ph.D.
University of Wroclaw
Faculty of Historical and Pedagogical Sciences
Ul. Dawida 1
50-527 Wrocław
POLAND
ewa.jurczyk-romanowska@uwr.edu.pl

Ewa Jurczyk-Romanowska, Ph.D., is an assistant professor in the Institute of Pedagogy of the University of Wrocław as well as the initiator and head of the Research Team of the Investigators of Games and Innovation in Education – Edutainment, active at the Institute of Pedagogy of the University of Wrocław since 2013. She is a member of the Scientific Council of The Gerontoludic Society as well as the European Center for Science, Education and Research. She is also the chief scientific officer in two projects implemented as part of the ERASMUS plus KA2 strategic partnership competition: "Location-based games as a contemporary, original, and innovative method of seniors' teaching and learning" (2017-1-PL01-KA204-038869, partner countries: Poland, Slovakia, Lithuania, the United Kingdom) and "Learning Tree" (2017-1-TR01-KA204-045897 partner countries; Poland, Turkey, Italy).

MA Ilona Zakowicz
Wrocław Centre of Social Development
plac Dominikański 6
50-159 Wrocław
POLAND
ilona.zakowicz@uni.wroc.pl

Ilona Zakowicz, MA, graduate of third-level studies in pedagogy at the University of Wrocław. Holder of Master's degree in cultural studies. Academic teacher and trainer. Author of papers in gerontology, marketing, and andragogy. Scientific interests: gerontology, silver marketing, media, popular culture, thanatology, and innovations in adult education.

ABSTRACT:

The aim of the research is to investigate the correlation between age and playing styles in an authorial role-playing game. In the designed research the authors have assumed the playing styles defined by Richard Bartle, that is: the socializer, the killer, the achiever, the explorer. The research subjects came from three age groups: university students (18-25), corporate workers (35-50) and seniors (65+). The research was conducted with the use of the quantitative method on the basis of the playing styles observation sheet developed in accordance with the operationalization of Bartle's taxonomy. Throughout the conducted observations one could observe clear behaviours, adequate with the operationalized taxonomy of Bartle. The dominant type in every age group was the socialiser, on the other hand only a few behaviours were associated with the killer type. In every age category there was a specific pattern of the observed behaviours, which are possible to explain by comparison to the everyday activities of the investigated age groups. Knowledge about the correlation between age and playing style could be useful for game creators and educators, who want to use the game as an educational method.

KEY WORDS:

Bartle's taxonomy, early adulthood, LARP, late adulthood, middle adulthood, RPG.

"Playing makes it possible to explore the paper boundary between reality and imagination, between the real and the imaginary, between ourselves and others. Playing gives us the right to explore ourselves as well as the society that we live in. By playing we investigate culture, and we create it, as well".[1]

R. Silverstone

Introduction

One of the main assumptions of the present paper is the conviction that learning and pleasure are not mutually exclusive. On the contrary, the pleasure that can be derived from, among others, a game, can constitute an interesting point of reference for those educators and researchers who are interested in innovations in education. An attempt to design educational activities on the basis of various activating methods such as games, role-playing, drama, simulation, or group work can constitute one of the aforementioned innovations. The educational activity proposed in this paper is a combination of elements of drama, a *role-playing game* (RPG), and a *live action role-playing game* (LARP). According to D. Michałowska drama[2] in education "plays a twofold role. Firstly, it is a didactic-educational method. Secondly, it is a method of the universal development of the personality of an individual. [...] It encourages students to enter into interpersonal relationships and diverse social situations".[3]

1 SILVERSTONE, R.: *Rhetoric, Play, Performance: Revisiting a Study of the Making of a BBC Documentary.* In GIPSRUD, J. (ed.): *Television and Common Knowledge.* London, New York : Routledge, 1999, p. 64.
2 Remark by the authors: Drama has been introduced into didactics by Caldwell Cook.
3 MICHAŁOWSKA, D.: *Drama w edukacji.* Poznań : Wydawnictwo Naukowe Instytutu Filozofii Uniwersytetu im., 2008, p. 64.

It allows one to "pay attention to such issues and values as:

- care, being noticed, and respect for those who are discriminated against because of their gender, race, religion, or disability,
- positive attitude towards oneself,
- caring for the environment and the community,
- respect for the values, beliefs, and opinions of others,
- being true, open, honest in words, feelings, and emotions,
- being responsible for oneself and for others,
- the will for reflection and reviewing one's own convictions, values, feelings, and the will for change".[4]

At the same time, G. Petty claims that it teaches one respect for oneself and self-confidence.[5] It allows those who did not stand out to approve themselves and it is, at the same time, a great tool in shaping emotions.[6] As J. Z. Szeja adds in his paper Gry fabularne. Nowe zjawisko kultury współczesnej [Role-playing games. A new phenomenon of contemporary culture] drama[7] is supposed to teach one about life, and a role-playing game, which is the reference point for the authors of the present paper, is a simulation of life.[8] Narracyjna gra fabularna is the Polish equivalent of a role-playing game which has been coined by J. Z. Szeja. The term denotes a game (play) in playing characters.

That definition, however, is not precise. When trying to explain the nature of role-playing games one must bear in mind that in their traditional form they require at least one gamemaster (author's emphasis) and one player playing a role. The gamemaster describes the world and the events in which the character(s) take part. Its nature is defined by the selected system (author's emphasis) of the role-playing game, which is described in a basic guidebook[9] and by supplements such as printouts (descriptions of the narratives, the characters). Role-playing games are "interactive entertainment (author's emphasis) consisting of action (author's emphasis) in an imaginary world, different from our world".[10]

D. Mackay, in turn, defines the tabletop role-playing game[11] as an episodic and participatory story-creation system that includes a set of quantified rules that assist a group of players and a gamemaster in determining how their fictional characters' spontaneous interactions are resolved.[12] "In role-playing games are familiar for people in the modern society from youth. But the particular game could require a lot of preparation: reading the rules, understanding the roles, immersion into the situations presented. The participants should manage with the proper terms and notions to understand the educational content. At the same time, the organizers of the game should maintain the model of the activity operable and consistently".[13]

As J. Z. Szeja claims, interactive stories can be compared to the theatre. That is because an RPG session resembles a play in which the actors are also the directors and the audience. In such show the main role belongs to the gamemaster, because he/she knows the entire plot and possesses all the means necessary to lead the course of the game. According to this Polish researcher of games RPGs may even be compared to psychodrama, a therapeutic technique introduced by J. L. Moreno. That is particularly significant in LARPs, with their greater role of the actors and the setting.[14] Live action role playing (LARP), teatralna gra fabularna, is a role-playing game in which entire characters are played, typically with the use of costumes and large spaces. One ought to notice that in a typical LARP there are many more players than an RPG session and the role of the gamemaster is reduced to assigning roles and an initial introduction of the space and the characters. The gamemaster in LARPs relies much more frequently than in regular sessions on assistants playing characters who are subject to his will or serving the functions of additional gamemasters, because the game typically consists of the players conversing among themselves and creating coteries that take up initiatives. In LARPs it is usually assumed that a certain story is to be acted out, however, taking control of the events is much more difficult than in RPGs.[15] T. Utne states that "LARP as a free-form game gives the students the opportunity to distance themselves from the rules, and produce new ones. Thus, a dynamic organization emerges.

This characterization is based on the notion that free-form games enable a self-organizing capacity. This capacity gives the students a chance to explore the subject on their own premises".[16] M. Gade, L. Thorup and M. Sander define LARP as "abbreviation of Live Action Role-Play, a form of role-play where the participants (termed players) take on fictive personalities (called roles or characters) and act out their interaction in a predefined, fictive setting (see this). The form differs from tabletop RPG (see this) in that the players act the interaction out physically, hence ‹‹live action›› Though the form may have some use in psycho-therapy and the setting may be virtually anything, most larping is done for fun, and the setting is traditionally fantasy or science fiction".[17] "The LARP may contain many smaller intrigues, where the intrigues are thematically connected. The LARP scenario may be a slice of reality. In real life, there are no main plots (...). LARP is action. The use of retrospect in the character description forces the player to relate to incidents that are not real. In LARP, an interactive form of art, the amount of actors and stories is theoretically unlimited".[18]

Simulations and games (both computer-based and live) are considered as effective methods of teaching competences and *soft skills* by many authors.[19] The educational

4 MICHAŁOWSKA, D.: *Drama w edukacji.* Poznań : Wydawnictwo Naukowe Instytutu Filozofii Uniwersytetu im., 2008, p. 51-52.
5 PETTY, G.: *Nowoczesne nauczanie: Praktyczne wskazówki i techniki dla nauczycieli, wykładowców i szkoleniowców.* Sopot : GWP, 2003, p. 240.
6 Ibidem.
7 Remark by the authors: According to J.Z. Szeja "even though role-playing games derive from board battle games they have many connections with the drama method, recognised in pedagogics".; SZEJA, J. Z.: *Gry fabularne. Nowe zjawisko kultury współczesnej.* Kraków : Rabid, 2014, p. 19.
8 Remark by the authors: J.Z. Szeja states that "a random observer could have some difficulty discerning between a lengthy multi-person drama and a live action role-playing game session, he assumes that the only significant difference between the two is the aim of the event, in the case of drama it is educational and didactic, and in the case of a LARP it is ludic, another difference is in the role of the gamemaster and clear narrative.; SZEJA, J. Z.: *Gry fabularne. Nowe zjawisko kultury współczesnej.* Kraków : Rabid, 2014, p. 20.
9 SZEJA, J. Z.: *Gry fabularne. Nowe zjawisko kultury współczesnej.* Kraków : Rabid, 2014, p. 11-12.
10 Ibidem, p. 21.
11 Remark by the authors: One ought to see the broader understanding of TRPG, RPG, and LARP.; For more information, see: GROULING, J.: *The Creation of Narrative in Tabletop Role-Playing Games*. London : McFarland and Company, 2010.; TRESCA, M. J.: *The Evolution of Fantasy Role Playig Games*. USA, Jefferson : McFarland and Company, 2011.; BOWMAN, S. L.: *The Functions of Role-Playing Games*. London : McFarland and Company, 2010.; ROGERS, S., EVANS, J.: *Inside Role-Play in Early Childhood Education*. Canada : Routledge, 2008.
12 MACKAY, D.: *The fantasy role-playing game: A new performing art*. USA, Jefferson : McFarland and Company, 2001, p. 4-5.
13 GADE, M., THORUP, L., SANDER, M.: *When Larp Grows Up – Theory and Methods in Larp.* Frederiksberg : Projektgruppen KP03, 2003, p. 17.
14 SZEJA, J. Z.: *Gry fabularne. Nowe zjawisko kultury współczesnej.* Kraków : Rabid, 2014, p. 14-17.
15 Ibidem, p. 17-18.
16 UTNE, T.: *Live Action Role-playing – Teaching through gaming.* [online]. [2018-12-26]. Available at: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.591.1171&rep=rep1&type=pdf>.
17 GADE, M., THORUP, L., SANDER, M.: *When Larp Grows Up – Theory and Methods in Larp.* Frederiksberg : Projektgruppen KP03, 2003, p. 186.
18 Ibidem, p. 25.
19 See also: CROOKALL, D., OXFORD, R., SAUNDERS, D.: Towards a Reconceptualization of Simulation: From Representation to Reality. In *The Journal of SAGSET (Simulation/Games for Learning),* 1987, Vol. 17, No. 4, p. 147-171. [online]. [2018-12-26]. Available at: <http://sites.unice.fr/sg/resources/articles/Article_Reconceptualization-simulation_200bw-upright.pdf>.; FEDOSEEV, A.: Live-action role-playing games as an educational technology. In *International Scientific Conference "Interactive Education" Theses*. Moscow : Lomonosov Moscow State University, 2011.; HENRIKSEN, T. D.: Moving Educational Role-Play Beyond

potential of live-action role-playing games was confirmed recently. Great significance is also attached to game-based learning,[20] taking into account that it is generally considered as an effective means to enable learners to construct knowledge by playing, maintain higher motivation and apply acquired knowledge to solve real-life problems. Therefore, game-based learning becomes a promising method for providing highly motivating learning situations to learners. Through a combination of engaged playing, problem solving, situated learning and challenge, game-based learning can support learners to construct knowledge from ambiguity, trial and error[21]. K. Kiili[22] also suggested that successful game-based learning was strongly correlated with higher degrees of flow experience. M. Pivec and O. Dziabenko[23] further indicated that pedagogy was one of the major components of successful game-based learning.

Description of the Spell of the Black Magic Master Game

The game *Spell of the Black Magic Master*[24] has been designed for 12 participants who are initially randomly put into two groups that compete for points and final victory. During the game the participants play the roles of adventurers who set out on a difficult mission to the Damned Castle where the Black Magic Master dwells. Cards with character descriptions were drawn at the beginning of the game and they, to a certain extent, determined the behaviour and the role of participants, at the same time giving them a lot of space for their own choices.

Depending on the card drawn the players could act the roles of *Strategist*, *Architect*, *Actuary*, *Sorcerer*, *Fearless Adept*, or a *Diplomat*. The information about a character that was passed on to the players was limited to an outline of the personality, the skills, and the tasks preferred within the group. They did not, however, define the types of tasks to be undertaken by a given participant of the game. "Diplomat" was an exception because his role would focus on negotiations with other players and the possible interactions were strictly limited by the creators of the game. The players could also draw the role of a mysterious character. This obliged two people from different groups to become undercover traitors.

Entertainment. In *Teoría de la Educación – Educación y Cultura en la Sociedad de la Información,* 2010, Vol. 11, No. 3, p. 226-262.; KLABBERS, J. H.: *The magic circle: Principles of gaming & simulation*. Rotterdam, Taipei : Sense Publishers, 2009.; LAINEMA, T.: Perspective Making: Constructivism as a Meaning-Making Structure for Simulation Gaming. In *Simulation & Gaming*, 2008, Vol. 40, No. 1, p. 48-67.; CHANG, M., KUO, R., KINSHUK, GWO-DONG, C., HIROSE, M. (eds.): *Learning by Playing Game-based Education System Design and Development*. Banff : Springer, 2009.

20 For more information, see: BAEK, Y.: *Gaming for Classroom-Based. Learning: Digital Role Playing as a Motivator of Study*. Hershey, New York : Information Science Reference, 2010.; MILLER, C. T. (ed.): *Games: Purpose and Potential in Education*. New York : Springer, 2008.

21 ADCOCK, A.: Making Digital Game-based Learning Working: An Instructional Designer's Perspective. In *Library Media Connection*, 2008, Vol. 26, No. 5, p. 56-57.; VAN ECK, R.: Six Ideas in Search of a Discipline. In SHELTON, B. E., WILEY, D. A. (eds.): *The Design and Use of Simulation Computer Games in Education*. Rotterdam : Sense Publishing, 2007.

22 KIILI, K.: Content Creation Challenges and Flow Experience in Educational Games: The IT-Emperor Case. In *The Internet and Higher Education*, 2005, Vol. 8, No. 3, p. 183-198.

23 PIVEC, M., DZIABENKO, O.: Game-based Learning in Universities and Lifelong Learning: "UniGame: Social Skills and Knowledge Training" Game Concept. In *Journal of Universal Computer Science*, 2004, Vol. 10, No. 1, p. 14-26.

24 Remark by the authors: The game "The Spell of the Black Magic Master" was created by the members of the Research Team "Games and Innovations in Education: Edutainment": Ilona ZAKOWICZ, MA, Justyna SOCHACKA, MA, Dominik FIGIEL, MA.

Picture 1: An example of the card with character descriptions[25]

Source: own processing; *Spell of the Black Magic Master Game*. [online]. [2018-12-26]. Available at: <https://pixabay.com/pl/illustrations/kobieta-kobiet-pi%C4%99kno-pani-ogie%C5%84-2514504/>.

The plot of the game *Spell of the Black Magic Master* is set in a fantasy world, in an unreal world, where people's lives are determined by magic. The main aim of the participants of the game was to neutralise the spell cast by the Black Magic Master in a time shorter than 120 minutes. To free mankind from the evil spell, and, consequently, to free it from time, ageing, and dying, the players had to decipher the meaning of the spell in four stages, prepare magical objects[26] and props[27], and, finally, act out a play in the final round. During the first stage of the game the teams had to develop an interpretation of a text they had received, that is, one of the four fragments of the spell, consider the way to act out the play and prepare elements of the costumes and the mise-en-scene. Each of the groups was supervised by a gamemaster and they worked within a defined space, where there were the materials needed to produce the props. After the preparatory stage the players had to face the Guardian and then the Black Magic Master. Both of the meetings ran according to the strict rules of the game, i.e., the mechanics of the game. In the final round, in turn, interpretation of the text played the crucial role, which is why the participants' acting and the ability to fit in the role were essential.

Picture 2: An example of the card with a spell[28]

Source: own processing; Spell of the Black Magic Master Game (Fantasy). [online]. [2018-12-26]. Available at: <https://pixabay.com/pl/illustrations/fantasy-op%C5%82ata-%C5%9Bwiat%C5%82o-las-3972476/>.

25 Remark by the authors: Translation of the card description: "Sorcerer. She has the ability to create and change ordinary things into entirely different, extraordinary ones, changing the reality, creating".

26 Remark by the authors: Provided by the organisers.

27 Remark by the authors: Made by the participants.

28 Remark by the authors: Translation of the spell on the card: "Spell – part three. When the last word echoes it all shall begin... let the bravest of all men in the circle appear. Let a voice so soft and sweet as the nightingale's song call: Every day the Sun goes down burying time and light. Every second slips away not to turn back. Mighty Chronos, god of time, please, hear our cry! Stop time, let us breathe, see into designs".

The game ran according to a set scenario, nevertheless the course of the game was not precisely defined by its creators, because elements of randomness were introduced and the players had a significant space to choose their strategies. The course of the events would largely depend on the choices of the players, but also on the intellectual effort that they contributed, as well as their creativity. The groups were obliged to focus on the time in which the tasks were done, the precision and the correctness of the constructed props, providing difficulties for the opposing group or on cooperation of the teams to develop solutions together. Each of the aforementioned strategies required a slightly different approach to the game and concentrating on diverse ways to achieve the main goal. Regardless of the assumed strategy each of the teams was required to meet their Guardian and the Black Magic Master at least 4 and 5 times respectively. The Guardian protected the entrance to the main chambers of the Damned Castle and made it difficult for the players for their props to be accepted and to receive further parts of the riddle. To meet the Black Magic Master the players were required to pay an amount that would change with the game levels, to fight the Guardian, or to bribe him with a gift. Even at this stage the players implemented a strategy to either choose the quickest and the most costly option, or a cheaper one, requiring more time and creative thinking, skilful negotiations, or they could rely on the random elements of the game. During their meeting with the Black Magic Master the players not only presented their theretofore progress made in the game to receive points, a further piece of the spell, and to check the table with the game results, but they could also decide to try to receive a ready-made object from the table of varieties. To do this they needed to confront the Black Magic Master and fight her, solve a logic riddle, pay, and, subsequently – if they had completed the verifying task – randomly draw of group of objects, from among which they could select a prop. The teams could also use additional ways to defeat their opponents such as: the Chest of Secret Tidings, from which they could receive gold; meeting the Guardian from the other team who, for a certain price in gold, provided information on the progress made by the opponent group; the opportunity to meet the second Diplomat and receive, for payment or, if a cooperation could be initiated, some tips pertaining to the course of the game; the opportunity to meet the other team.

The players were evaluated on a number of levels by 5 different observers playing three crucial roles. The Black Magic Master would issue the highest number of points, because she evaluated the prepared props and objects, including the elements of the mise-en-scene, decorations, and costumes. The teams could receive up to 5 points at each stage when a part of the spell was deciphered. What was decisive in the game, however, were the points won during the final round. After the first 4 stages the groups counted the gold they had won, gave the sum to the gamemasters, and got a point for every three gold bars. What is more, the teams could receive bonus points for finishing their preparations for the play before the opponents. During the course of the play they also got points issued by Advisors of the Actuaries for "spell correctness", that is, a proper interpretation of the words of the spell, which was represented, first and foremost, by the organisation of space, stage movement, and interactions between the participants. Ultimately, both the groups received points from the Black Magic Master who evaluated the proper interpretation of the spell and how it was acted out in the final round. The game was first played on March 4, 2015 by a group of working-age people who could subsequently share their comments on the construction and mechanics of the game in a heated discussion. After the pilot test which tested the assumptions and the mechanics of the game the creators decided to introduce certain simplifications making the course of the game faster. That is because it was suggested by the participants of the first edition of the game that the rules were too complex to be fully used by the players in only 120 minutes. An additional argument for the slight modification of the game mechanics was the age of the persons involved in the research – one of the groups was to consist of seniors. Among the voices from those engaged in the test, especially of those who were professionals working with seniors, there were many stating doubts as to the seniors' ability to cope with the requirements of the game and to benefit from the game's complex dynamics.

After the pilot trials the creators of the game introduced a number of changes. In the final version the card of the mysterious character, the traitor who was required to betray their own team and provide a one-time help to the opponents did not appear. The main reason for turning away from that option was the feeling of discomfort among the players who thought that having to betray their team has a negative influence on how they feel and what they think of the game itself. That is why the creators, taking into account that one of the editions of the game would be aimed at seniors, who could dislike[29] this form of activity from the very start, decided to focus on building positive relations by increasing the interaction among all the players to make all the participants active. Yet another significant change was the supplementing of the character cards with functions and tasks that a character would be responsible for. Assigning strict roles was aimed at preventing a situation when a game could be dominated by a group of a few most active and decisive people, determined to win, people who would take over the initiative and make decisions, limiting the activity of other players. The Black Magic Master's evaluation key was also modified to allow for more interpretation. In the original version of the game, the Master evaluated the correctness of the prepared props according to a precise list. Nevertheless, even though the answer key was prepared by a number of people, the players were very creative, they thought in an abstract way and surprised the creators by selecting proper props which were not, however, included in the scenario. In further editions, the Black Magic Master, apart from issuing 5 points for preparing props concordant with the interpretation of the creators of the game, could also give out 3 points at every stage for creativity and adequacy of the prepared props. By broadening the range of possible interpretations of the text the additional points rewarded players' creativity. That is how thinking outside the box could help a team win. No points could be issued by the Assistants of the Actuaries, because their competences were to a large extent taken over by the Black Magic Master. The last of the introduced changes that was crucial to the mechanics of the game was the limiting of opportunities for contact between the two groups. Firstly, the Chest of Mysterious Tidings was removed, so that the players could not leave letters to the opposing team there, secondly, meeting between the teams could no longer be organised. It needs to be mentioned that both the options were virtually unused during the first editions of the game because the players mostly aimed at preparing proper props as quickly as possible, and these solutions seemed to introduce some complex rules. All the changes described above were aimed at greatly simplifying the game, which was deemed necessary because of the feedback from the participants of the pilot test claiming that at this stage of the introduction of games into the process of education we should concentrate first and foremost on making sure that the players are engaged in the game by employing simple mechanics. More developed rules can be applied when the participants are more familiar with this form of spending their leisure time. Furthermore, modified sessions of *Black Magic Master* were conducted on March 11, 18 and 25, 2015, with the participation of seniors, corporate workers and students of the University of Wrocław.

29 Remark by the authors: Games are still quite unpopular among people in this age group.

Playing Style

The interaction between the player and the game is mediated by a number of aspects,[30] among which we ought to focus on the style that players assume in RPGs. It needs to be added that not in all the definitions of the game the player, and what follows, his/her relation with the game, is discussed.[31] In the designed research we have assumed the playing styles defined by R. Bartle, that is, the socializer, the killer, the achiever, and the explorer.[32] Although this author has proposed the terms in relation to MUD[33] games (R. Bartle carried out his research on this group of gamers), following the suggestion of E. Aarseth[34] we have adapted this typology to research on RPG players. We have, however, omitted the type coined by E. Aarseth – the cheater, who breaks both the rules of the game and its mechanics, as well as deceiving other players, because the game was itself a debut, and it was new to the players, which is why it was necessary to eliminate such elements as cheat codes (endless ammunition, immortality) and walkthroughs. Presented below are detailed descriptions of the playing styles proposed by R. Bartle. It ought to be added that the author did not merely characterise them, but he also described a network of relations between them that influences the dynamics of the game as well as the opportunity to control the game when certain playing styles are observed. The first of the proposed playing styles is the *socializer* who adapts elements of the game to use them for conversation, interaction. The socializer concentrates on people and on what they have to say. The game is a common background to what happens to the players. What is important is the relations between the players – empathy, sympathising, jokes, entertainment, listening, observing the process of the individualization of other players, their development over time. The explorations in the game are motivated by what other players say and do, just like reaching new levels unblocks skills, here new opportunities for communication or achieving a certain status in the community are unblocked. Killing or harming other players is only justified when the player is a threat to a close friend. To sum up, socializers are proud of their friendships, contacts, and influences.

The opposite type is the *killer*, an opposing style, who uses and harms other players. The players with this style use the tools provided by the game to cause anxiety (and hardly ever help) others. What makes killers happy is the influence they have on how the others play. This can be expressed by being a kind, helpful co-player who does favours, but that is seldom the case. It is usually expressed by attacking and killing other players, hence the name. The bigger the loss of the attacker, the more glad the opponent is. Because of the initial limitations of the game (points, achievements, levels of skills) these players often develop new, creative ways to attack/kill the characters of other participants. They can pretend to be sociable to get to know the tactics of a future victim or they can start to cooperate with players with similar attitudes. Killers are entertained by the thought that they have harmed a real person or that they have left them feeling helpless in the face of the suffered loss, and from affirming their superiority over others. They are proud of their reputation, tactics, and strategies. Yet another style is represented by those who prefer the strategies aimed to win, to be victorious and triumphant. That is the winning style, the *achiever*. Those players set tasks in the game and they work towards fulfilling them with dedication, which is typically connected with collecting a lot of resources in the game (gold, artefacts). Exploration of the game and making contacts are only aimed at gathering more resources. What is more, attacking and killing other players is only intended to achieve new goals, or to eliminate competitors. They are proud of their status in the game and the time spent fulfilling their tasks. The *explorer* appears to be a contrasting style. They try to get to know the world of the game as well as possible. At the beginning of the game they usually concentrate on mapping the topology of the game (structure of the levels, skills), and in the later stages they focus on experimenting with the game physics (mechanics). They derive pleasure from discovering the inner mechanisms of the game, which is why they search for mistakes, irregularities hidden in the recesses of the world, they try to understand how these work. Getting points and establishing contacts only lets them explore new levels of the game. Explorers like their games to be surprising. They look for "depth" in a game. They perceive reaching new levels and gathering points and resources as simple-minded behaviour. They are proud of their knowledge of the nuances of the game, especially when other players treat them as sources of such knowledge.[35]

30 KRAWCZYK, S.: Osobowość a uczestnictwo w grach fabularnych. O relacjach między tożsamością, myśleniem narracyjnym i stylem gry. In *Homo Ludens*, 2013, Vol. 1, No. 5, p. 139-164.

31 JUUL, J.: The Game, the Player, the World: Looking for a Heart of Gameness. In COPIER, M., RAESSENS, J. (eds.): *Level Up: Digital Games Research. Conference Proceedings*. Utrecht : Utrecht University, 2003. [online]. [2018-02-24]. Available at: <http://www.jesperjuul.net/text/gameplayerworld/>.

32 BARTLE, R.: *Hearts, clubs, diamonds, spades: players who suit MUDs*. [online]. [2018-02-24]. Available at: <http://mud.co.uk/richard/hcds.htm>.

33 TRUBSHAW, R., BARTLE, R.: *MUD1*. [digital game]. Colchester : University of Essex, 1978.

34 Remark by the authors: "It seems Bartle has created a general model of human behaviour in virtual environments, and one which certainly could be used to classify game scholars as well".; See also: AARSETH, E.: Playing Research: Methodological approaches to game analysis. In *DiGRA '03 – Proceedings of The 2003 DIGRA International Conference: Level Up*. Utrecht : Utrecht University 2003, p. 28-29. [online]. [2019-03-19]. Available at: <http://www.bendevane.com/VTA2012/wp-content/uploads/2012/01/02.GameApproaches2.pdf>.

Adulthood vs (Pre-/Post-) Working Age: Early, Middle, Late Adulthood

The aim of our research was to define the dominant playing styles of persons at various stages of adulthood. In out explorations we employed the division proposed by A. Brzezińska: *early adulthood* – from 18 (20) to 30 (35) years of age; *middle adulthood* – from 30 (35) to 60 (65) years of age; *late adulthood* – from 60 (65).[36] Early adulthood is a period when the cognitive functions of young people are at a very high level thanks to their motivation to learn, to look for information, to collect professional and personal experiences. In early adulthood memory functions are very high both in short-term and long-term memory, changes in intellectual abilities are minute, between the ages of 35 and 40 fluid intelligence may worsen due to changes in the central nervous system.[37] This period is dominated by dialectic, relativist, and meta-systemic thinking which is practical in a number of categories of problems, what is more, these people learn quickly, especially the information that they study with personal engagement. The persons have no difficulties with identifying and solving problem situations. They easily find themselves in situations in which they decide to act. Some people in this period have the motivation to specify problems, which allows others to notice the problems and look for solutions or reformu-

35 For more information, see: BARTLE, R.: *Hearts, clubs, diamonds, spades: players who suit MUDs*. [online]. [2018-02-24]. Available at: <http://mud.co.uk/richard/hcds.htm>.

36 BRZEZIŃSKA, A.: *Psychologiczne portrety człowieka. Praktyczna psychologia rozwojowa*. Gdańsk : GWP, 2005, p. 9.

37 See also: BIRCH, A., MALIM, T.: *Psychologia rozwojowa w zarysie. Od niemowlęctwa do dorosłości*. Warszawa : Wydawnictwo Naukowe PWN, 1995.

late them. People at the threshold of early adulthood typically undertake developmental tasks that they can cope with the use of their abilities and according to their limitations. This is usually connected with developing intellectual skills, with professional activities, the willingness to educate themselves and to broaden their competences. In problem-solving situations they concentrate on the analysis and selection of proper strategies connected with short- and long-term consequences. High psychophysical conditions allows persons to not only act constructively in problem situations, but also to achieve proper insight in their own resources, benefiting from and asking for help.[38]

In the middle adulthood period persons become more pragmatic which is why they can concentrate on solving everyday problems; the so-called pragmatic intellectual skills are helpful in solving family and professional problems[39]. Individualisation constitutes the basis for the development of intelligence, the former pertains to the pool of personal experience. Adult people focus on solving the so-called main tasks, broadening their knowledge, improving skills and competences in safe educational environments. Individuals in this period are engaged in professional activities and family lives, but they also develop their interests and carry out previously defined goals. In this period it is the aim of individuals to accept the changes that occur within and outside them.[40] In this period learning and problem-solving processes are based on personal experience. People appreciate solving problems and working on tasks that are categories people modify their theretofore knowledge and broaden it with new information. In task situations the people present very high levels of attention concentration, they are resistant to fatigue and put situations under inner control. Education and being engaged in new task situations allow them to verify their habits, preferences, and convictions. Teamwork may be an inspiration to be creative and to free oneself from outside influences and be ready to even accept one's own mistakes. At the beginning of the late adulthood period cognitive functions of an individual are at the same level as in middle adulthood. After 75 years of age cognitive processes are significantly slowed down. Seniors have problems remembering, and they have difficulties with recalling information, particularly its source. What characterises people in this period are problems with concentration and finding proper solutions in difficult situations.

When cognitive skills are stimulated and trained and when new intellectual challenges are set seniors achieve much better results than their peers in memory functions, vocabulary, and analytical skills.[41] The fundamental developmental aim for people in this period is, according to the theory of being active, to maintain their theretofore levels of psychophysical functions. People who exercise and develop their skills and competences have increasing chances of undertaking new actions. The factors that to a great extent determine this are working until reaching retirement age, taking care of interests and hobbies, their ways of spending leisure time.[42] In task situations seniors use their life and educational experiences. They attach great importance to solving problems, particularly to the adequacy of the solution. That is why they will look for information, connect discovered information with that which they already have, verify it, but they can also be inspired by their peers. Teamwork with younger people is especially important in the stimulation process.

38 For more information, see: BRZEZIŃSKA, A.: *Psychologiczne portrety człowieka. Praktyczna psychologia rozwojowa*. Gdańsk : GWP, 2005.
39 Ibidem, p. 512.
40 See also: BIRCH, A., MALIM, T.: *Psychologia rozwojowa w zarysie. Od niemowlęctwa do dorosłości.* Warszawa : Wydawnictwo Naukowe PWN, 1995.
41 BRZEZIŃSKA, A.: *Psychologiczne portrety człowieka. Praktyczna psychologia rozwojowa*. Gdańskv: GWP, 2005, p. 602-603.
42 Ibidem.

Research Methodology

The aim of the research is to recognise the dominant playing styles and their correlation with metrical age. The research subjects came from three age groups: university students (18-25), corporate workers (35-50) and seniors (65+). The playing styles have been proposed by R. Bartle (2015). Operationalization of the playing styles is presented in the table below:

Table 1: Operationalization of Bartle's taxonomy

Playing style	Indicators
socializer	**DOING TASKS** together **WITH OTHERS** **GETTING TO KNOW EACH OTHER** in new circumstances **PROBING THE STRATEGIES** of the opposing team **(INTERACTION)** (talking with the players on the opposing team) **HAVING FUN** together (defining the main function of the game as having fun) having a **GOOD TIME** (defining the main function of the game as having a good time)
killer (opposing style)	**LURING** opponents into traps (leaving deceiving messages to the opposing team in the chest prepared for this aim). **PROBING THE STRATEGIES** of the opposing team **(HARMING)** (making it impossible to quickly finish tasks by initiating unnecessary discussions with members of the opposing team; pointing out that the opposing team get too many points) looking for ways to **CHEAT THE PLAYERS** of the opposing team (asking the characters for the ways of cheating that can be used in the game) bringing **CHAOS AND ANXIETY** to the opposing team (passing false information on to the opposing team, e.g. pertaining to the rules of the game)
achiever (winning style)	**CONCENTRATION** on doing your best with the task (depending on the number of points doing the task quickly or meticulously). **PROBING THE STRATEGIES** of the opposing team **(VICTORY) PROBING THE STRATEGIES of the opposing team (VICTORY)** (checking the results of the opposing team in order to make up for the losses in points) **COLLECTING** as much gold as possible (reluctance to spend the gold for which the team gets extra points at the end of the game, choosing other actions instead of paying) using the rules, the gold, and the opponents' playing style to **WIN AS MUCH AS POSSIBLE FOR YOUR OWN TEAM** **LOOKING FOR** new sources of **INCOME** (asking the characters if money can be made) collecting **AS MANY** points as possible
explorer (perceptive style)	**TESTING** different **VARIANTS** of the game (buying more props, substituting characters for props, implementing objects from outside the game) **TRYING DIFFERENT ACTIONS** regardless of the costs (buying objects despite losing money and time, trying out various strategies of communicating with characters: bargaining, rolling dice, proposing one's own solutions, answering questions) **PROBING THE STRATEGIES** of the opposing team (**CURIOSITY** about other solutions) trying out **NEW OPPORTUNITIES** (asking the characters about different opportunities which are not in the rules of the game) **GETTING TO KNOW** the rules of the game (spending more time reading instructions than other players, referring to instructions during the game) **OBSERVING** interesting ideas of **OTHERS** (being interested in the actions of both the teams to use certain elements of the propositions of other players to create new solutions, to be inspired)

Source: own processing, based on the Bartle's taxonomy, by the members of the research team "Games and Innovations in Education: Edutainment" Agnieszka GIL, Ph.D. & Ewa Jurczyk-Romanowska, Ph.D.

The research was conducted with the use of the quantitative method on the basis of the playing styles observation sheet developed in accordance with the operationalization of Bartle's taxonomy, presented in Table 1. Each of the age groups was monitored by 5 independent observers who had no prior knowledge of the belonging of certain behaviours to particular types of players. Only clear behaviours, i.e., those witnessed by all of the observers, were included in the final observation form. Subsequently the number of behaviours of a particular type was counted for each age group and categorised according to Bartle's taxonomy. The information was posted on Facebook profiles and announcement boards at the University of Wrocław and the University School of Physical Education in Wrocław and the Universities of the Third Age at both of these institutions. The advertisement was also sent to corporations which cooperated with both institutions. The research subjects were recruited from among volunteers. As a result, the following research sample groups were compiled: 16 people for the pilot test, and 12 persons from three age categories: early, middle, and late adulthood. 16 persons aged 24 to 47 participated in the pilot test. The people were randomly assigned to two opposing teams playing according to the rules of the game. The research subjects received a sticker with an identifying code to be at on all the levels of the research process and in analysis of the results. Each group was accompanied by one of the researchers at all times. The researcher filled in the observation sheets of the developmental age and the playing styles of the participants. The aim of the pilot test was the verification of game mechanics and research tools. Immediately after the game was over the participants filled in the questionnaire and took part in a focus interview. The questions in the questionnaire were connected with the observation sheets. One further element on the questionnaire was a metric checking the age of the participants and evaluation scales, including: usefulness of the game as an educational method, its attractiveness, entertaining qualities, educational qualities, and reliability of the preparation of the game.

In the main stage of the research the most important research tool was the quantitative observation form. As a result of the verification of the research tools the groups were reduced from 16 to 12 because it proved to be difficult to observe higher numbers in detail. Because of the large number of spontaneous reflections of the research subjects on the mechanics of the game the number of questions pertaining to this area in the focus interview was reduced. As a result of the verification of game mechanics some changes were made, including: shortening the instruction manual, making the roles of the characters more precise, separation of the roles of the guardian and the gamemaster, which is why the only role of the gamemaster was to explain the rules of the game and resolve the doubts of the players. The aim of the changes was to make it easier for the participants to understand the rules, and that is because those who took part in the pilot test emphasised that the rules of the game were complicated, which is why they could be difficult to understand for those that do not play games on a daily basis. The research was carried out on samples of three age groups: early adulthood (12 university students aged 19-26), middle adulthood (12 workers aged 35-49, higher education, professionally active) and late adulthood (12 U3A students aged 65-74, higher education). In all cases the participants were randomly divided into even opposing teams. The procedure from the pilot test remained the same.

Results

Throughout the conducted observations one could observe clear behaviours, adequate with the operationalized taxonomy of R. Bartle. Each individual behaviour was marked on an observation form by independent observers. After the game observers agreed on the observations and included into the observation form only clear behaviours accepted by the majority. To verify the hypothesis that the playing type correlates with belonging to the age group, variance analysis and a post-hoc test were used. Statistically significant differences were observed in the "killer" ($p = 0.002$) and "explorer" type ($p = 0.068$), which is presented in Table 2.

Table 2: Analysis of the variance between four playing styles and age groups

	SS - Effect	df - Effect	MS - Effect	SS - Error	df - Error	MS - Error	F	p
Socializer	9.39	2	4.69	613.6	33	18.59	0.25	0.778
Killer	4.06	2	2.03	9.2	33	0.28	7.3	0.002
Achiever	29.56	2	14.78	397.4	33	12.04	1.23	0.306
Explorer	39.06	2	19.53	220.5	33	6.68	2.92	0.068

Source: own processing

The socializer uses the game to socialise and to adapt elements of the game to use them for conversation, interaction. The socializer concentrates on people and on what they have to say. The game is a common background to what happens to the players. What is important is the relations between the players – empathy, sympathising, jokes, entertainment, listening, observing the process of the individualization of other players, their development in time. Explorations in the game are motivated by what other players say and do, just like reaching new levels unblocks skills here new opportunities for communication or achieving a certain status in the community are unblocked. Killing or harming other players is only justified when the player is a threat to a close friend. To sum up, socializers are proud of their friendships, contacts, and influences. Domination of the socialiser-type behaviours comes as no surprise because it was a team game. The participants had the opportunity to achieve a better score if they did cooperate. As a result of the conducted research (post-hoc test), it can be stated that a statistically significant difference has not appeared (see Table 3), and the score of the socializer-type behaviour was high in every age group (see Table 4).

Table 3: The post-hoc test for the playing style: socializer

	Early Adulthood - M=6.5833	Middle Adulthood - M=6.0000	Late Adulthood - M=5.3333
Early Adulthood		0.742461	0.482644
Middle Adulthood			0.70733
Late Adulthood			

Source: own processing

Table 4: Breakdown table for the socializer type (N=36)

AGE	Means	N	Std.Dev.	Minimum	Maximum
Early Adulthood	6.58	12	5.47	0	14
Middle Adulthood	6	12	2.3	3	12
Late Adulthood	5.33	12	4.54	0	12
All Groups	5.97	36	4.22	0	14

Source: own processing

Opposite to this tendency was the killer type, which was hardly ever present (1 observed in the early adulthood group, 9 observed in in the middle adulthood group, and none observed in the late adulthood group). Using the post-hoc test, it can be concluded that statistically significant differences are observed between groups: early adulthood and middle adulthood (p = 0.003959, see Table 5), as well as middle adulthood and late adulthood (p = 0.001409, see Table 5). Only in the middle adulthood group the sum of observed killer-type behaviour was related higher (see Table 6). The reason why the behaviours aimed to hurt other players were observed so seldomly might have been that the game was being monitored, that it was overt. The mechanics of the game did, however, provide the players with the opportunity to present such behaviours (cheating, hurting, impeding), which the players did not use.

Table 5: The post-hoc test for the playing style: killer

	Early Adulthood - M=.08333	Middle Adulthood - M=.75000	Late Adulthood - M=0.0000
Early Adulthood		0.003959	0.701022
Middle Adulthood			0.001409
Late Adulthood			

Source: own processing

Table 6: Breakdown table for the killer type (N=36)

AGE	Means	N	Std.Dev.	Minimum	Maximum
Early Adulthood	0.08	12	0.29	0	1
Middle Adulthood	0.75	12	0.87	0	2
Late Adulthood	0	12	0	0	0
All Groups	0.28	36	0.61	0	2

Source: own processing

In all the investigated groups the achiever style was present. Those players set tasks in the game and they worked towards fulfilling them with dedication, which is typically connected with collecting a lot of resources in the game (gold, artefacts). Exploration of the game and making contacts were only aimed at gathering more resources. What is more, attacking and killing other players was only intended to achieve new goals, or to eliminate competitors. They were proud of their status in the game and the time spent fulfilling their tasks. The behaviours typical of the achiever category dominated in the middle adulthood group (63 observed), in the late adulthood group they had the second position (45), and the lowest level was reached in the early adulthood group (37). Such proportions may be interpreted in the context of professional life. In the middle adulthood group there were only professionally active persons, who were used to the task-oriented structure of the corporations in which they were employed. However, in the post-hoc test these differences did not show statistical significance (see Tables 6, 7).

Table 7: The post-hoc test for the playing style: achiever. No statistically significant differences

	Early Adulthood - M=3.0833	Middle Adulthood - M=5.2500	Late Adulthood - M=3.7500
Early Adulthood		0.135712	0.641048
Middle Adulthood			0.297394
Late Adulthood			

Source: own processing

Table 8: Breakdown table for the achiever type (N=36)

AGE	Means	N	Std.Dev.	Minimum	Maximum
Early Adulthood	3.08	12	3.15	0	9
Middle Adulthood	5.25	12	3.57	0	11
Late Adulthood	3.75	12	3.67	0	12
All Groups	4.03	36	3.49	0	12

Source: own processing

The explorer type, in turn, was present to a nearly identical extent in the early adulthood (44 observed) and in the middle adulthood group (43). These players try to learn as much as possible about the game itself. They derive pleasure from discovering the inner mechanisms of the game, which is why they search for mistakes, irregularities hidden in the recesses of the world, they try to understand how these work. Getting points and establishing contacts only lets them explore new levels of the game. Explorers like their games to be surprising. They look for "depth" in a game. They perceive reaching new levels and gathering points and resources as simple-minded behaviour. They are proud of their knowledge of the nuances of the game, especially when other players treat them as sources of such knowledge. The explorer type is connected with learning the game, which may be related to similar behaviours in the students' and professionals' environments, because both these groups are required to learn new contents. In the case of the late adulthood group the explorer was present much less frequently (only 17 observed). The difference between the late adulthood group and early adulthood group (p = 0.04053), as well as the middle adulthood group (p = 0.048055) was statistically significant, which is presented in Tables 9 and 10. It may be explained through the individual aims in the game. Persons from the early adulthood and middle adulthood groups are interested in the game as it is. The elderly are interested in some social activity with others and the mechanics of the game are of secondary importance.

Table 9: The post-hoc test for the playing style: explorer

	Early Adulthood - M=3.6667	Middle Adulthood - M=3.5833	Late Adulthood - M=1.4167
Early Adulthood		0.937536	0.04053
Middle Adulthood			0.048055
Late Adulthood			

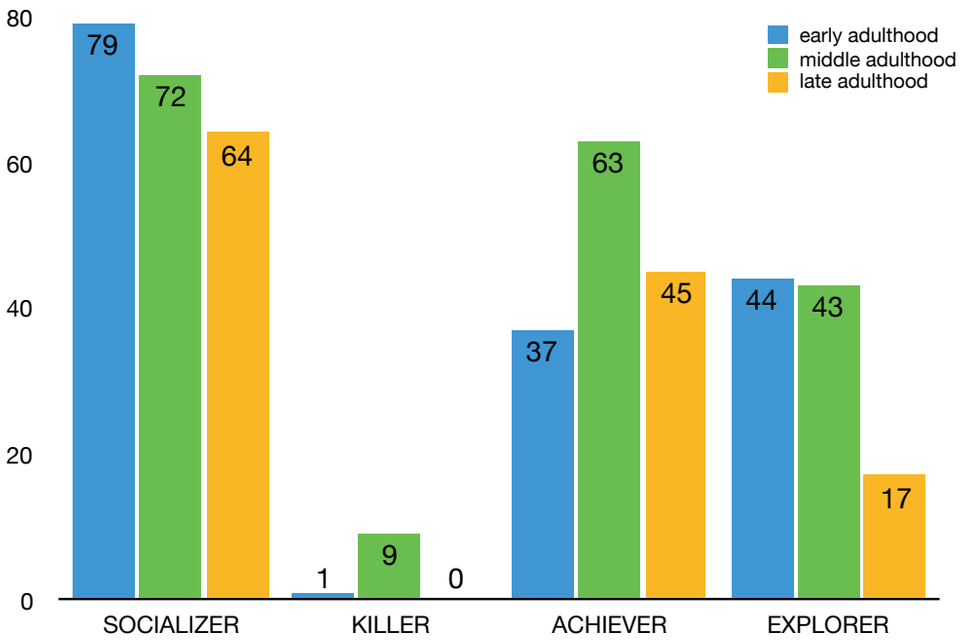
Source: own processing

Table 10: Breakdown table for the explorer type (N=36)

AGE	Means	N	Std.Dev.	Minimum	Maximum
Early Adulthood	3.67	12	3.42	0	9
Middle Adulthood	3.58	12	2.23	2	9
Late Adulthood	1.42	12	1.83	0	5
All Groups	2.89	36	2.72	0	9

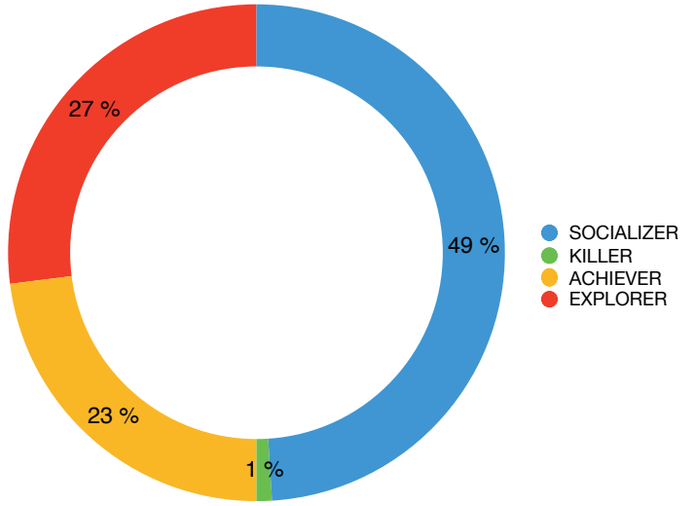
Source: own processing

Juxtaposition of the types of players according to Bartle's taxonomy and the ones observed is presented in Graph 1. When analysing the data from the particular age groups one can notice that the proportions of the behaviours presented in the game bear certain qualities. In the early adulthood group, comprised of students, nearly half of the behaviours would represent the socializer type. This can be explained through group work which students frequently need to take part in, or the fact that the groups would often spend their free time together. At this age people have a high motivation to learn, to seek out new information, as well as taking part in activities unrelated to school. At the same time, they function in a task-oriented, competitive environment. In order to graduate they need to fulfil certain criteria defined in the curricula, and they are being compared on the basis of the grades which they receive, and they compete in scholarship programmes. That is why presenting behaviours of the achiever and explorer type appears to be justified. In the early adulthood group only once did we notice the behaviour of the killer type, which may prove a lack of the necessity to hurt others in order to get ahead in the game. In this age group contact with other players is the most important element, satisfying one's curiosity and winning are secondary (see Graph 2).



Graph 1: Representation of the playing styles in the investigated age groups

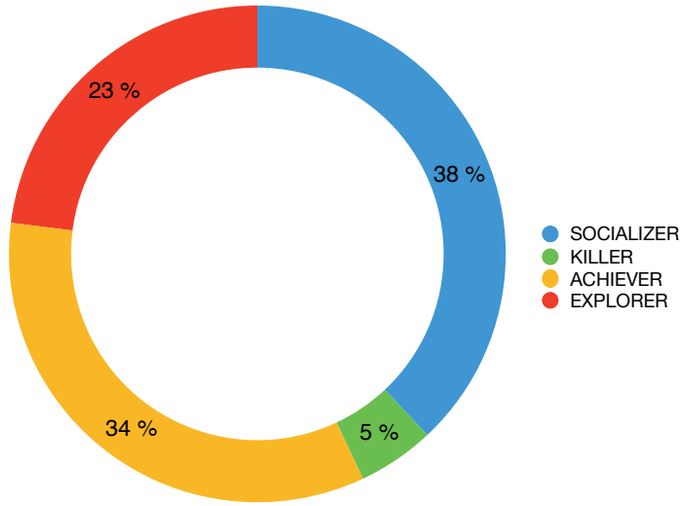
Source: own processing



Graph 2: Playing styles represented in the early adulthood group

Source: own processing

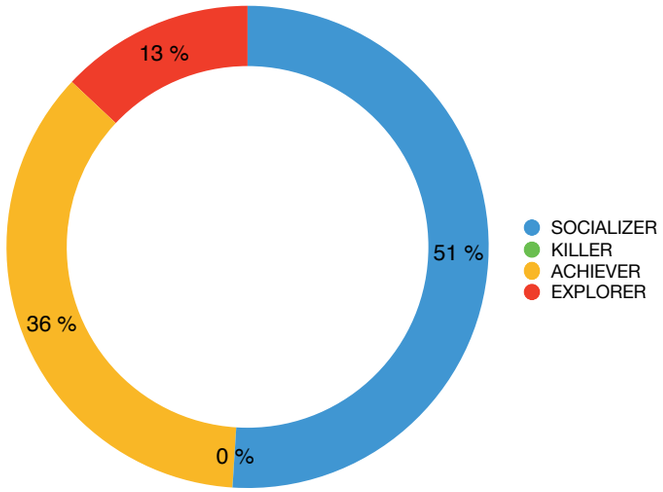
In the middle adulthood group the socializer-type behaviours are dominant, at a level nearly equal to that of the achiever type. This group was recruited from among educated, professionally active corporate workers. These individuals participate in group work, they complete projects together, and at the same time they are task-oriented. Their aims are measurable and defined in time. In their professional environments they compete and they are evaluated, which is why the high number of behaviours aimed to win is hardly surprising. What is interesting is that it was in this group that the killer-type behaviours were present to the highest extent (8 out of 9 of all observed in all the age groups). This can be explained by "rat race", in which, as it is commonly believed, corporate workers take part. On the other hand, the explorer style is also clearly noticeable. This style is connected with curiosity, with learning new things, exploring the surroundings, which the persons in the middle adulthood group also find time for (see Graph 3).



Graph 3: Playing styles represented in the middle adulthood group

Source: own processing

In the late adulthood group almost half of the observed behaviours were connected with teamwork (the socializer type), and no killer-type behaviours were observed. Individuals in their late adulthood are often lonely and they seek contact with other people, which is why their will to cooperate with other players is so clearly visible. What may be surprising is the high level of the behaviours of the achiever type, which suggests that the will to win was the second most important motivation in the game. Cognitive behaviours aimed at exploring the game were the least frequently undertaken in this group. Seniors would play to enter into interactions with others, and to win, and what game they were playing and what options it would offer was of decisively secondary importance (see Graph 4).



Graph 4: Playing styles represented in the late adulthood group
Source: own processing

Conclusions

Definition of the prevalent playing styles in the particular age groups may appear practical in developing games dedicated to adults. The research was conducted with the use of a game including elements of RPG/LARP and drama. Undoubtedly it would be interesting to supplement the research with other types of games, especially ones presenting more individual contents, and ones without the possibility of being judged by observers, as well as ones with simpler mechanics. The authors assume that in such a case the proportions between the socializer- and the killer-type behaviours would change greatly. What might also be interesting is the observation of the levels of satisfaction and engagement in the game of the particular age groups. On the basis of the observations made by the researchers it may be concluded that the game brought a lot of satisfaction and happiness especially in the late adulthood group, which contradicts the stereotype of seniors perceiving games as juvenile. Designing games for seniors is the subject of interest of an increasing number of creators and researchers. The Gerontoludic Society may serve as proof thereof. The designed games may serve entertainment and socialisation purposes, and they can be therapeutical and educational, which might attract the interest of practitioners and academics in social sciences. It is undoubted that games dedicated to adults, including seniors, are an excellent part of the edutainment current. Apart from providing answers to the main research question a number of conclusions could be drawn from the game connected with preparing games for seniors. What turned out to be essential was the theme of the game. In the games designed for seniors the black magic theme should be avoided, because religious persons tend to associate it with Satanism. This resulted in a lower number of volunteers after the point when they were provided initial information about the game.

The time and location of the game are also crucial. In the case of the conducted research the game started at 5 PM and together with the research the meeting took 4 hours. This time is definitely too late for seniors, who made it clear in the focus interviews that they would have preferred to take part in such activities earlier. The game was conducted in the lecture hall of the Institute of Pedagogy of the University of Wrocław. This location is perfect for drama. What makes is it difficult to use is that it is located on the second floor and there is no lift, which makes it problematic to access for those seniors with limited moving ability. To sum up it needs to be emphasised that designing games of the RPG and LARP type dedicated to seniors is difficult but it is worth the effort. The seniors engage strongly in activities of this sort and they understand their meaning. Let the following opinion of the one of the seniors serve as the conclusion: "...we have this time that is running, and we're running with it all day. All the day we're so busy, and here you can find such spiritual revival, and we can relax. While talking we can ... we can remember who we really are. It's not that we are to learn... we can do it all, it's easy: we can... It's just that we've forgotten who we are, that we can play, laugh, be in a group...".

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Impairment or Empowerment: Game Design to Reduce Social Stigma for Children with Physical Disabilities

Dov Jacobson, Marianne Hardart, Jesse Jacobson, Elizabeth Fanning, Nancy Kechner

Dov Jacobson, BS/BA
GamesThatWork
New Peachtree Rd 5999
303 40 Atlanta, Georgia
UNITED STATES OF AMERICA
dov@gamesthatwork.com

Dov Jacobson is the co-founder and managing director of GamesThatWork, an American game studio in Atlanta, that has pioneered the field of game-based learning. Jacobson began his innovative work in digital games in the golden age of coin-op videogame arcades. Since 2002, he has served as a leading explorer and exponent of games which shape human behavior in the real world. He lectures on this topic all over the world, recently as a keynote speaker at FMK's MEGATRENDS AND MEDIA 2018, in Smolenice, Slovakia.

Marianne Hardart, MA
New York University Langone Medical Center
400 E 34th Street RG34
100 16 New York
UNITED STATES OF AMERICA
marianne.hardart@nyumc.org

Marianne Hardart, MA, CCLS is a Certified Child Life Specialist with a Masters Degree in Early Childhood Education and over 20 years experience working with children with disabilities and/or chronic/life-threatening diseases. Her community work has included roles such as co-founder of NYC Regional Arts in Health Care, Chair of the New Leadership Group at United Hospital Fund and founding Board Member and past-President of Only Make Believe.

Jesse Jacobson, BSc
GamesThatWork
New Peachtree Rd 5999
303 40 Atlanta, Georgia
UNITED STATES OF AMERICA
jesse@gamesthatwork.com

Jesse Jacobson is the Technical Director of GamesThatWork, where he develops games that shape subsequent player behavior outside the game. His goals range from helping intelligence analysts mitigate cognitive bias with Enemy of Reason to training toothbrush skills to children with Brush Up. The mobile mixed reality version of Brush Up was selected as one of the top innovations of 2016 by the US National Academy of Medicine. The virtual reality version was awarded first prize by the US Education Department.

Elizabeth Fanning, PhD.
Center For Creative Leadership
1 Leadership Pl
274 10 Greensboro, North Carolina
UNITED STATES OF AMERICA
esfanning@gmail.com

Elizabeth Fanning is a virtual learning specialist with the Center for Creative Leadership. Her current research focuses on social and on-demand learning in virtual spaces for both therapeutic and adult learning purposes.

Nancy Kechner, PhD.
University of Virginia
McCormick Rd 160
229 04 Charlottesville, Virginia
UNITED STATES OF AMERICA
nek8n@virginia.edu

Nancy Kechner earned a PhD in Physiology from Temple Medical School. She is an alumna of the University of Virginia, where she works for Research Data Services within the UVa Library. In her work she supports researchers, and provides data consulting to UVa and the community.

ABSTRACT:
Digital games can address social problems, such as the integration of marginalized persons into the community at large. For example, six children in a thousand live with an ambulatory disability. Communities must learn to accept children in wheelchairs. This social rehabilitation is problematic. It requires that hostile social environments, particularly the classroom, become more supportive. Issue awareness among classmates without disabilities can be improved by education-based interventions but such interventions rarely change behaviour. Interactive personal contact between able children and disabled role models has been shown to be effective but it cannot be readily scaled. Digital games offer an appealing intervention vector, easily scalable and highly interactive. This pilot study investigates game design that may promote social esteem.

KEY WORDS:
ATPD, game-based learning, linguistic bias, physical disabilities, serious game, social rehabilitation.

Introduction

Digital games can address very difficult social problems. Six in a thousand children have ambulatory disability[1], and society must learn to accept children in wheelchairs. More than physiological rehabilitation[2], social rehabilitation introduces unresolved problems. It requires that hostile social environments[3], particularly the classroom[4],[5] become more supportive. Issue awareness among classmates without disabilities[6] can be improved by education-based interventions[7] but such interventions rarely change behavior[8]. Interactive personal contact between able children and disabled role models is more effective[9] but this does not readily scale. Digital games offer an appealing intervention vector, easily scalable and highly interactive. Children who are disabled are usually aware of how others perceive them. They want their classmates without disabilities to know "who they are, what they dream of, and what they love to do". They do not want to be defined by their limitations.[10] Our research seeks to use a digital game to reduce the stigma with which mobility-normative middle-school students regard disabled classmates. The goal of reducing social stigma is not without peril. Insightful research by J. Crocker and B. Major[11] reached the counterintuitive conclusion that social stigma can *enhance* the self-esteem of individual members of the stigmatized class. The researchers identify three mechanisms: (a) Stigmatized individuals discount criticism they can consider biased. (b) Stigmatized individuals judge themselves against other members of their class, rather than more global standards. (c) Stigmatized individuals selectively assign weight to metrics in which their class excels and devalues those where it does not.

Classroom integration of differently-abled children, explicitly aims to reduce stigma. Its unintended consequence is to deprive children of the protection that stigma provided. In particular, it denies children those defense mechanisms that rely on isolation, such as the first two Crocker defenses: disregard of notionally biased criticism and in-group-only self-comparison. The third Crocker defense, weighting metrics to favor those in which the group excels, relies on neither stigma nor isolation. This reweighting of metrics can be achieved in any controlled environment in which the criteria of success are set by an authority. That condition precisely fits the game intervention in this study. Like all games, its win condition and scoring mechanism are established by its designers. Both the esteem of others and self-esteem can be elevated by demonstration of high competence[12.] Games are especially well-suited[13] to expose the special competencies[14] developed by people who have physical disabilities. F. Brasile[15] warns that integration of differently-abled populations may emphasize the disabilities of certain individuals rather than their abilities. He proposed that social engineers set up conditions in which the strengths of the disabled class are emphasized. In particular, he nominated wheelchair sports.

Research Methodology

We conducted a study to measure the immediate effect of short-term exposure to game-play that heavily valued wheelchair skills. The experimental design was pre-and-post test. Our development team produced a fully playable prototype game with a fixed duration to serve as the test intervention. We administered a standardized self-report survey to measure player attitude toward disabled persons before and after gameplay. We recruited students in the target age group from different schools to assure a wide range of socioeconomic diversity. No follow-up test was conducted to measure effect decay, nor did we study dose dependency by testing repeated or extended gameplay. *Hypothesis:* Exposure of able children to a game that values wheelchair manipulation skills will improve their attitude toward disabled children.

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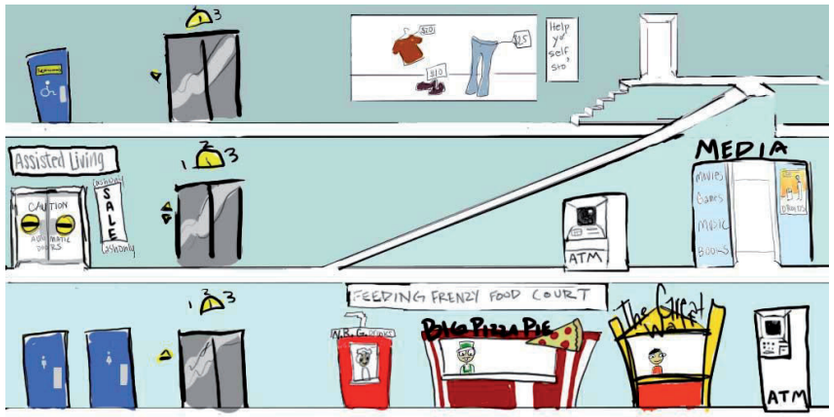
Intervention Design

Digital game play can reduce the social stigma of physical disability by challenging players to perform in a domain in which disabled persons excel[16].The game developed as intervention in this study underwent two distinct design phases, perhaps best termed 'Impaired' and 'Empowered'.

The 'Impaired' Design

The game design process began with meetings of disabled children who are served by NYU Langone Medical Center's Rusk Rehabilitation Center. Their initial design explored the impediments they face shopping in a marginally accessible mall. (Picture 1) The resulting design was a maze-like game in which the player optimizes use of the elevator, ramps and disabled-ready restrooms while avoiding various obstacles and, finally, employing a helper stick or requesting shopkeeper assistance to collect goods from high shelves.



Picture 1: Impairment Design

Source: own processing

While this clearly modeled the everyday experience of the children, it is a game of frustration reduction rather than positive achievement. By asking the player to identify with a constrained and dependent protagonist who suffers in a world of impaired agency, the game design risked evoking pity rather than respect for the avatar and for the disabled children it represents. The child designers also recognized that this game design promised little fun. To cure this, they proposed to add a "bumper-car" play element. Their adult leaders, inexperienced in game design, permitted gratuitous vehicular combat, but they expressed misgivings. They insisted that the players who indulged in bumper-car play would be penalized by score reduction. This example of conflicting incentives was not unique. A rising burden of such dissonant features signalled the need to reconsider the original design. Mistuned game mechanics can be fixed by minor design improvements. Misdirected ones cannot. Much recent literature reexamines the value of disability simulation as a method to raise social esteem. For example, V. Brew-Parrish[17] identified three counterproductive beliefs that able participants can take away the simulation experience: They are lucky not to be disabled. Life is tragic for people who are. Disabled people are especially courageous to live their ordinary lives. More precise warning can be found in reports of *Barriers*, a game-like virtual experience[18] whose impediment-avoidance design closely parallels the 'Impaired' design. It was found to increase awareness without improving attitudes.

16 TREPANIER-STREET, M. et al.: Young Children with and without Disabilities: Perceptions of Peers with Physical Disabilities. In *International Journal of Early Childhood Special Education,* 2011, Vol. 3, No. 2, p. 122.

'Empowered' Design

Experienced game designers reset the game's goals. Rather than seeking to elicit sensitivity, the designers aimed for admiration. They positioned the avatar as an aspirational role model – defined by his skills, strength and courage - not by his mobility limits. They designed a heroic avatar exhibiting masterful performance of sporty wheelchair locomotion, a domain where people experienced with wheelchairs exceed the performance of most neophytes[19]. The project introduced subject matter experts. Wheelchair tennis star, Karin Korb[20] and the staff of parathletic promoter, BlazeSports, helped orient the game design team. At one point, the entire studio – artists, designers and programmers – chased one another in racing wheelchairs through the BlazeSports grounds.

The young people at Rusk quickly adopted the 'Empowered' design. Freed to model a world of athletic challenge rather than one of frustrations, they pushed the design of the avatar, his wheelchair and the play mechanics to create a bold game, free of apologetics. Mediated by the engaged Rusk staff, there was a lively and fruitful collaboration between the professionals and these young first-time game designers. Pete Armstrong is a realtime game. At every moment, players are fully engaged by wheelchair challenges as they enjoy skill acquisition and mastery. "Wheelie Pete" Armstrong is a few years older (15) than the target audience. Permanently confined to the wheelchair, he has thin legs but massive upper body development, emphasized by his tank top and his surname[21]. Pete has the inherent strength, balance and speed to win the game, but cannot employ these until the player develops the requisite skills and invests these skills in him. (Picture 2) A female avatar was also designed but, due to limited resources, not implemented for this study.

The wheelchair model in the game is hand-powered. Its design is liberally extrapolated from specialized sport designs[22] used in parathletic competition, particularly the aggressive variant of wheelchair rugby popularly known as "Murderball"[23]. The player is challenged to propel, steer and brake the wheelchair. The center wheel found on a typical personal computer mouse is used as a direct analog of the wheelchair's large drive wheels.

17 BREW-PARRISH, V.: *The wrong message-still.* Released on 8th August 2004. [online]. [2019-03-01]. Available at: <http://www.raggededgemagazine.com/focus/wrongmessage04.html>.

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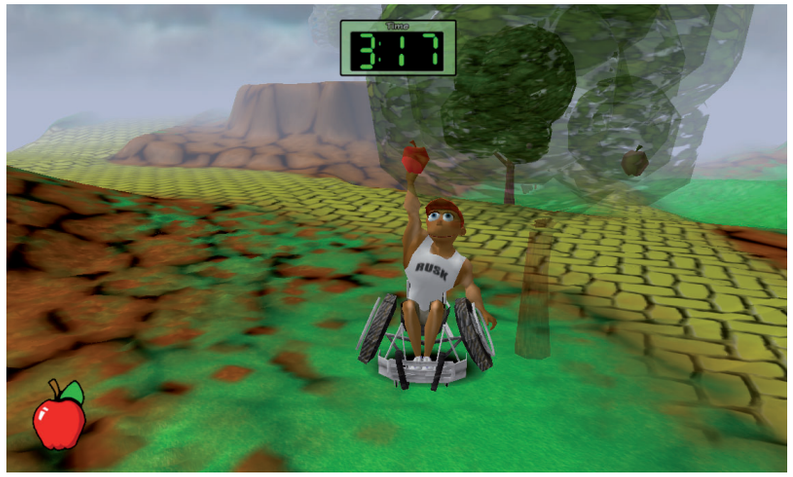
The player rolls the top of the mouse wheel forward or backward to roll the wheelchair forward or back. The left and right mouse buttons represent the left and right wheels. Steering is accomplished not by differential wheel propulsion, but differential braking. The player pivots the chair by pressing the left or right mouse buttons, while driving the chair forward with the wheel. (Future players may use the wheels of two active mice, rolling one in each hand.) The terrain is a hilly apple orchard , made accessible by a network of brick-covered pathways. The paths curve at all times and are rarely level. They present the player with a variety of well-tuned steering challenges. When the wheelchair leaves the pathway, increased rolling resistance arrests the player's progress. Picket fences and steep foothills constrain the player to the game field (Picture 3).

Picture 2: Empowerment Design with Aspirational Avatar and Sporty Wheelchair
Source: own processing

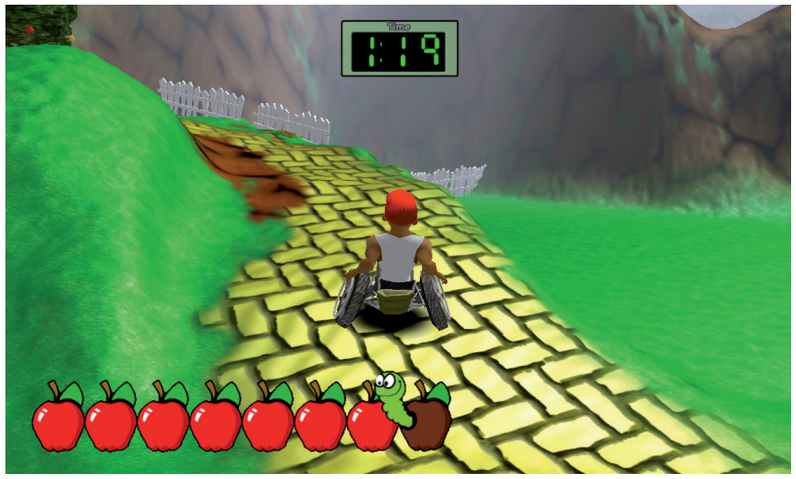
Picture 3: Complex Terrain
Source: own processing

Players cannot climb the steepest pathways directly. They must either build up momentum with a running start or weave from side to side to ascend the hill more gradually. (This dynamic emerged directly from the design team experience in the BlazeSport parking lot.) Hilly terrain also introduces steering challenges. The wheelchair exhibits a natural tendency to turn downhill. As in real life, the player must compensate. The player is challenged to find and collect apples. Seated in the wheelchair, the player can only reach low-hanging fruit. (Picture 4) The player must learn and work around this limitation. The player can also perform better by timing the grab for the apple to fit with the rhythm of pumping the wheelchair wheels.



Picture 4: Reaching for an apple
Source: own processing

The player must be perceptive. Among the red apples on the trees are several wormy brown apples. If added to the basket, the worm devours a few of the red apples that the player has already collected. (Picture 5) There is room on the scorebar for fifteen apples. If the player collects fifteen apples before the time expires, a win sequence is displayed.



Picture 5: A batch of apples infected by a wormy apple
Source: own processing

Participants

Children played the five minute prototype game. Researchers measured their attitudes toward disabled people in pre- and post-intervention testing. Boys and girls (ages 8 to 13) were recruited from two socioeconomically distinct venues in Atlanta, USA. The Paideia School, while committed to diversity, is a private school where professionals send their children. The Harland Boys and Girls Club serves a relatively homogenous population of poor, African-American families with limited educational background. In both cases, the trial was performed during class time. Participation required written parental informed consent and verbal personal assent.

Participation was nearly universal in both classrooms. (Two or three children neglected their parental consent forms and were excluded.) No participants exhibited physical disability. Testing and intervention were administered in a single sitting, so no attrition occurred. Data contamination invalidated the results of 19 participants, but this group was constituted randomly. Those data were discarded, Neither institution had a formal Institutional Review Board, which could be expected to exempt this study from further IRB review. Instead each venue administratively reviewed the study in the light of the Helsinki Declaration[24] and its own ethical commitments. Subjects were not paid. A small contribution was made to the Boys and Girls Club to defray their expenses. After the experiment's conclusion, researchers returned to the venues as invited lecturers. They presented to the children the final results and discussed both the scientific method and the process of game design. At Paideia, 30 subjects were recruited. Two sessions of trials were held in a computer lab. An inadequately-trained researcher corrupted much of the data, and only 11 samples remained usable. In the Boys and Girls Club's well-equipped Intel Computer Clubhouse, 18 trials were performed in three sessions.

Method

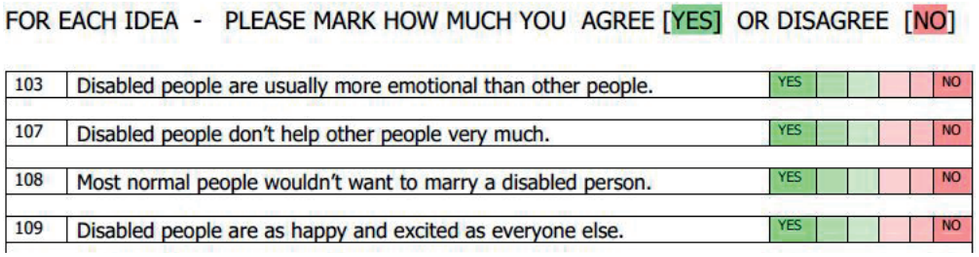
The study used the standard instrument "*Attitudes Toward Disabled Persons*" developed by Yuker et al in 1960[26]. With more than fifty years of field research and metastudy analyses[25,] the scale (Yuker ATDP-A)[26] provides a useful metric to compare attitudes in this study to those in other contexts and to compare the efficacy of the videogame to alternative interventions. ATDP questions were randomly divided in half: Test A and Test B. Subjects were randomly assigned to one of two pools. One pool used Test A as the pretest and Test B as the post-test. The other pool reversed this. In order to better match the reading level of the young subjects, the language in the ATDP was simplified slightly - sacrificing precision for clarity: 1.) Disabled people should not have to compete for jobs with physically normal people. *Disabled people shouldn't have to compete with everyone else for jobs;* 2.) The driving test given to a disabled person should be more severe than the one given to the nondisabled. *The driving test for disabled people should be harder than the regular test*.

24 For more information, see: *Ethical principles for medical research involving human subjects.* Proceedings from the International scientific conference World Medical Association. 18th General Assembly 1964. Helsinki, presented on June 1964.

25 YUKER, H., BLOCK, J.: *Research with the Attitude Toward Disabled Persons scales (ATDP) 1960-1985.* New York : Hofstra University Press, 1986, p. vii-87.

26 For more information, see: YUKER, H., BLOCK, J., CAMPBELL, W.: *A scale to measure attitudes toward disabled persons.* Albertson, New York : Human Resources Foundation, Division of Abilities, 1960.

These modest modifications proved insufficient. Many children still struggled to read and understand the statements. Children rated the statements on a paper-based questionnaire using a Likert scale. To be clearer to the child, a color-coded six-value Likert choice was employed. (Picture 6) Children were instructed to use the full range of the scale, and results demonstrated that they understood this instruction: Of 1,046 responses, only 367 were at one extreme or the other.



Picture 6: Questionnaire excerpt

Source: own processing

The Boys and Girls Club subjects speak African-American Vernacular English (AAVE). Like many other languages (such as Slovak or Spanish)[27], this popular sociolect employs the grammatical principle of *negative concord*. Multiple negatives in a single statement are a proper and emphatic formation. ("It ain't no thing." "I ain't got no money.")[28] By contrast, in Standard English, double negation renders a positive statement ("The play is not without charm." "I don't actually have *no* money.").[29] The Yuker instrument, like similar instruments, employs complex multiple negation, presumably to distinguish conscientious respondents from thoughtless ones. Multiple negation is found in the formulation of statements ("Most disabled persons are not dissatisfied with themselves.") but more often in negative statements constructed so that positive sentiments are expressed through a negative Likert response. Confronting these, speakers of Standard American English, tuned to negative inversion, struggled (with only moderate success) to register their intent accurately. Researchers noted that the Afro-American children, tuned to negative concord, more often misunderstood the instrument and marked the unintended answer. This was illustrated by Cronbach's alpha, a metric of psychometric consistency. (Table 1) Removing instances of multiple negation changed alpha slightly for speakers of Standard American English (0.74 to 0.77). Alpha changed dramatically for speakers of AAVE (0.19 to 0.33). The large remaining intergroup discrepancy (0.77 vs 0.33) suggest further ethnocentric issues.

27 See also: VAN DER WOUDEN, T., ZWARTS, F.: A semantic analysis of negative concord. In LAHIRI, U., WYNER, A. (eds.): *Proceedings of SALT III.* Ithaca, New York : Cornell University, 1993, p. 202-219.

28 PULLUM, G.: African American Vernacular English is not standard English with mistakes. In WHEELER, R. (ed.)*: The workings of language: From prescriptions to perspectives.* Westport, CT : Praeger, 1999, p. 60-65.

29 See also: PERES, J.: Towards a comprehensive view of negative concord. In JASZCZOLT, K. M., TURNER, K. (eds.): *Meaning Through Language Contrast.* Amsterdam, Philadelphia : John Benjamins Publishing Company, 2003, p. 29-42.

Results

The low power pilot test produced few results with p-values below 0.05. Immediate elevation of the ATDP score between pre and post tests compares well with the results of other interventions. Analysis suggests that efficacy has a negative correlation to habitual digital game play and positive correlations to female gender and to familiarity with disabled individuals.

Table 1: Before and after filtering the questions

	Standard English Speakers		Afro American Vernacular English	
	Pre	**Post**	**Pre**	**Post**
Straight Yuker	0.63	0.84	0.08	0.30
Complex negation removed	0.69	0.84	0.22	0.44

Source: own processing

The aggregate pilot results (Table 2) demonstrated an overall 11% improvement in attitude toward disabled persons after a single gameplay session. Yuker scale means increased from 107 to 119.

Table 2: Summary of results

Class	N	Pretest	Std	Test	Std	Effect
Total	**27**	**107**	1.04	**119**	0.95	**11%**
Female	**14**	**104**	1.12	**129**	0.87	**25%**
Male	**13**	**110**	0.96	**111**	0.96	**1%**
Private School	**9**	**106**	0.85	**114**	0.68	**7%**
Inner City	**18**	**107**	1.14	**122**	1.07	**13%**
Limited Contact	**9**	**123**	1.03	**120**	0.83	**-2%**
Disabled Friends	**8**	**93**	1.08	**103**	0.75	**11%**
Disabled Family	**13**	**101**	1.04	**133**	0.72	**32%**
Play Often	**11**	**105**	1.08	**112**	1.11	**7%**
Play Sometimes	**15**	**112**	0.93	**126**	0.81	**12%**
Play Rarely	**4**	**106**	1.30	**129**	0.64	**21%**

Source: own processing

A pilot ANOVA showed that efficacy was significantly ($0.01<p<0.05$) correlated to personal familiarity with disabled individuals (Chart 1) and inversely to habitual game play (Chart 2). Moderate ($0.05<p<0.10$) correlations were observed with female gender (Chart 3) and with age but the latter is marred by very small samples at some ages. There is little difference between the results observed in private school children and those seen in disadvantaged children. (Chart 4) Analysis could not reliably disambiguate the videogame experience finding from these confounds of gender and age.

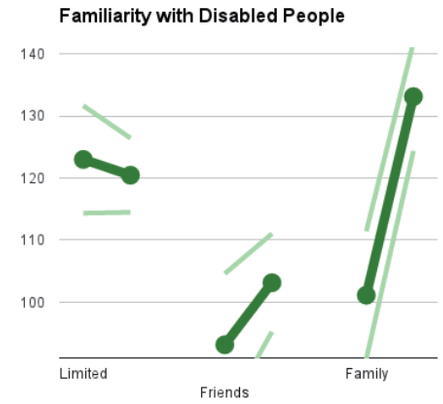


Chart 1: Efficacy by familiarity with disabled people
Source: own processing

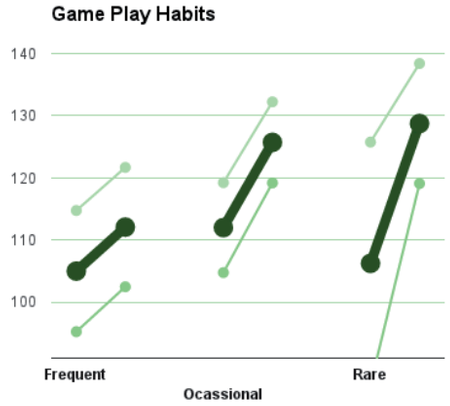


Chart 2: Efficacy by game play frequency
Source: own processing

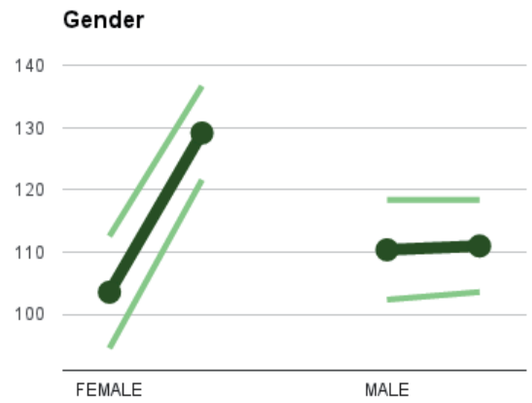


Chart 3: Efficacy by gender
Source: own processing

Chart 4: Efficacy by Social Class
Source: own processing

Chart 5: Results in a larger context
Source: own processing

Discussion

These pilot results fit well with results in the reports of other interventions (Chart 5). On the standard scale of 0 to 300, this trial scores approximate those originally recorded by H. Yukere et al[30]. Their immediate improvement (11%) is similar to that reported by K. Barrett and R. Pullo[31] (9%) when measuring the effect of a summer care-giving internship on the attitudes of undergraduate students. I. A. Morrison[32] reported a 3% improvement in attitude among interns. Note that self-selected interns and students began with elevated scores. A counterintuitive result is that children with disabled family members or friends began with far more negative attitudes than those with little exposure to the disabled. Furthermore, it was this class of subjects that had the strongest response to the game. Yuker explains that degree of contact is less predictive than type of contact. Significance metrics show that the steep improvement of those with 'Family' contact results is only suggestive, but the among those with 'Friends' contact data are significant (p-value below 0.05). Children with greater habitual videogame play were less influenced by the moral persuasion of the game than those who play rarely. Yet this response does not result from less engagement from the frequent players. On the contrary, frequent gamers rated Pete Armstrong at 0.36 as "Fun for Middle Schoolers", versus 0.25 for the occasional players. Despite their greater enjoyment, the frequent gamers had only a 7% improvement versus 12% for the occasional players.

Their lower response may be due to their practice of focusing on a game's mechanics rather than its story. Alternatively, less skilled players may have developed a greater sense of empathy because they experienced more difficulty playing the game. Or, as a third alternative, the experienced players might compare the prototype's production values with the high budget titles they ordinarily play, and may accord it less authority.

30 For more information, see: YUKER, H., BLOCK, J., YOUNG, J.: *The Measurement of Attitudes Toward Disabled Persons*. Albertson, New York : Human Resources Center, 1966.
31 BARRETT, K., PULLO, R.: Attitudinal change in undergraduate rehabilitation students as measured by the attitudes toward disabled persons scale. In *Rehabilitation Education,* 1993, Vol. 7, No. 1, p. 120-125.
32 MORRISON, I. A.: *Attitude Change Among Undergraduate Rehabilitation Interns.* [Dissertation Thesis]. Tallahassee : Florida State University, 2005, p. 22-56.

Conclusion

The score elevation warrants a higher powered longitudinal study. Significant secondary observations invite explanation, particularly the negative correlation between game play habit and the effectiveness of game-based attitude change. Additionally, analysis suggests an ethnolinguistic bias in the established psychometric instrument. This project's limited resources produced a playable prototype, but were inadequate to conduct sufficiently powerful efficacy testing. Better science requires larger samples and a control group to factor out distortions such as the Hawthorne effect. An improved study would measure reinforcement and retention, exposing subjects to multiple play sessions under longitudinal observation. It would replace the Yuker instrument with one intended for children and suited to diverse populations. A very valuable study would develop two matched alternate interventions, to directly compare the efficacy of 'Impaired' design against that of 'Empowered' design. Despite millennia of lurching human progress, social acceptance of others is not yet in oversupply. Games can help a community develop respect for its outsiders, particularly if the game exposes the outsiders' unique strengths. We hope our efforts and findings encourage further progress from other creative teams.

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to conduct successful experiments. At GamesThatWork, Stephanie Y. Chergi created the model of Pete Armstrong and the delightful world he rolls through. Ed Hobbs engineered the rendering engine, Tom DiCesare engineered playability and Jesse Jacobson coded the physics. Daniel Fuller contributed greatly to shaping this manuscript. Sam Powell wrote and produced the excellent game music.

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Typology of Game Principles in Digital Games: A Case Study of Mafia III

Zuzana Bučková

Mgr. Zuzana Bučková, PhD.
University of Ss. Cyril and Methodius in Trnava
Faculty of Mass Media Communication
Námestie J. Herdu 2
917 01 Trnava
SLOVAK REPUBLIC
zuzana.buckova@ucm.sk

Zuzana Bučková is a graduate of Bachelor's and Master's and also PhD. (doctoral studies) study programmes 'mass media communication'. She earned her academic degrees at the Faculty of Mass Media Communication at the University of Ss. Cyril and Methodius (UCM) in Trnava. Now she works as an academic researcher at the Faculty of Mass Media Communication at University of Ss. Cyril and Methodius in Trnava. As a scholar, she is interested in the area of media reality with emphasis on television; her fields of expertise include gender stereotyping, violence and sexism. The author also devotes her studies to the need to better understand the dimension of digital games within wider socio-cultural and media trends. She is also interested in the terminological framework of game studies, applying an interdisciplinary approach which includes the knowledge of cultural anthropology, sociology, philosophy and psychology. Her most significant works to date include "Dimension of (Digital) Games from the Viewpoints of J. Huizinga and R. Caillois" (2015), "Historical Reflection on Game Principle Alea and Its Presence in Virtual Reality" (2016), "Religious Motives as Part of Virtual Reality Created by the Digital Game 'The Witcher 3: Wild Hunt'" (2019). She is Deputy Managing Editor of the academic journal *Acta Ludologica*.

ABSTRACT:
The presented study dwells on the issue of game theory by Roger Caillois to be applied to the contemporary dimension of digital games. The actual attempt is to find out the extent to which the game principle categories apply to media products, i.e. digital games. The paradigms by authors engaged in cultural anthropology, philosophy, psychology, and sociology, besides others, served as key theoretical groundwork for the present paper. Nevertheless, the theories concluded within media study addressing the game and game principles in contemporary society have not been excluded either. In essence, the theoretical reflection introduces the basic terminology axis creating an apt platform for the game variants in use, to perform within the forms of new reality, i. e. virtual reality. The primary aim is to define elementary concepts like "game", "game principles", "media or virtual space", "digital game", and "game genres". Secondary is then to explicate certain game principles designated by Roger Caillois present in the particular game. Material to be applied for this study ranks among the genre of action games. "Action game" particularly is a digital genre that belongs to frequent genre types as well as RPG games, strategy and others. Drawing from this fact, one of the actual digital games called Mafia III was chosen for empirical study. The main purpose of the paper is through logical analysis to illustrate the issue of games, and subsequently point out the cases of their occurrence in the media space. Theoretical postulates by Roger Caillois are by author assumed to be potentially applicable to the current media reality of digital games that come under action genres.

KEY WORDS:
action game, adrenaline, agon, alea, competition, digital game, fortune, game, game genres, game principles, ilinx, Mafia III, media reality, mimicry, physical and mental identity, risk, vertigo, virtual reality.

Introduction

Games as a phenomenon may be seen as one of the most comprehensive concerns observed with interest within numerous classical social sciences, e.g. sociology, psychology, philosophy, cultural studies, history, fine art, etc. That is to say, "Pastime" moved in to the limelight of so-called media studies. This fact is an immediate implication of expanding technology, which brought about smooth transformations of games from socio-cultural reality to media or virtual reality. This movement is viewed identically as it goes on particular game principles, which each game actually is founded on. It was French theorist Roger Caillois who started to deal with game variants first; although, he designated the game principles exclusively applicable to games within socio-cultural reality. Yet, contemporary media studies do not tend to adopt these principles, and many authors still draw on the categorical basis developed in the period of the first introduction of digital games. Anyway, at the end of the last century, "digital games" as a product inspired a brand-new science – digital game theory. This comparatively recent scientific branch attempted to establish new terminology as an implement for new theoretical concepts resulting in new scientific findings. It is true, however, that research in this new branch of science is missing substantial verification based on earlier theories aimed at the phenomenon of games, still missing the focus of modern media theorists.

In the absence of a definite categorical apparatus, typology of game principles in the multimedia space is somehow vague. Therefore, the main objective of the present study is to render a general view of the subject related to game principles, concluded upon theoretical approaches shared among scientists, preferentially employed in the humanities, further to be applied in research within the domain of digital games. Elaborating on the subject in question, i.e. applying the game variants typology in media products, we draw upon the theoretical approaches of the following authors: J. Huizinga, R. Caillois, T. M. Malaby, M. Malíčková etc. Applied theoretical groundwork subsequently is exemplified in performances of the digital game *Mafia III*[1]. To implement the primary intent, a qualitative content analysis is to be applied, accomplished in the form of a case study.

Terminology Axis of Examined Issue

Daily experienced reality can be entitled "social reality". The term "social reality" was mainly dealt with by the theorists P. Berger and T. Luckmann, who identified social reality as a property of common phenomena accepted to be an existence independent of our will. This reality is privileged, hence superior and regularly true. We go through everyday reality alertly, we take it as natural and self-evident, to be an immediate perception of the world. It is so called objectivized reality, a sequence of physical phenomena perceived as objects prior to be perceived by humans.[2] Indubitably, following this idea, *game* can be considered the object of an immediate every-day reality. "Game" means one of indispensable needs for individual humans, which can also be qualified as a means of cognition. E. Fink clearly defines game to be inconspicuous, familiar, imaginative and a common activity providing temporary relaxation. Gaming includes indulgence, lots of fantasy, varied forms, and rules autonomy. Game phenomenon is widespread, manifold, accommodating numerous forms and structures.[3] J. Huizinga introduces definition more in detail. He asserts that play is a voluntary activity or occupation executed by man within certain fixed limits of time and space, according to rules freely accepted but absolutely binding. Heading its internal goal it is attended with excitement, joy and a sense of oddity distinct from daily routine. He speaks about it being the most natural and powerful performance in human life, revealing the true perception of reality by the individual, together with their attitude to the world and most of all to themselves. J. Huizinga tends to view game as a factor accounting for culture.[4]

We appreciate the most pertinent definition of games by R. Callois whose opinions on game relevance in many areas concur with those of J. Huizinga. R. Caillois states that playing games is a free choice of an individual, who by no means is compelled to it. If the opposite is true, the game would abandon its entertaining property and, automatically, saturation of the needs of individuals – primary reality experienced on a daily basis, but it is a side part of common daily performance. It is set in designated time and space. He as well refers to it as an act of contingency – an activity with challenging (unpredictable) procedure and ending, based on self-governing. However, R. Caillois assumes that lack of productivity, rule observance, and fiction are negatives.[5] T. M. Malaby adds to the point that games are semi-circumscribed arenas, relatively dissociable from everyday life. He continues that association of games with social reality only concerns the social and cultural capital of the man. Due to the emotional states of the individual conditioned by a given game, people become productive, holding potential to value each attended game context more or less significant, which reversely acts upon socio-cultural reality.[6] Based on the above utterances, it can be stated, the game has certain characteristics that undergo a degree of modification along with the advancement of society thanks to technical progress and expanding technology. Particular authors tend to put some game patterns above others, which, logically, results in interdisciplinary incongruence and thus differences in denotation. Nevertheless, quotations from J. Huizinga and R. Caillois[7] sound for us highly actual, since characteristics ascribed to digital games seem alike. We are always able to ascertain the place and time limits of the game. Actors are obliged to play according to strict rules concurrently heading delights from excitement, luck, exceptionality of the score man, etc. It can be concluded that almost original form of the gaming phenomenon has survived in digital media reality that far more promotes it.

In whatever reality the game is played, it is based on certain *game principles*, that is to say, the accepted rules of playing. They are in fact essential rules for creating the game area, which stands for standards applying to both social and media (virtual) reality. R. Caillois defines four basic game variants occur in gaming realms. He denotes the "Agon" principle representing discipline and obedience to strict rules of particular games or match. "Alea" variant is based on fatalistic approach of the actor characterised by passivity or submitting to fate in the game, though, still under fixed rules. The game principle "Mimicry" simulates reality and altering space within the game assuming heterogeneous identity. The last of the principles is called "Ilinx", or "Vertigo". The given game concept includes adrenaline emotion experiencing excitement, astonishment, or horror.[8] The group of games under *Agon*[9] is imaged as a contest or fight. Competitors or players meet under ideal and equal conditions susceptible of giving precise and incontestable value to the winner's triumph. Present rivalry hinges on a single quality within the game, e.g. speed, endurance, memory, etc. The position of the winner of loser actually depends on the particular actor's capabilities.[10] J. Dovey and H. W. Kennedy define Agon as a "competition game" principle that provides the substance for either a clear triumph or defeat. Performing exceptionality and skills in specific game areas is crucial. For playing "Agon", the primary preconditions are vigilance, training, strong effort, and determination to win, exerted along with other personal skills.[11] Accounting fundamental quality of Agon, which is profound activity, and then *Alea* is the most contrasting by profound passivity.[12] R. Caillois states to this that the player has no capability to influence the game result. The winner is not recognized by triumphing over his adversary, on the contrary, one scores

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9 See also: BUČKOVÁ, Z., RUSŇÁKOVÁ, L.: Historical reflection of the game principle agon and its application in the current creation of media reality. In *European Journal of Science and Theology,* 2016, Vol. 12, No. 5, p. 25-37.
10 CAILLOIS, R.: *Hry a lidé.* Prague : Nakladatelství studia Ypsilon, 1998, p. 35.
11 DOVEY, J., KENNEDY, W. H.: *Game Cultures: Computer games as New Media.* Berkshire : Open University Press, 2006, p. 24.
12 For more information, see: BUČKOVÁ, Z.: Historical reflection of the game principle alea and its presence in virtual reality. In *Communication Today,* 2016, Vol. 7, No. 2, p. 30-45.

when more favoured by fortune than his counterpart is. The most frequent examples of this type game in socio-cultural reality appear to be games of dice, roulette, heads or tails, lottery, and so on. The entire motivation of the player is a hope for a positive chance. Player proves no qualities in this type of game, and they does not deploy their resources, skills, muscles, or cleverness. So to say, they are an "expectant" waiting what comes out. "Games of chance" generally are conditioned by a degree of risk accepted by the player; actually, they risk the whole stake. Despite all this, the players attending the games of chance still expect a kind of fairness.[13] The third of the principles is *Mimicry*[14] founded on simulation of other reality, on changing places; and means a playing part of heterogeneous identities. It involves the plays that embody imaginary fates, where the actor is alteridentity.[15] M. B. Carbone, P. Ruffino and S. Massonet classify it as primary game variant serving to prove our identity in the context of game. They refer to this type of game as the process of fascination by using another personality that is not real.[16] The last game variant *Ilinx/Vertigo*[17] mostly present in combination with other variants already mentioned, i.e. agon, alea, mimicry. Vertigo effect is a typical sign of this game variant, which is an attempt to instantly destroy the stability of perception and inflict a kind of epicurean panic upon the human mind. This game variant aims to make a player yield to a convulsion, trance, or ecstasy that certainly will surpass the reality. Disorder in organisms heading for "vertigo" is desired by people of diverse nature[18], which increased popularity not only of this game variant but also in virtual reality.

Media reality, or a part of the domain – *virtual reality* – is, in some aspects, unique for socio-cultural reality. P. Virilio addresses the virtual dimension as an imaginary world or fantasy, which means fictitious or unreal being represented via play of dimensions and designs, or a simulation of reality.[19] Virtual reality is a border line between reality and fiction.[20] It is invented reality, artificial or less true.[21] Among most actual definitions pertains one by S. M. La Valle, who says about virtual reality as purposeful behaviour of organisms assisted with artificial sensorial stimulation, where the actor himself has a vague or no impression of interfering with the virtual reality. Going more in depth the author elaborates on four key components of the utterance. Deliberate behaviour demonstrates familiarity of the person with the activity created for him by the virtual space. The term organism may stand for any living entity influenced by artificial sensorial stimulation, i.e. deliberate impact on their sensory perception or subconscious mind.[22] The characteristics of virtual reality explained above denote exceptionality of virtual reality. Unrealistic nature and illusions conveying real images of non-existent phenomena are underlying. Virtual reality is simply a simulation of social reality. Nevertheless, it remains a fact that socio-cultural reality and individual existence (human body and mind) considered within the reference framework are preconditions of ever present reality that despite markedly present virtual reality cannot be absent.[23]

Conspicuously, the game has been a fundamental component of socio-cultural reality, and many times in everyday life. Though the game format has changed as a consequence of invention of the new virtual reality media, the internal character of game is preserved, hence correlating with the definitions already mentioned. Development of the new media technology has brought about modifications of the terms addressing the examined phenomenon, gradually resulting in the collocations as follows: "electronic game", "computer game", and "video game"; all these presented under the current umbrella term "digital game".[24] Apart from the etymological ambiguity of interpreted term, several authors highlight also the enormous complexity of the issue in question. Claiming this they draw upon the fact that the concerned field of study includes the study of games in general, i.e. their structure, regulations, and genres.[25] J. Juul defines *digital game* as any kind of game practiced by means of digital technology. Interactive software of digital games is primarily exploited for the purpose of multimedia entertainment.[26] Digital game is a component of the media domain which counts upon the active actor who participates in creating virtual reality. The player represents or controls the game avatar (usually via instrumentation), and this way gets into interaction with the virtual environment and/or with other players. It can be generally defined as a set of programs designed for users of technology, e.g. personal computer, tablet, mobile phone, utilised mainly for leisure activity. Typical features of digital games are active user participation, submission to rules fixed in advance, player's responsibility for proper decision, player's opportunity to cheat and choose between truth and error.[27] Despite the designated characteristics of digital games, media theory experts particularly prefer some attributes of game. Digital game, or video game, stands for a unique and most significant phenomenon of the present era. Involved interaction is classified as one of the most distinctive features. Here we have a model of communication between the player (recipient) and digital game (composition). We speak about one of the key principles of digital game be prerequisite for pleasure in game.[28] M. Malíčková further conceives of games, or digital games, as an "escape from daily routine". Games offer the player an opportunity to attend and experience circumstances unattainable in workday living. Through playing games one can acquire special experiences otherwise unachievable encountering unreal space in the middle of reality.[29] In the frame of digital games, we identify restricted playing space and time as the game activities determinant. Digital games participants are governed by fixed rules meant to control their conduct.[30]

13 CAILLOIS, R.: *Hry a lidé.* Prague : Nakladatelství studia Ypsilon, 1998, p. 37-38.
14 See also: BUČKOVÁ, Z.: Problém aplikácie konceptu R. Cailloisa mimikry na súčasnú digitálnu realitu. In ČÁBYOVÁ, Ľ., JÁNOŠOVÁ, D. (eds.): *Quo vadis massmedia, Quo vadis marketing. Conference Proceedings from International Scientific Conference of PhD. students and young scientists.* Trnava : FMK UCM, 2016, p. 140-154.
15 CAILLOIS, R.: *Hry a lidé.* Prague : Nakladatelství studia Ypsilon, 1998, p. 35-47.
16 CARBONE, M. B., RUFFINO, P., MASSONET, S.: Introduction: The Other Caillois: The Many Masks of Game Studies. In *Games and Culture,* 2017, Vol. 12, No. 4, p. 315.
17 See also: BUČKOVÁ, Z.: Herný princíp ilinx/vertigo a jeho uplatnenie v digitálnych médiách. In PETRANOVÁ, D., MENDELOVÁ, D., RADOŠINSKÁ, J. (eds.): *Megatrendy a médiá 2017: Budúcnosť médií II. Conference Proceedings from International Scientific Conference 25th – 26th April 2017.* Trnava : FMK UCM, 2017, p. 192-209.
18 CAILLOIS, R.: *Hry a lidé.* Prague : Nakladatelství studia Ypsilon, 1998, p. 44.
19 VIRILIO, P.: *Informatická bomba.* Červený Kostelec : Pavel Mervart, 2004, p. 16-26; 133-144.
20 SAWICKI, S.: Kyberpriestor a kyberrealita. In GÁLIK, S. et al.: *Kyberpriestor ako nová existenciálna dimenzia* človeka. Łódź : Księży Młyn, Dom Wydawniczy Michał Koliński, 2014, p. 68.
21 GÁLIK, S.: Kyberpriestor ako nová existenciálna dimenzia človeka. Filozoficko-etický pohľad. In GÁLIK, S. et al.: *Kyberpriestor ako nová existenciálna dimenzia* človeka. Łódź : Księży Młyn, Dom Wydawniczy Michał Koliński, 2014, p. 9.
22 LaVALLE, S. M.: *Virtual reality.* Cambridge : Cambridge University Press, 2017, p. 1.
23 For more information, see: BUČKOVÁ, Z.: Religious Motives as Part of Virtual Reality Created by the Digital Game „The Witcher 3: Wild Hunt". In *European Journal of Science and Theology,* 2019, Vol. 15, No. 1, p. 223-233.
24 SALONEN, J., RUUTIKAINEN, P.: E for Experience – Using Game-Based Design Elements in Electronic Services. In KYLANEN, M. (eds.): *Digital Media & Games. Articles on Experiences 4.* Rovaniemi : University of Lapland Press, 2007, p. 92.
25 CRAWFORD, G.: Is it in the Game? Reconsidering Play Spaces, Game Definitions, Theming, and Sports Videogames. In *Games and Culture,* 2015, Vol. 10, No. 6, p. 574.
26 JUUL, J.: The Game, the Player, the World: Looking for a Heart of Gameness. In COPIER, M., RAESSENS, J.: *Level Up: Digital Games Research. Conference Proceedings*. Utrecht : Utrecht University, 2003. [online]. [2019-02-12]. Available at: <http://www.jesperjuul.net/text/gameplayerworld/>.
27 JENÍK, L.: Niektoré perspektívy a výzvy filozofického skúmania fikcie. In *Studia Aloisiana*, 2013, Vol. 4, No. 2, p. 15.
28 ZLATOŠ, P.: Digitálna technológia a interaktivita. In MALÍČEK, J., ZLATOŠ, P., MALÍČKOVÁ, M. (eds.): *Zborník o populárnej kultúre. Popkultúrny hrdina vo virtuálnej realite.* Nitra : Filozofická fakulta UKF v Nitre, 2008, p. 39-45.
29 MALÍČKOVÁ, M.: Tematizácia herných modelov filmovým médiom. In MALÍČEK, J., ZLATOŠ, P., MALÍČKOVÁ, M. (eds.): *Zborník o populárnej kultúre. Popkultúrny hrdina vo virtuálnej realite.* Nitra : Filozofická fakulta UKF v Nitre, 2008, p. 49-50.
30 LASTOWKA, G.: Rules of Play. In *Games and Culture,* 2009, Vol. 4, No. 4, p. 386.

The rules make games respectful. They eliminate conflicting situations to help maintain the joyful character of the game.[31] Anyhow, it is important when examining the phenomenon of game, or digital game, not merely to account for playing itself, strategy, play principles, or language, since study in reference to the particular genre is often a determinant for the game attributes already elaborated on.[32]

Game genres were established in order to achieve some broader classification units that draw on common attributes and features of particular digital games. The content of digital games gradually determined individual genres that consequently determined particular game design. The process of formation spans the period from the second half of 70's up to the end of 80's of the last century. The framework of major parts of genres was concluded at the beginning of 90's and it remained so until the present.[33] In principle we know the two types of genre – *ludic* and *narrative*. The first type describes the game mechanisms, i.e. actors moving in space, time, completing the tasks, etc., by which they resemble musical styles. The second describes the narrative and its audio-visual design, chiefly drawing upon the rest of narrative media, i.e. horror, sci-fi, fantasy, etc.).[34] F. L. Spiteri mentioned several dimensions that enable us to define the genre of a game as well as to clearly classify it. The core of his analysis rests in exploring the basics " according to subject", which he subsequently divides after specific common properties into smaller units that designate the genre itself.[35] Though the game genres differ in some way from those of literary, journalism, or film genres, each one of the genre types accents representation of some of existing phenomena[36] – literary work, journalistic text, film, or digital games actually pursued in this paper. Our secondary aim in the presented study is to clarify the gaming principles of Roger Caillois, applied in the particular game genre, i.e. action game. In our opinion, to render a thorough view of the issue in question is essential to this purpose. Identification and brief description of the chosen genre, i.e. "action game", we leave for later investigation and application of the game variants to the digital genre type in our study.

Action games are accounted in the theory of digital games as fundamental and the most popular genre. The nature of action games rests in exploiting the player's physical capacity (manoeuvring within the game platform), as well as his mental capacity (promptness, response, and reflex). These skills and practice acquired by the player himself through "playing" enable him to overcome all hitches along with eliminating all his "virtual adversaries". The term – action game – covers several subgenre, e.g. *First-Person Shooter* (FPS; "shooting from the first position"). FPS games are based on the simulation of a real fight or single combat. Reflexes and prompt reactions are crucial in this type of game, which implies the necessity of sufficient player's experience to advance the levels of FPS platform. It is, in essence, a form of simulation where the individual player themself represents the game avatar; however, he must abide by the rules that create the game narration, and that are established in advance. It is also important to point out that given subcategory of the action game is based on the principle "multiplayer" (game attended by number of players), which is instrumental in raising the excitement and interaction within

31 KOSTER, R.: *A theory of fun for game design*. Scottsdale : Paraglyph Press, 2005, p. 36.
32 See also: BUČKOVÁ, Z.: Religious Motives as Part of Virtual Reality Created by the Digital Game „The Witcher 3: Wild Hunt". In *European Journal of Science and Theology,* 2019, Vol. 15, No. 1, p. 223-233.
33 *Hry, ktoré definovali "žáner" – FPS (first person shooter).* Released on 20th October 2010. [online]. [2019-02-12]. Available at: <http://www.mickthemage.sk/2010/10/hry-ktore-definovali-zaner-fps-first.html>.
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35 SPITERI, L. F.: The use of facet analysis in information retrieval thesauri: An examination of selected guidelines for thesaurus construction. In *Cataloging & Classification Quarterly*, 1997, Vol. 25, No. 1, p. 21-37.
36 APPERLEY, H. T.: Game and Game Studies: Toward a Critical Approach to Video Game Genres. In *Simulation & Gaming*, 2006, Vol. 37, No. 1, p. 8.

FPS games. Another relevant subgenre of action games is *Third-Person Shooter* (TPS, "shooting from the third position"). The basis of TPS games rests in the control of the avatar from, so to say, "bird perspective", where the actor watches the playing figure's back, in other words, he "keeps track" of its back and takes control over it. In regard to TPS, *action adventure* subcategory displays almost the self-same characteristics. Due to syncretic development of the mentioned subgenres, actually it is highly challenging to strictly divide TPS games from action adventure, sharing almost identical features.[37] However, it is important to note, that in most games of this type the avatar is not an essential element of the game. Despite this, "action games" can be declared one of the most frequent and popular digital genres in the gaming community. This status induced our immediate choice of the material for empirical study of the issue that is to clarify the Caillois' game principles present in the dimension of digital games, namely in action digital games. Open to question remains whether the adopted categorical apparatus is applicable to practical engagement in media.

Case Study: Mafia III

The research material was deliberately chosen from digital game production. Mafia III (2016) was concluded as an up-to-date product relevant to the genre of our interest, i.e. action games. Because it is one of the basic game genres, our examination focuses on game principles and the ways they are performed in the given digital genre, which involves the study of implemented plot and game avatars. The game subgenre TPS (third-person shooter – action game from the third person viewpoint) is actually the analysed case. The developer of the game is a Czech company 2K in association with the American video game developers Hangar 13 and Aspyr Media. The plot of the game Mafia III is set in 1968 in the city of New Orleans. The key figure Lincoln establishes a gang in pursuit of revenge on the Italian mafia. The main protagonist completes the tasks, communicates with other figures of the plot aiming at the primary goal – to build his own empire and rearrange the city he lives in.[38] The plot attractiveness and the product topicality were not the only determinants of the study material. The location of the company in the Czech Republic was equally decisive for the choice, together with pertinent visual representation of the socio-cultural reality of the given society, i.e. dialogues and avatars' conduct typical for the present day living.

The subject matter of the research is a digital game that belongs to the genre of action game. By means of quantitative content analysis – narrative analysis – we intend to explicate different representations of the game principles designated by Roger Caillois – Agon, Alea, Mimicry, and Ilinx/Vertigo. A number of particular game variants was manifested within the chosen action game Mafia III through elaborate description of the narration details. The *Agon game variant* happened to be the most frequent in multiform occurrence. The given variant based on rivalry was mostly detected in the form of a fight between the main protagonist and a single human (ally or antagonist); or, between members of opposed parties (members of the mafia or policemen, fighting with no weapons

37 For more information, see: BUČKOVÁ, Z., RUSŇÁKOVÁ, L.: The issue of game genre typology in the Slovak online game-magazine Sector. In PETRANOVÁ, D., MATÚŠ, J., MENDELOVÁ, D. (eds.): *Marketing Identity – Brands we love - part 1. Conference Proceedings from International Scientific Conference 8th – 9th November 2016*. Trnava : FMK UCM, 2016, p. 280-294.
38 *Píše se rok 1968 a pravidla se změnila.* [online]. [2019-02-12]. Available at: <https://mafiagame.com/cz/info/>.

(fistfight, throwing the enemy out of the window of a building, burning on the cross, fast driving vehicle, and so on); in other case armed (gun, knife, garnet, exploding barrels, etc.); alternatively, in combination of both forms of fights. The Agonal game principle also involves fights between groups; for example combat between the main protagonist and his ally, or group of allies, on one side, and a group of human enemies on the other. All participants are armed, and fight flexibly with fists and weapons. The performance of the main actor employed also skirmishes, when he himself, or with his ally/allies, verbally offend their opponent/enemies. Another image of the agonal game genre was unique in employing a fight of the main actor with a single animal, or group of animals (alligator/alligators), using weapons. The Agon game principle appeared in different forms that varied not only in the number of participants or in the way of fighting with rivals (with or without weapons; physical or verbal conflict). The scenes of the battles happened to be a distinguishing aspect (e.g. mainland, underground or sewage, ship, motor boat, road vehicle). One remarkable representation of the agon game principle is a fight of the individual (main protagonist) with three strange figures in a wrestling ring – a perfect example of the transformed game principle, where it is physical power that is sharply challenged. Considering the specifications above, actually any kind of contest where heterogeneous powers and skills of the player are confronted is believed to be a matter of an agon game. Returning to the analysed game, we may define it as a fight of the main protagonist together with his ally/allies against a group of human enemies riding motor boats; or, fight of the main protagonist against a human (adversary) or a group of human adversaries (policemen) running; or, fight of the main protagonist co-operating with his ally/allies against their enemy or enemy groups (mafia companions, policemen) driving road vehicles.

Furthermore, the agonal game principle occurred in the study material also in the form of fights of the main protagonist against inanimate objects, e.g. boxes, barrels, boats, cars, trailers, doors, distilling equipment, shop windows, rubbish heaps, cranes, gaming machines, chemicals, and so on; using weapons, e.g. guns, sticks, bombs, etc.; another case was the fight of the avatar against inanimate objects, e.g. doors, cars, ropes, instruments, filled boxes etc., with no use of weapons, e.g. kicking out, rubbing hands, flames. The author points out in his typology of game principles the fact that agon games always implicate a victory. In a particular case, this aspect was detected in gaming situations where the main protagonist was rewarded with material gains or financial bonuses for overcoming the enemy in physical conflict. Agon may be witnessed also in partial units of the narration, e.g. by winning a figure or object, revealing a secret, proceeding with the game plot and further utilising them as allies, currency and useful information crucial for achieving a winning end to the game. At the meta-narrative level of this game variant stands for the struggle of the main protagonist to govern the city of New Bordeaux or attend the partial missions; or eventually win the game.

In the contrastive view of agon, which is representative for the action game genre, and *alea* present in the plot of the digital game Mafia III, the latter occurred only minimally. It is true because the main protagonist is never engaged in gambling (cards, dice, etc.). Nevertheless, the basic feature of alea games – risk – was detected in our empirical material, particularly in cases when the main protagonist risked his life in physical conflict in return for material or abstract advantage (usually cash, utility objects, information, etc.), for which he uses different means of combat. Analysing the given digital game we identified the case of physical combat using no weapons (fistfight), in which the main protagonist may gain an exclusively material reward, e.g. wanted people. Anyway, fighting is not exclusively the only way to achieve material or immaterial gain. Different tasks assigned to the key figure by the side characters aiming to damage the opponents' property and alike. A further primary feature of the alea game principle – fortune – was apparent in the material under scrutiny. This aspect was identified at the moment when the main protagonist is losing cash as a consequence of going down in battle. Eventually, winning is the "result of fate".

Although the *mimicry game principle* is not a representative aspect of the action game performed uniquely via beating enemies, its variable forms are present in the analysed material. The main protagonist assumed a physical identity by which he is able to walk, run, climb over objects (fence), climb up objects (container) and alike; sit on a bench or sofa, at the bus stop lean against a building wall; change clothes, utilise first aid kits and adrenalin injections; wear a tactical vest; drive a road vehicle, motor boat, or swim and dive; etc. The protagonist undertakes different activities within the game narrative, e.g. installs a wiretap into switch cabinets, takes up arms (loads, points, fires), beats the enemies with fists, throttle the enemies, pins a knife to the neck, seduces enemies by whistling, is able to acquire staff (for manipulation, reading, installing, etc.) moves and activates various objects (explosives, opens garages, dials the codes, etc.), buys stuff (weapons, first aid kit, etc.) from the street dealers to improve their fighting gear, is able to pry a door open, to carry enemy's dead bodies, rub his hands to unfasten the rope and release himself from capture. He assumed a mental identity that also is a component of the game principle mimicry, entailed by primary dialogues between the hero and his ally/allies, or his rival/rivals, or stranger/strangers.

The protagonist also utilises phones to contact his fellows, or speaks via walkie-talkie device. No one of these methods empower the player to influence the answers of protagonist, which implies that the player is not completely immersed in the game figure. Other situations in the given game makes the player sovereign when deciding on further conduct of the main protagonist, e.g. whether he kills or recruits a rival; or, whom he appoints responsible for each of his corporations. In pursuit of study of the given digital game we regard as unique the set of mimicry principle where a character can smoke a cigarette, provide customer service, or pour narcotics into wine bottles. Similar images of the mimicry game principle may possibly occur in other video games, though it seems less probable and regular. Moreover, in the concern of the mimicry variant, the concept "game in game" cannot be overlooked. In the study case, such situations are particularised by the main character hiding his true identity in order to have an advantage and control over the circumstances, e.g. disguised as a policeman, waiter, wrestler, etc.

Roger Caillois completes a distinct typology of game principles with the variant *Ilinx/Vertigo*. This variant is defined by the sense of dread, uneasiness, adrenalin, dizziness, or loss of consciousness. All the stated emotions, anyway, are supposed to bring about a positive experience to the player. Adrenalin is mostly connected with acrobatic feats of the main character, observed in the examined product (e.g. somersault, jumps, rolls, etc.); life-threatening acts of the main actor (e.g. climb a ladder to the top of a building, or from the underground to the surface, through a window, breach a gate or fence by a motor vehicle, jump up a wall, rush on various terrains, jump over ravines, railings, buildings, entering a burning ship, etc.), or, the main character enters a lift to the top of a building. There are even more relevant points worth mentioning, connected with joyrides on motor vehicles or motor boats, in an attempt of the main protagonist and his fellows to run away from a police patrol. Examples of scenes that induce a blend of feelings like fear, uneasiness, portion of adrenalin are as follows: the main character and his fellows hide behind various objects running from their enemies or police patrols; the main character, himself or accompanied with fellows, chase the rival/number of rivals riskily driving a vehicle; the main character fighting with enemy/enemies hides behind nearby objects, or in a stealthy manner approaches the enemy; runs after a figure, familiar or strange to him, striving to catch it; chases an enemy; tries to steal motor vehicles remaining unnoticed ; or jumps into dark water.

The player solely gets scared in the moments when the main protagonist's life, or his fellow's life, is endangered while fighting against a single or a group of human enemies, or against a single or a group of animals. Furthermore, anxiety and a thrill is observed in situations when the main protagonist wrecks objects or eliminates figures all around, either with weapons or without; carries dead bodies of enemies he killed, moves within dark areas and tunnels, catacombs, streets, etc. Yet, etymology connected with the given game narration must not be omitted; it is definable by fascination, convulsion, or trance. This feature of the digital game variant Ilinx/Vertigo was conspicuously performed within the scenes as follows: the main character drives a motor vehicle around roundabouts; the character goes through shifts of consciousness, e. g. hallucinations of experienced accidents, or a complete loss of consciousness (be knocked out by a rival). Based on careful consideration of findings we arrived at through analysis of the chosen "action game", yet it proved tangibly that the set of game principles designated by Roger Caillois are present in the given game. However universal is the categorical apparatus by Roger Caillois, yet it is timeless and actual for contemporary dimensions of digital games.

Conclusion

Irrespective of the reality the game is set in, it can be claimed one of the most actual subject of media studies, especially the theory of digital games. In view of its broad concerns, our study was focused on categorisation in principle, applying the principles by Roger Caillois in the dimension of digital games. That is to say, this French sociologist in the last century designated a categorical apparatus dividing games into four basic groups distinguished according to certain dominating rules they are founded on. These clusters were designated as follows: *Agon, Alea, Mimicry,* and *Ilinx/Vertigo*, and they are widely applicable in socio-cultural reality. It was the fact that the current digital dimension differs from day-to-day reality, most of all in the territory where the participants behave, which made us determined to embrace the subject of game variants.

Incalculable kinds of digital games existing and developing nowadays rapidly enrich the volume of game genres. In most cases it is the process of hybridization of two or more genre types, which result in a new one. From these the most frequent genre majority which games are founded on is "action game". The provably steady position of the "action game" genre was decisive for choosing the research material, i.e. digital game *Mafia III*, finding out if the game principles by Roger Caillois are present in its narrative structure. Drawing upon the findings of theoretical reflections being subsequently utilised for the purpose of qualitative content analysis, the categorical apparatus of game principles elaborated by Roger Caillois was recognisable and thus applies to the contemporary digital dimension. The most frequent game principles revealed in the given game belong to the variants *Agon* and *Mimicry*; on the other hand, the least in number was, due to its distinctiveness, the game principle *Alea*. The proposed study not only aimed at presenting the theoretical groundwork put under scrutiny so as the current state of the issue is exhaustively mapped, but the major intent was to verify applicability of the typology of game principles to the sociocultural reality and to the dimension of digital games; in particular, applicability to the "action game" genre. Regardless of that, the intended has been achieved, i.e. to render a thorough insight into the issue of game principles and apply the knowledge to the province of digital games, it is recommended by the author to carry out another similar case study through all other digital game genres.

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Real-Life Frustration from Virtual Worlds: The Motivational Potential of Frustration

Magdaléna Balážiková

Mgr. Magdaléna Balážiková, PhD.
University of Ss. Cyril and Methodius in Trnava
Faculty of Mass Media Communication
Námestie J. Herdu 2
917 01 Trnava
SLOVAK REPUBLIC
magdalena.kacaniova@ucm.sk

Magdaléna Balážiková focuses her academic interests mainly on the psychological aspects of marketing communication, consumer behaviour and digital games, especially related aspects of cognitive psychology. She is also fond of behavioural economics and neuromarketing as an application of findings and techniques from neuroscience into research on consumers. In 2014 she obtained her doctorate in Mass Media Studies at Constantine the Philosopher University in Nitra and now is a full-time lecturer at Faculty of Mass Media Communication, University of Ss. Cyril and Methodius in Trnava.

ABSTRACT:

The presented paper offers a short general introduction to frustration followed by a discourse on frustration as an integral part of gaming experience with the core distinction between positive in-game frustration and negative at-game frustration. The potential of frustration to increase motivation to play, emotional engagement and immersion is outlined. The paper includes comprehensive research using the means of a questionnaire (n=159) and content analysis (n=327) identifying types of frustrating situations in games, perceived sources of frustration, the behavioural impact of frustration and the relationship between locus of control and ascribed source of frustration. Results showed toxic behaviour as a leading cause of frustration. The most common declared behavioural output of frustration caused by the toxic behaviour of other players was quitting a game for a certain amount of time. Frustration showed the most motivational potential within the category of frustrating situations related to gamers e.g. being stuck in a part of the game, losing, not succeeding, etc. At-game frustration concerns mainly the category called the "game itself". Most often the game was blamed for insufficiencies in game mechanics or game design, malfunctioning and technical issues within the game. The presented research did not show a statistically significant association between the source of frustration and a participant's locus of control. The paper has potential in terms of game design and research of emotion, motivation or immersion.

KEY WORDS:

behaviour, digital games, frustration, locus of control, motivation.

Introduction

An emotional response evoked in a target group of recipients is a key element in any given communication effort. Emotions represent an integral part of our thoughts and information processing, at the same time they are crucial in decision making. They play an important role in (consumer) choice driving the performance of the market itself. Overall, individuals try to acquire a positive emotional state and when facing negative emotions they are looking for means to cope with them.[1] The interest in understanding emotional responses is driven by the fact that the creators of media content can never have complete certainty that they will elicit the right intended (affective) response in their target audience. Moreover, within the realms of media and marketing research for a particular recipient it is oftentimes fairly difficult to pronounce, express or even outline the experienced emotions since they don't have to be conscious, we can experience more than one emotion at a time or even contrasting emotions. In this text, the focus is placed on frustration within digital games. We have chosen frustration because it is gaining marginal attention compared to other emotional states such as joy, fear or anger even though it can have fairly serious consequences including effects on attitudes and evaluations, choices, decisions and behaviour. The objective of this paper is therefore to offer a basic overview of the term frustration followed by a discourse regarding frustrating situations in games and their implications for game design.

1 DUNN, L., HOEGG, J. A.: The Impact of Fear on Emotional Brand Attachment. In *Journal of Consumer Research*, 2014, Vol. 41, No. 1, p. 153.

Frustration is primarily a negative emotion that originates in situations where there is an obstruction in reaching a task or a goal,[2] or one is in an unpleasant situation without the possibility of escape,[3] or when the reward is lower than expected.[4] It can result in aggression, defiance, resignation, dissatisfaction, avoiding a product or abandoning it completely, complaints etc. According to S. J. Brams[5] the most common behavioural response to frustration is anger. For some authors, frustration alongside conflict, stress and deprivation belongs to what we can best translate as difficult or draining situations. These psychologists define frustration more narrowly as a psychological burden caused by the inability to fulfil a need.[6] Howbeit, M. Bratská[7] in the context of a blocked need talks about deprivation and not frustration. She defines frustration as factors (passive and active, internal and external) preventing the realization of an action or a goal within planned time or not at all. Despite her narrow understanding of frustration she also notes that boundaries between individual difficult situations are not precise and these types (hereby stress, frustration, deprivation and conflict) can overlap.[8] According to L. Berkowitz, "The term frustration refers either to a particular set of external circumstances preventing the satisfaction of a desire or to reactions to these circumstances. Laboratory-oriented investigators are especially apt to employ the former usage, whereas discussions based primarily on more naturalistic observations are more likely to speak o frustration as an emotional reaction".[9] For the purposes of the presented research we understand frustration in a wider context as a negative state that originates in goal obstruction, unmet needs or unpleasant situations in general.

When talking about frustration it is necessary to mention tolerance to frustration (or zone of tolerance to frustration) as an ability to endure frustration without serious (psychological) damage or inadequate reactions.[10] More generally, this tolerance includes the ability to cope with all sorts of difficult situations. Tolerance to frustration is individual and determined by a variety of variables: personality structure, motivation and level of aspiration, will power, self-control (self-regulation) and emotional control, learned reactions to difficult situations, handling coping techniques, life experiences (age), the state of the organism – fatigue/illness, etc.[11]

2 GILLEADE, K. M., DIX, A.: Using frustration in the design of adaptive videogames. In *Proceedings of the 2004 ACM SIGCHI International Conference on Advances in computer entertainment technology*. New York : ACM, 2004, p. 229. [online]. [2019-02-20]. Available at: <http://eprints.lancs.ac.uk/12452/1/p228-gilleade.pdf>.

3 BRAMS, S. J.: *Game Theory and the Humanities: Bridging Two Worlds*. Cambridge, Massachusetts, USA : The MIT Press, 2011, p. 156.

4 BATTIGALLI, P., DUFWENBERG, M., SMITH, A.: Frustration and anger in games. In *CESifo Working Paper Series*, 2015, Vol. 34, No. 5258, p. 2. [online]. [2019-02-20]. Available at: <https://ssrn.com/abstract=2591839>.

5 BRAMS, S. J.: *Game Theory and the Humanities: Bridging Two Worlds*. Cambridge, Massachusetts, USA : The MIT Press, 2011, p. 156.

6 ŠIŇANSKÁ, K., ŠANDLOVÁ, V.: Vyrovnávanie sa so stresom a záťažovými situáciami terénnymi sociálnymi pracovníkmi. In *GRANT Journal*, 2013, Vol. 2, No. 1, p. 41.

7 BRATSKÁ, M.: *Osobnosť v situáciách psychickej záťaže.* Bratislava : FF UK, 2002, p. 7. [online]. [2019-03-10]. Available at: <https://cdv.uniba.sk/fileadmin/cdv/U3V/studijne-materialy/Bratska_Osobnost_v_sit_psych_zataze.pdf>.

8 Ibidem, p. 8.

9 BERKOWITZ, L.: Frustration. In SANDER, D., SCHERER, K. (eds.): *Oxford Companion to Emotion and the Affective Sciences*. New York : Oxford University Press, 2009, p. 188.

10 For more information, see: KONDÁŠ, O.: *Klinická psychológia*. Martin : Osveta, 1977.

11 BRATSKÁ, M.: Osobnosť v situáciách psychickej záťaže. Bratislava : FF UK, 2002, p. 8. [online]. [2019-03-10]. Available at: <https://cdv.uniba.sk/fileadmin/cdv/U3V/studijne-materialy/Bratska_Osobnost_v_sit_psych_zataze.pdf>.

Frustration as an Inevitable Part of Gaming

Despite the fact that frustration is described as the opposite of engagement, it can be an essential part of the gaming experience.[12] One example of such a game may be *Limbo*[13], a puzzle – platform game with dark black and white graphics where death comes hard and fast and is a part of the game's gloomy aesthetics. Cox et al. note that in order to find playing pleasurable a challenge is needed and where there is a challenge there is a risk of losing and as we all know, loss is frustrating.[14] In general, people are not fond of monotonous environments, we experience a fundamental human need for variety. In this context we should mention the term "arousal" referring to the continuum of bodily reactivity or a very general understanding of it as activation (including brain activation, nervous system activation, endocrine system activation) governing alertness.[15] In psychology, arousal is linked to consciousness, information processing and attention, motivation and performance. Interestingly, humans tend to seek not their individual middle area of activation/arousal continuum but rather they incline towards higher activation.[16] Like stress, frustration can be positive or negative. M. K. Miller and R. L. Mandryk[17] distinguish between the positive type that they call "in-game frustration" and the negative type of so called "at game frustration".

In-game frustration acts as a motivational force, some authors also label it as „positive negative experiences".[18] This type of frustration motivates players to persevere in a game and overcome obstacles. To maintain this level of frustration, challenges in a game should be slightly beyond the player's abilities (too far beyond would lead to a feeling of negative frustration), a game should be well balanced, offer players some assistance (e.g. aim assist in first person shooter games, hint button in puzzle games, dynamic difficulty adjustments, etc.) According to M. Roest and S. C. J. Bakkes[19] positive frustration can be a result of: 1) hierarchical goals (losing a less important objective in order to get close to a more important one); 2) presenting goals from a different perspective e.g. repeated death

12 BOULTON, A. et al.: A Little Bit of Frustration Can Go a Long Way. In WINANDS, M., VAN DEN HERIK, H., KOSTERS, W. (eds): *Advances in Computer Games*. Cham : Springer, 2017, p. 188. [online]. [2019-02-20]. Available at: <https://link.springer.com/chapter/10.1007/978-3-319-71649-7_16>.

13 PLAYDEAD: *Limbo*. [digital game]. Copenhagen : Playdead, 2006.

14 See also: COX, A., CAIRNS, P., SHAH, P., CARROLL, M.: Not doing but thinking: the role of challenge in the gaming experience. In GRINTER, R., RODDEN, T., AOKI, P., CUTRELL, E., JEFFRIES, R., OLSON, G. (eds.): *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. New York : AMC, 2012, p. 79-88.

15 THAYER, R. E.: *The Biopsychology of Mood and Arousal*. New York : Oxford University Press, 1989, p. 46.

16 VEČEŘOVÁ-PROCHÁZKOVÁ, A., HONZÁK, R.: Stres, eustres a distres. In *Interní medicína pro praxi*, 2008, Vol. 10, No. 4, p. 189.

17 MILLER, M. K., MANDRYK, R. L.: Differentiating in-Game Frustration from at-Game Frustration using Touch Pressure. In HANCOCK, M., MARQUARDT, N. (eds.): *Proceedings of the 2016 ACM International Conference on Interactive Surfaces and Spaces*. New York : ACM, 2016, p. 225. [online]. [2019-02-20]. Available at: <http://hci.usask.ca/uploads/405-TouchFrustration.pdf>.

18 MONTOLA, M.: The Positive Negative Experience in Extreme Role-Playing. In *DiGRA Nordic '10: Proceedings of the 2010 International DiGRA Nordic Conference: Experiencing Games: Games, Play, and Players*. Stockholm : DiGRA, 2010, p. 1. [online]. [2019-02-20]. Available at: <http://www.digra.org/wp-content/uploads/digital-library/10343.56524.pdf>.; BROWN, A. M. L.: In Defense of the Fourteen-Inch Barbed Penis: Darkly Playing with Morals, Ethics, and Sexual Violence. In MORTENSEN, T. E., LINDEROTH, J., BROWN, A. M. L. (eds.): *The Dark Side of Game Play. Controversial Issues in Playful Environments*. New York, London : Routledge, 2015, p. 131.

19 ROEST, M., BAKKES, S. C. J.: Engaging Casual Games That Frustrate You: An Exploration on Understanding Engaging Frustrating Casual Games. In ZAGAL, J. P., MACCALLUM-STEWART, E., TOGELIUS, J. (eds.): *Proceedings of the 10th International Conference on the Foundations of Digital Games*. Pacific Grove : FDG, 2015, p. 3. [online]. [2019-02-20]. Available at: <https://pure.uva.nl/ws/files/2709607/168446_roest_bakkes_2015_1_.pdf>.

of a character framed as a part of training and not as a player's lack of ability; 3) *narrative frustration* – frustration purposely embedded in the narrative framework (e.g. in horror games or scarcity games); 4) *hold-outs* – a mixture of positive and negative frustration when a player is frustrated by the game but is holding out and waiting for a less frustrating or even pleasurable segment; 5) *near-misses* – the cases of a loss with motivating character. At-game frustration is the one game developers want to eliminate. It is the type of frustration that most probably will lead to quitting the game.[20] It originates in challenges that are beyond gamers' abilities, problems with game controls, difficult bosses, not balanced opponents in multiplayer games, bad game mechanics or user interfaces, lack of information or problems with the field of view. Negative frustration can also arise due to repetition (of a game segment, boss fight, info that can't be skipped).[21] There is no doubt frustration in digital games is under-researched. It can be an undesired side effect of gaming as well as a crucial part of the gaming experience. In this segment, some implications will be mentioned.

Frustration is oftentimes closely linked to the cognitive bias called Loss aversion meaning that a certain loss is more aversive (psychologically "painful") than the gain of the same value is attractive.[22] Fear of losing something (e.g. resources, time) can act as a primary motivation when playing games. For example, in the game called *DayZ*[23] even an originally negative aspect of permadeath does not dissuade gamers from playing it, but rather attracts them to the game. One possible explanation is that the elevation of arousal can be perceived as pleasurable despite the fact it was caused by a negative stimulus. Furthermore, according to the Excitation Transfer Effect arousal from one stimulus can be transferred to another stimulus and reinterpreted (either as pleasant or unpleasant). For example, an encounter with an enemy in a game that wants to kill me causes my arousal to increase because of fear, but when I manage to escape this enemy, this previously negative arousal can convert into a positive feeling of relief.[24] In this particular case, there is a related variable of perceived meaningfulness (of death in a game). The death of a character was perceived strictly negatively only when it was perceived as useless or avoidable (not caused by the gamer themself).[25]

Despite its negative effects, frustration can increase emotional engagement and immersion. Frustration and even loss cause gamers to think more about the gaming experience and analyze it leading to higher immersion. The feeling of competence raising from overcoming (frustrating) obstacles in games, by the way one of three key motivators described in *Self Determination Theory* (other two are autonomy and relatedness),[26] also contributes to player's engagement. M. Roest and S. C. J. Bakkes[27] point to the difference between wanting something and liking something and note that these two aspects use different neural circuits in our brains. Hence, players can be engaged in games they perceive as frustrating and might not even like because they simply want to achieve their goal.

Game developers should remember that tolerance to frustration can be built up.[28] A game shouldn't put gamers straight forward in the middle of frustrating situations but rather continually accommodate gamers to frustrating situation(s). Nowadays there are so called adaptive or affective videogames reacting to gamer's emotional states.[29] There exist games that count on frustration as a core element of game design. Pippin Barr or the game development studio Meshoff are authors of such games representing contemporary art and the so called Aesthetics of failure. These games represent a reaction to the "nice and smooth" aesthetics of mainstream digital culture; they seem to praise everything that is considered a bad design in contemporary game industry. They are low resolution, with amateur-like design and difficult controls or no control over the game at all, sometimes impossibly short or extremely long (e.g. *Durations*[30]). Sometimes such games count failures instead of wins or progress. Oftentimes there is no "game over" and the player is condemned to endless repetition (games that are "easy to play yet impossible to win")[31] The aesthetics of failure can be also used for the purposes of amusement rather than a form of artistic representation. This is the case of the game *Octodad: Dadliest Catch*[32] where one plays as an octopus in disguise trying to fulfil a dad's responsibilities and not to expose his true nature.

Research Characteristics

The focus of this paper is a general understanding of frustrating situations in games. Research problems concern mainly the identification of types of frustrating situations and their relation to the perceived source/reason of this frustration together with subsequent reactions to frustrating situations. From these research problems the following research questions were derived:

1. *Which situations in games are frustrating for gamers?*
2. *Which situations in games are the most frustrating for gamers?*
3. *What are the most frequent outcomes (responses) of frustrating situations in games?*
4. *In which cases could frustration have a motivational character?*
   Motivation is a mental process representing a power that moves and directs our behaviour. In includes conscious and unconscious factors predisposed towards certain actions or goals.[33]
5. *What are the most prevalent causes of at-game frustration?*
6. *Is there a statistically significant relationship between locus of control and ascribed source of frustration (me vs. others)?*

20 MILLER, M. K., MANDRYK, R. L.: Differentiating in-Game Frustration from at-Game Frustration using Touch Pressure. In HANCOCK, M., MARQUARDT, N. (eds.): *Proceedings of the 2016 ACM International Conference on Interactive Surfaces and Spaces*. New York : ACM, 2016, p. 225. [online]. [2019-02-20]. Available at: <http://hci.usask.ca/uploads/405-TouchFrustration.pdf>.

21 NYLUND, A., LANDFORS, O.: *Frustration and its effect on immersion in games: A developer viewpoint on the good and bad aspects of frustration*. [Master thesis]. Umeå : Umeå University, 2015, p. 19. [online]. [2019-02-20]. Available at: <http://urn.kb.se/resolve?urn=urn:nbn:se:umu:diva-104904>.

22 LEVITIN, D. J.: *Foundations of Cognitive Psychology: Core Readings*. London : The MIT Press, 2002, p. 608.

23 BOHEMIA INTERACTIVE: *DayZ*. [digital game]. Prague : Bohemia Interactive, 2018.

24 ALLISON, F., CARTER, M., GIBBS, M.: Good Frustrations: The Paradoxical Pleasure of Fearing Death in DayZ. In PLODERER, B., CARTER, M., GIBBS, M., SMITH, W., VETERE, F. (eds): *Proceedings of the Annual Meeting of the Australian Special Interest Group for Computer Human Interaction*. New York : ACM, 2015, p. 122.

25 Ibidem, p. 120.

26 RYAN, R. M., RIGBY, C. S., PRZYBYLSKI, A.: The Motivational Pull of Video Games: A Self-Determination Theory Approach. In *Motivation and Emotion*, 2006, Vol. 30, No. 4, p. 335.

27 ROEST, M., BAKKES, S. C. J.: Engaging Casual Games That Frustrate You: An Exploration on Understanding Engaging Frustrating Casual Games. In ZAGAL, J. P., MACCALLUM-STEWART, E., TOGELIUS, J.: *Proceedings of the 10th International Conference on the Foundations of Digital Games*. Pacific Grove : FDG, 2015, p. 1. [online]. [2019-02-20]. Available at: <https://pure.uva.nl/ws/files/2709607/168446_roest_bakkes_2015_1_.pdf>.

28 For more information, see: BRITT, S. H., JANUS, S. Q.: Criteria of frustration. In *Psychological Review*, 1940, Vol. 47, No. 5, p. 451-470.

29 GILLEADE, K. M., DIX, A.: Using frustration in the design of adaptive videogames. In *Proceedings of the 2004 ACM SIGCHI International Conference on Advances in computer entertainment technology*. New York : ACM, 2004, p. 228. [online]. [2019-02-20]. Available at: <http://eprints.lancs.ac.uk/12452/1/p228-gilleade.pdf>.

30 MARINA ABRAMOVIC INSTITUTE: *Durations*. [digital game]. [2019-02-20]. Available at: <http://www.pippinbarr.com/games/durations/>.

31 ANABLE, A.: *Playing with feelings: video games and affect*. Minneapolis, London : University of Minnesota Press, 2018, p. 111-129.

32 YOUNG HORSES: *Octodad: Dadliest Catch*. [digital game]. Chicago : Young horses, 2014.

33 NAKONEČNÝ, M.: *Lexikon psychologie*. Prague : Vodnář, 2013, p. 75.

Locus of control (LOC) is a concept from Social Learning Theory introduced by Julian B. Rotter that describes people on a continuum from internalists to externalists (internal/external LOC). LOC represents individual belief about the cause of personal life events: whether they are a result of one's own behaviour and abilities (internal LOC) or other factors such as chance, other people, luck, etc. (external LOC).[34] LOC has its implications in well-being, self-efficacy, organizational psychology, management, health psychology, research of religious beliefs.

In order to explore selected facets of gamer frustration a paper and pen questionnaire was distributed in person to 159 undergraduate students (130 men, average age 21 years) of the study program Theory of digital games, who provided a solid consistent sample of gamers playing various genres of games. At the very beginning of the research procedure participants were acquainted with the term frustration in order to provide relevant results, all of this with the best effort to avoid possible priming effects. The questionnaire included fourteen questions regarding gaming habits (number of days per week playing games at least for 30 minutes, number of hours per week spent playing games, type of gamer: casual, mid-core, hardcore), open questions regarding naming two frustrating situations accompanied by related questions about the source of the aforementioned frustrating situation (whether it was the gamer himself, game/developer or other players), game liking and overall impact of the frustrating situation (selection from the following statements: not playing game anymore, quitting and later returning, frustrating situation motivating gamer to continue playing the game and the last option concerning frustrating situation not particularly influencing gaming experience). The distributed questionnaire also included an own not standardized short version of the test for LOC consisting of eight statements (e.g. *"It is up to me to use my potential"*, *"My health is a result of conditions I live in"*) evaluated on a five-point scale. To compare, a standardized test created by Rotter in 1966 called The Internal – External Locus of Control Scale consists of 29 forced-choice items.[35] A priority was given to this short version of the LOC test because of the length of examination and the fact that it is pretty straightforward and uncomplicated to formulate general statements regarding either internal or external attribution of control. Half of the items in our version of the test referred to internal LOC, the other half referred to external LOC in random order. The last part of the questionnaire concerned the selection of the top 3 (out of ten) most frustrating situations while playing games. The collected data were processed in MS Excel and IBM SPSS using descriptive and inferential statistical procedures.

Results

Regarding days per week playing games for at least 30 minutes the average for presented research sample was five days with 21.3 hours of gameplay per week. Participants most often labelled themselves as mid-core gamers in 71% of cases (casual gamers = 16%, hardcore gamers = 13%). The American Medical Association considers a heavy gamer as a player exceeding 2 hours of playing per day.[36] Our research sample played on average 2.5 hours a day with 59% of participants exceeding 2 hours per day. As the first part of the analysis we conducted a quantitative content analysis of frustrating situations occurring while playing as listed by participants in two open-ended questions. The unit of the analysis was represented by an individual frustrating situation or gaming aspect as recalled by a research participant. Overall, 327 statements were analyzed and categorized into five main categories as can be seen in Table 1 with corresponding frequencies.

Table 1: Content analysis of frustrating situations in games listed by participants

Category	No. of units per category	Subcategory	No. of units per subcategory
gamer skills	**90**	not succeeding, making mistakes, not knowing how to proceed	32
		defeat/death	23
		having to repeat an activity or a part of the game	13
		lack of (own) skills	10
		near miss	4
game itself	**55**	critics of game mechanics or design	16
		malfunctioning, technical issues within the game	10
		annoying adverts, having to buy items, pay-to-win	5
		problems with controls	4
		unfulfilled expectations	4
		perceived unfairness of the game	4
		critics of developers	3
		bad graphics	2
		repetitiveness	2
		critics of storyline	1
other players/ community	**107**	toxic behaviour (cheating, breaking rules, trolling, flaming)	37
		weak/unprepared teammates	23
		lack of team cooperation, fighting	15
		disturbing (by others)	4
		child players	4
		unbalanced matchmaking/team	2
		language barrier	1
technical issues	**64**	problems with internet connection or servers, lagging, bugs, high ping, fps drop, insufficient gaming accessories	
Other	**10**	mother doesn't understand that one can't pause an online game	3
		remembering one's duties	3
		nothing frustrates me, it's just a game	1

Source: own processing

34 KOLARČIK, P.: *Dimenzie lokalizácie kontoly správania z hľadiska vybraných aspektov religiozity*. [online]. [2019-03-01]. Available at: <http://katpsych.truni.sk/konferencie/absolvent2006/kolarcik.htm>.
35 WANG, L., IV, M.: Internal-External Locus of Control Scale. In ZEIGLER-HILL, V., SHACKELFORD, T. (eds.): *Encyclopedia of Personality and Individual Differences*. Cham : Springer, 2017, p. 1. [online]. [2019-02-20]. Available at: <www.researchgate.net/publication/318789109_Internal-External_Locus_of_Control_>.
36 O'CONNOR, K.: *Control The Controller : Understanding And Resolving Video Game Addiction*. London : Free Association Books, 2014, p. 73.

As we can see, participants most often mentioned frustrating issues concerning the social aspects of gaming, with toxic behaviour as a leading cause of frustration. The second most robust category of sources of frustration concerns gamers own skills. Surprisingly, game characteristics caused only 17% of our gamers' frustration while this is the category developers have the most power to manage. Results suggest that game providers should not neglect measures reducing toxic behaviour in virtual worlds (e.g. chat modifications or tribunal systems). The most common declared behavioural output of frustration caused by toxic behaviour of other players was quitting a game for a certain amount of time and then returning to playing (after the strong emotions have faded away) in 61% of cases. Hereby in Table 2 we present a more detailed overview of declared behavioural implications of frustrating situations recalled by the research sample of gamers.

Frustration showed its motivational potential within the category of frustrating situations related to the gamer himself/herself: being stuck in a part of the game, losing, near miss, not succeeding, etc. This result illustrates the crucial part of gaming where overcoming one's limits makes games interesting. On the opposite side, the most frequent reason for abandoning a game title completely was a category of frustrations related to dissatisfaction with a particular game mainly in terms of disliking (parts of) game mechanics or game design and technical issues within the game. For the sake of game developers, the most commonly reported reaction to a frustration in games was quitting a game temporarily; the total loss of interest in a particular game was the least frequent solution to frustrating situations. At this point we need to remember that since in this research players listed frustrating situations as they wished they probably more often mentioned situations from games they are currently playing and not those they used to play, therefore the number for a total loss of interest in a game could in reality be higher. It is worth noting that within this research sample the outcome of frustration is not statistically significant based on gamer typology (casual, mid-core, hardcore), nonetheless we have to take into consideration the liking of the game (within which the frustrating situation occurred) measured on a scale: like very much – like – dislike – dislike very much. ($X^2(12)=52.257$, p=0.001.)

Table 2: Declared behavioural output of recalled frustrating situations

	result of frustration			
category of frustrating situation	stopped playing	quitted and returned	motivated to play further/ more	frustration didn't influence gaming experience
gamer	5	36	36	11
game	18	15	7	14
social	14	61	18	12
technical	8	30	6	14
other	0	3	5	2
∑	45	146	72	53

Source: own processing

Participants were also asked to select the top three frustrating situations while playing games out of the list of these commonly mentioned reasons: near miss, cheating by other players, bugs/glitches, flawed game mechanics, inability to pass level/mission/boss, failing communication, complicated or flawed controls, repetitiveness, lack of resources, and apparent better performance of other players. As the very most frustrating were listed cheating, near miss, and bugs and glitches and this ranking stayed the same when looking into the top 3 frustrating situations. To compare these results to a content analysis of self-reported frustrating situations in games (without any additional clues) cheating remained in its dominant position, near miss was mentioned only four times (when ranking the results its position would be even worse than 10th place) and bugs and glitches (that can be classified under the category of malfunctioning/technical issues within the game) in content analysis reached 8th position. The least often noted as frustrating were lack of resources, better performance of other players and complicated controls.

In this part we would like to look closer at the type of frustration called at-game frustration when gamers blame games themselves or game developers for the difficulties in games. While in-game frustration tends to motivate players to overcome obstacles and get better, at game frustration is not desired since it is the type that most probably leads to quitting the game.[37] In the paper by M. K. Miller and R. L. Mandryk[38] in-game and at-game frustration showed similar magnitudes, but in-game frustration led to higher enjoyment and more internal attributions. According to J. Juul[39] players who feel responsible for their failures tend to rate a game higher than players who believe they failed due to external factors. There is a statistically significant relation between the category of frustrating situations (gamer, game, other gamers/community, technological difficulties, other reasons) and ascribed source of frustration (me, game/developer, others): $X^2(12)=245.345$, p=0,001 (n=316). We filtered out from our content analysis only those cases when gamers blamed the game for frustrating situations (n=115, 35% of all collected frustrating situations). Mostly they belonged to the category called "game itself" where the gamer blamed 85.5% of all cases within this category on a game or developer. Most often the game was blamed for insufficiencies in game mechanics or game design, malfunctioning and technical issues within the game and annoying adverts/having to purchase an item or "pay-to-win". In 66% of frustrating situations gamers blamed the games in case of technical issues such as problems with internet connection or servers, lagging, bugs, high ping, fps drop. Interestingly, in 20% of cases in the category of gamer's own skills gamers also blamed the game. It is a point for a more ample discussion than we have a place for attributions, self serving bias (tendency to ascribe own failures to situational factors and successes to dispositional factors) and ego protection mechanisms. The least amount of at-game frustration (8.4%) was observed within the category of social aspects and it resides mostly in blaming games for the cheating and toxic behaviour of other players (respectively not taking measures to prevent cheating).

Within the questionnaire we also examined a participant's LOC and determined whether a participant is an internalist or externalist based on a total score from eight scaled statements (for example: *"I do not plan too far ahead because I never know what life will bring me"*; *"My health is in my own hands"*). It seems like an interesting implication

37 MILLER, M. K., MANDRYK, R. L.: Differentiating in-Game Frustration from at-Game Frustration using Touch Pressure. In HANCOCK, M., MARQUARDT, N. (eds.): *Proceedings of the 2016 ACM International Conference on Interactive Surfaces and Spaces*. New York : ACM, 2016, p. 225. [online]. [2019-02-20]. Available at: <http://hci.usask.ca/uploads/405-TouchFrustration.pdf>.

38 Ibidem.

39 JUUL, J.: Fear of failing? The many meanings of difficulty in video games. In WOLF, M. J. P., PERRON, B. (eds.): *The Video Game Theory Reader 2*. New York : Routledge, 2009. p. 237.

since the concept of personality trait LOC describes how the person justifies what happens to him/her. Internalists seek causes in their own dispositions and actions while externalists see external factors (other people, situation, transcendent instances) as an explanation. Moreover, LOC belongs to rather stable personality characteristics. We analyzed the described source of frustrating situations (me vs. others – game/developers/other players) and participant's LOC and found out that considering this research there isn't a statistically significant association between the source of frustration and a participant's LOC ($X^2(2)= 1.270$, p=0.530; n=315).

Conclusion

The presented results represent a preliminary research to future more robust research efforts with the purpose of outlining basic tendencies to a relatively unknown topic. The paper focused on types of frustrating situations in digital games and their relation to the perceived source/reason of this frustration together with subsequent reactions to frustrating situations and the motivational potential of frustration. The core part of the presented paper was a robust content analysis of frustrating situations (in the style of the top of mind awareness regarding frustration in games) generated by a sample of gamers. Social aspects showed to be the most frustrating with the toxic behaviour (especially cheating) of other players as the main reason of frustration across this research followed by frustration related to gamer' s skills (or gamer' s luck – depending on one's attributions). Despite the frustrating potential of toxic behaviour the most prevalent response to this type of frustration was quitting the game and later returning to it. Research points to the importance of paying attention to parts of the gaming experience that may seem secondary from the point of view of developers (for example compared to storyline, graphics etc.) but could be a great source of frustration. We looked more closely at the negative type of so called at-game frustration caused mainly by the game itself and by technical issues. At-game frustration was the least present within the category of "social" that was at the same time considered as the most frustrating of all observed categories. We believe that the detailed analysis described above will, despite its limits that we are well aware of (convenient unbalanced research sample, not using validated and attested Locus of Control test because of its length, not counting for individual variables influencing tolerance to frustration that require a more in-depth approach, statistical limitations), provide a solid starting point for game designers and future research that in relation to frustration offers various interesting incentives: e.g. relationship between frustration and willingness to play, frustration and engagement/immersion, frustration and death in game or frustration from marketing efforts incorporated into games.

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The Slovak Esport Association Was Born

Interview with Karol CAGÁŇ

Karol Cagáň
Slovak Esport Association
Ilkovičova 2961/3
841 04 Bratislava
SLOVAK REPUBLIC
karol.cagan@saes.sk

Karol Cagáň is president of the Slovak E-sport Association and currently also a partner at the event agency Yvents, which apart from many other events hosts by far the two biggest eSports events in Slovakia. As of November 2018 he was elected as president of the Slovak E-sports Association that he, together with his friends and partners, helped to establish. In his private life he is an outgoing person whom has a great passion for both psychology and worldly affairs.

Interviewer

Mgr. Nikola Kaňuková
University of Ss. Cyril and Methodius in Trnava
Faculty of Mass Media Communication
Námestie J. Herdu 2
917 01 Trnava
SLOVAK REPUBLIC
nikakanukova@gmail.com

Nikola Kaňuková is an internal PhD student of the Department of digital games at the Faculty of Mass Media Communication, University of Ss. Cyril and Methodius in Trnava. She professionally focuses on the issue of digital games implementation into the education of seniors. She is also interested in regional media, and has been acting as the editor of news and promotional content for Mestská televízia Trnava (Trnava City TV) for three years.

Nikola Kaňuková (N. K.): Last year the Slovak Esport Association (SAEŠ) was established and you were at the very beginning of it. Later you became President of the Association, so introduce a little how it all began.

Karol Cagáň: I began as a student of IT namely Networking at the Faculty of Informatics and Information Technologies in Bratislava and I was stationed at the dormitory called Mladosť and there was a student organisation Ynet which was in charge of the internet there. Basically, the students do the entire internet work so they have one of the fastest internet in Slovakia because they use the newest technologies. So I was hyped in and wanted to join. One day we had a meeting and some guy came out with the idea why not be organizers of a small tournament for the players and people who live in the dormitory. So a bunch of us gathered and we started to organize the events. Our first event was in the canteen in the dormitory and 60 players attended and maybe 10-15 spectators so it was a very small event and from then it got bigger and bigger and has not stopped. So we ended up organizing the biggest eSports tournament in the Slovak republic. After some time I met with Eduard Winkler who was the owner of the Dota2 team and also an entrepreneur in IT and the e-shop. I wanted him to become a partner of my events so I got into contact with him and once we were out he was talking about an idea to make eSports official and that was exactly what we were thinking about so we came around and started to create it. We reached out to the Slovak Olympic Committee. They were already familiar with the idea of creating an eSports federation in the Slovak republic. They had the status prepared and legal structure and we said: OK, let's team up with them and expand our team a bit. Then I invited another friend of mine, Ivan Trančík, who has a data analytics company selling data analytics to almost all major computer games studios around the world so he has a lot of contacts and he was gladly willing to help us. So we came together and we basically took the status and we formed the Association and filed the application to the International Esport Federation (IESF) where we became the first country from the V4 members of the IESF fully recognized which is for us personally a great pride as all other countries of V4 are still struggling to get their membership. So we are very happy to get through this process which was not easy. At the end of October 2018 we organized an assembly where we invited all the members and we had the first official and democratic election where I was confirmed as the president. We have still some open positions we are trying to recruit as much as possible and that is the story of how we began.

N. K.: It is half a year since then, so where is the SAEŠ now?

Karol Cagáň: We did not want to do anything by ourselves. We wanted to ask the Committee about our most important steps. So we have been talking about lot of things because eSport is a new thing. You do not know what the best thing you should do first is and obviously, the Association has very limited resources, financially very limited and of course, limited in time. We all have our jobs and responsibilities and a low amount of time we can dedicate to the Association so we need to find priorities. And the first thing we are going to do is a national representation or a national team that will fight and represent the Slovak republic at the IESF Worlds Championship, which we luckily have secured funds for because it is expensive. We need to fly all the way down to South Korea and it is not the cheap task to do. But luckily with the support of the Bratislava Self-Governing Region we have enough funds to make it. Right now we are waiting for the games to be announced and we are trying to find the most transparent way to form this team. We do not want to do a competition because we are afraid that not all of the best teams will participate in

the competition so we are thinking about how to do it so. This is quite difficult process. We have been talking with many event organizers, celebrities like streamers, players and nowadays it is not official so I cannot tell you more about players. This is the first priorities, the representation.

N. K.: What is the next thing?

Karol Cagáň: The second priority we want to do and it luckily costs no money, is education. We want to organize workshops and meetings for team and organizers as well. Teach them how to get the legal form, because if you want to have a legal team you need to have a legal form. You cannot do it like three of us gather and get to the tournament. That is maybe good for fun, but if you want to have sponsors, if you want to receive even the prize money officially you should have a legal form. People need consulting on how to do it, where to go for accountancy, what papers they need, how expensive it is and all this stuff which is honestly not that expensive and it is quite easy to do, but people do not have information, it is hardly accessible for them. And we want to get out to them, talk to them, explain them what, how and why the legal system works. So this is the education part and thirdly, and for me most important and the one I signed up for, is to build the grassroots of gaming community in Slovakia. This is mainly to encourage and support even the small events, small teams and everybody who wants to do something in this sport. We do provide equipment, computers, and cables, supervisors, marketing help and consulting to one or two organisers per month so it is for me the most important part. But this is the field we need more support in, it means financially or personally so it is very difficult to get there, but I hope we get it. We have a plan on how to do it.

N. K.: But is it legitimate to say eSport is sport?

Karol Cagáň: Well, it is very good question, the one we have been studying in recent years. And it turns out there are a few steps you need to do to become sport, so we as an Association and representatives of this sport, it is our task to take them. So, that is mainly what we are doing, what is our occupation, to make it a legal, officially recognized sport. So what do you need to do is at first to become a member of international organisation that is in charge of eSports and we have done so, so check. Second one is basically the one we can do nothing about. The International Esport Federation needs to become a member of an organisation called SportAccord. SportAccord is basically an international organisation that has a right to say what sport is and what is not. So these are the guys who are going to make a decision. So the IESF is in talks with them and we have no way to influence this process. But as far as I know it might happen this year. Might. I am very cautious about that. So it is hopefully the second check. And the third is to become a part of a national sports governing body which is an organisation in every country that says: OK, this is a sport and this is the representative body we are going to deal with. In January this year the law changed and this body became The Slovak Olympic Committee. They changed their name to Slovak Sports and Olympic Committee in order to accommodate all sports so even non-Olympic sports can become members. So once you are a member of the Slovak Olympic Sport Committee and your international federation is recognized by SportAccord, you are an official sport. So we have filed the request for application to the Slovak Sport and Olympic Committee and we came into the meeting and said: Here we are, the new age is coming. (laugh) But they were really helpful with providing us with total legal support and right now we are preparing the official application once again.

It is a big document but as far as we consulted with the lawyers of the Slovak Sport and Olympic Committee who I would like to thank by this for helping us, I would say it is very realistic to make it by the end of June which means we are almost a sport.

N. K.: How does the government support sports which are not Olympic sports? Is there any change in the financial support they offer?

Karol Cagáň: It is not much change in comparison with Olympic sports. The government financial support actually derives from three key criteria. One is the adult sport base which means basically how many adult sportsmen are members of the national federation which is why we want to encourage people to sign up for the federation. The second is the young sportsmen or sporting youth and how many of them we have in our federation. And the last criteria are the medals and scores and the ranks in the world rankings on World Championships. They basically do it by a very transparent process, they put all this criteria in one big form, and they put the all the other sports, except ice hockey and football, they have a special clause governing them, and they just divide money according to the outcome of the form.

N. K.: Have you already received any financial support from the government?

Karol Cagáň: The government does not yet support us. But we are working on it. There is also a donation scheme, even for non-credited sports. Even if we are not a sport we can get support from the government, but we do not have enough members or results yet to be relevant. So once we got there, we will be, so that is why the world championship is the first priority. But we have very strong support from the Self-Governing Region of Bratislava which does a great job in supporting eSports.

N. K.: You are saying the World Championship is the first priority. But do you think that the Slovak players can be good competition for others?

Karol Cagáň: How I see it, is the same as I saw it in kayakers. When we split as Czechoslovakia they were really quick and they were one of the first who established a national association. They were at the start, still we had gold medals coming from Olympics. That is the case I am trying to make here. If we get ourselves up and running soon enough and we secure the environment soon enough and start to work soon enough we have a good way ahead so we can be at the top and others will be just struggling to catch up. The great example of this was Saudi Arabia that joined this year but they had funding already because they are recognized in Saudi Arabia and now they have the Tekken7 world champion. They had a player who was lower down in the world ranks competing with a player who was in the top ten at the finale. And in part because the Saudi Arabian got a coach who was working on him and preparing him which is not that expensive thing, he won. He is the world champion. So that is for me a good example of if we really do start to work and people do start listening to us and do give us a little bit of money which is needed right now we can get to the top. The point is, if you really want to set up a pro basketball team, it is extremely expensive but eSports right now is at the beginning so for a very low amount of money you can get a lot of music, right?

N. K.: What games can Slovaks be competitive in?

Karol Cagáň: I guess that culturally speaking and as history goes I believe Counter Strike is our strongest game as even in the world's charts. We have our representation, we have GuardiaN who tops the world charts every year for very long time. So he is a steady performer and we have also a couple of other players going in his footsteps like Styko or Frozen who are extremely good performers and who I believe have the power to represent Slovakia in its best name. And traditionally Counter Strike is more a European title so it is more popular in Europe and the MOBA games like DOTA or League of Legends dominate in the Asian market. So it is basically, I do not know why, it is a cultural thing maybe, so geographically speaking or regionally speaking this is where I see the biggest opportunity. But who knows, sport is a sport, you never know.

N. K.: Have already any players expressed a desire to be a member of your Association?

Karol Cagáň: From the beginning people had doubts: What is this? Who is behind it? But luckily right now, the official organisers who host tournaments and do have legal form, are by a large margin members of the Slovak Esports Association. Now even almost all teams that have legal form are members as well. We firstly aimed at teams and at organizers and now we are aiming at the public. Every decision can be viewed online because the law obliged us to publish everything we decide, because it is basically a public organisation, so it is public money, which means money of all of us. Even though we as founding members pay most of the budget now but still it is public money. So we just need to build trust and our reputation and I believe that our first world championship will help us with that and once we prove to everybody that we can set up a strong team, maybe bring home a medal, then I believe that public support will come. I believe once they see us, who we are, they will join.

N. K.: Regularly, you organize the biggest tournament in Slovakia Y-Games, but do you want to reach any other part of Slovakia?

Karol Cagáň: We have very good representation around Slovakia. It is actually one of the criteria to be admitted as a international federation that you have to cover two thirds of your country with your events. We have the Koalan group, which hosts tournaments in Žilina and in Liptovský Mikuláš and then we also have the AKNOR agency, which has Esport Slávia Martin team hosted tournaments in Martin. And we are also in talks with the Paragon tournament which is located in the east, but they do not have a legal form yet. We are trying to find a way to bring them on board. And if there is someone else doing tournaments, feel free to come to us and we will do everything in our power to help them continue doing their work.

N. K.: Karol, you are a very young guy and you have plenty of experience already. How did you get where you are now?

Karol Cagáň: I am 24 years old and hopefully I am at the end of finishing university to become a Master of Arts. And I just said: OK let's do it! Really nothing special. There are always opportunities and there are people who are just looking for them I am the kind of person who likes challenges and when I saw e.g. the IESF application, it really gave me nightmares, because there were over 40 amendments you have to put in. It is huge amount of paperwork to be done and it is not just printing and signing papers. But once you know there is a clear way you can set yourself steps and climb up. And I have a huge, really huge amount of people who are helping me, giving advice, so basically I had luck with good people around me.

QUBE 2: OBJECTIVE CLARITY

TOXIC GAMES: *Q.U.B.E 2 (Xbox One version)*. [digital game]. Preston Park House : Trapped Nerve Games, 2018.

Peter C Britton

This review article will explore the application of Objective Clarity in the first-person puzzle game Q.U.B.E 2. Objective Clarity will be defined as the effectiveness of communicating the game designers' intended goal for the player. Toxic Games summarizes their game as follows: "In Q.U.B.E. 2, players step into the shoes of Amelia Cross, a British archaeologist, who has awoken on a strange alien planet. With the help of fellow survivor, Emma, players must face the challenging puzzles of the Q.U.B.E. in order to try and find a way back home". Q.U.B.E 2 is a first-person perspective puzzle game. The player's main objective is to navigate through confined geometric spaces to solve contrived puzzles in order to reach the main objective. The main objective is either a switch or an entrance to a new section. As the player progresses through the game, more levels of interactivity and abilities are unlocked which directly increases the puzzle complexity. The game enables the player with five core abilities: jumping, interacting, creating blue square; creating green squares and creating magenta squares. Jumping is limited to the height of an in-game cube. Interacting allows the player to interact with elements either remotely or within arm's reach. Blue squares push game entities in a specific direction with high initial velocity. Green squares generate a single instance of a cube. Magenta squares extrude the surface of the base square block to create a platform.

First person perspective games allow for players to navigate virtual 3D space from the first-person perspective, and relies on a combination of two core control mechanics. The left analog of the controller is used for movement on the X and Z axis, and the right analog of the controller for rotation along the X and Y axis for freelook. This makes up the basics for most first-person perspective games. The player is tasked to manage these two controlling mechanisms. Mastering these mechanisms are needed for successful 3D space navigation. To add a greater level of aiming precision, most first-person games rely on a reticle at the center of the screen for aiming. This perspective choice comes with a certain level of disorientation. For players new to this game type it, can be more disorienting. With Q.U.B.E 2 being a first-person game that is solely hosted within a confined geometric space, disorientation can become more problematic. The concept of Objective Clarity is demonstrated within the game; the designer's intention are effective at communicating with the player. Q.U.B.E 2 utilizes light, rectangular shapes, symbols, color and cables for Objective Clarity throughout the game. Many of these techniques are layered to enable stronger world building and overall design aesthetics.

Controlled light placement gives the player direction and enhances spatial awareness, as the light serves as an anchor point. Light used as an anchor point, allows the player to move relative to the light's location. This application of light serves as a landmark to which the player can rely on for better awareness of their placement in the world. Picture 1 shows an application in which light is used to guide the player forward. The scene relies on the opening of the space with god rays to direct the player forward. The light is also being used as a focal point to which the player is drawn as an escape from the confined space. The use of light in both instances, relies on strong contrast to draw the player towards a specific direction without the need for explicit instructions.

Picture 1: Light as the guide of the player
Source: author's screenshots

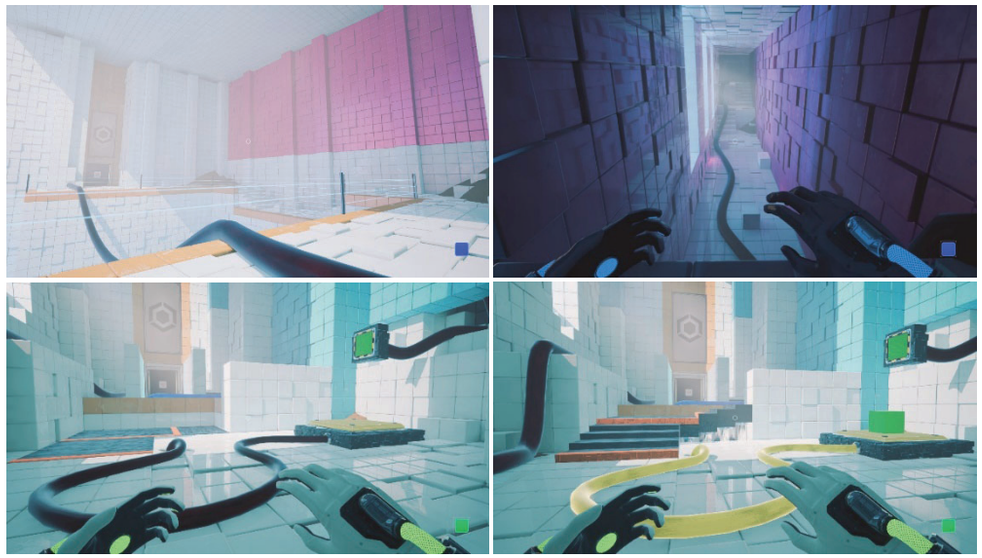
The use of a horizontal rectangular light that is partially visibly shown in Picture 2, aids in directing the player. The portion of the light that is occluded by the wall gives the player a strong suggestion of continuation. This technique relies heavily on implication and works similarly to the function of a directional arrow, while maintaining the aesthetics of the game. The player's inability to see the entire shape subtly informs them, that there is more to see; the player then move towards and then along the rectangular lights. Another application urges the player forward and up the stairs. The vertical lights are placed in a natural ascending order that not only matches the flow of the level, but allows for implied instructions to the player. In this level composition, the lines are not occluded by any assets, but they are placed to amplify the perspective. The perspective conveys the illusion of a forward pointing arrow.

Picture 2: Horizontal and vertical use of lights aiding in directing the player
Source: author's screenshots

The placement and contrast of light source can also create a hard-focal point (see Picture 3). In this example, the red lights aid in directing the player's attention. The contrasting white vertical light source creates an artificial visual constraint. This method frames the scene despite the player's ability to freely look.Combining multiple techniques to achieve Objective Clarity, can create not only clear non-verbal instructions to the player, but aids in connecting spaces in the world. It also gives the player strong spatial awareness. Light, color, and lines are used to communicate direction, and spatial interest (see Picture 4). The cable creates a connection to the different spaces in addition to indicating the player's progress. When the player completes a designated area, the cable changes from black, to an energized color. The magenta color on the back wall to the right

separates the space, and strengthens the player's placement in the world. The cable is also used to communicate direction and show relationships between pressure pads, and the devices that are affected in the game.

Picture 3: Lights as hard-focal points aiding in directing the player's attention
Source: author's screenshot

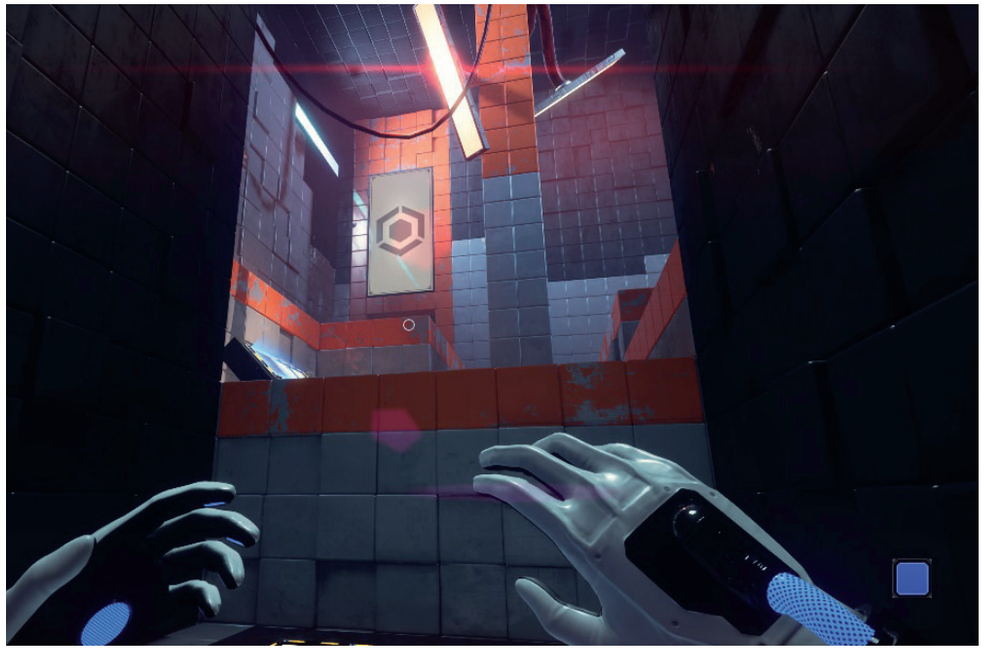


Picture 4: Multiple techniques to give the player strong spatial awareness
Source: author's screenshots

The final technique used is symbolism. This is a more explicit application that utilizes icons that are both game specific, and culturally familiar. For example, the square frame and cube symbols are used to communicate one of two messages: a lit square frame communicates the area is accessible, an unlit square communicates inaccessibility (see Picture 5).

Picture 5: Lights as symbols communicating messages
Source: author's screenshots

A reoccuring cube symbol communicates to the player the end goal of a section, and also a beacon of forward progression (Picture 6). The use of this symbol can be found in all puzzle segments. It indicates to the player where to go at the start of every puzzle room.



Picture 6: Lights as symbols communicating the end goal of a section
Source: author's screenshot

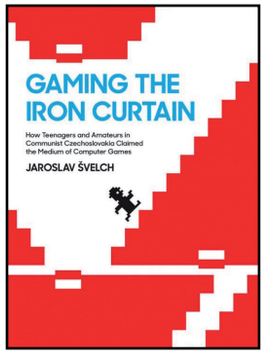
The use of common symbols, such as fire and target symbols, are also used to communicate game mechanics (see Picture 7). These symbols are never explained, but rely on pre-existing knowledge outside of the game world. For player's that are not acquainted with these symbols, the Objective Clarity would be lost, leading to player confusion. The game assumes acquaintance with these symbols, and for most players these symbols would be intuitive.

Picture 7: Lights as symbols communicating game mechanics
Source: author's screenshot

Q.U.B.E 2 excels at applying design fundamentals that aid in creating Objective Clarity, for the player. At each junction within the game, Objective Clarity is maintained, and relies on layering a variety of techniques to excel in this area. The player is guided through each experience without undermining the core puzzle mechanic. Q.U.B.E 2 is a very strong template for Objective Clarity in level designs for games.

Author of the review

Peter C Britton, MFA
Missouri Western State University
Department of Art
4525 Downs Drive, St. Joseph
645 07 Missouri
UNITED STATES OF AMERICA
pbritton@missouriwestern.edu



GAMING THE IRON CURTAIN. HOW TEENAGERS AND AMATEURS IN COMMUNIST CZECHOSLOVAKIA CLAIMED THE MEDIUM OF COMPUTER GAMES

ŠVELCH, J.: *Gaming the Iron Curtain. How Teenagers and Amateurs in Communist Czechoslovakia Claimed the Medium of Computer Games*. Cambridge, London : The MIT Press, 2018. 400 p. ISBN 978-0-262-03884-3.

Silvester Buček

Gaming the Iron Curtain resonates in the era of postcolonial perspectives on culture histories. Even though the book does not mention it explicitly, the insight into the tactics of the first Czechoslovak players (and everything surrounding them) is in many ways exemplary work with the potential to shake the hegemonic view of the history of digital games. Studies such as the Ultimate History of Video Games[1] or Replay: The History of Video Games[2] try to shed some light on several of the important events in less dominant game markets, but their examples are more anecdotal, and they can hardly tell the whole story to readers not familiar with the contexts of the given markets. The late twentieth century was marked by many ideological divisions resulting in several different political, economical and cultural patterns for large groups of people around the globe. Naturally, the biggest differences appeared in the things that did not exist (or had virtually no cultural resonance) before the Cold War. One of those things was computers and everything that came with them, including digital games. Gaming the Iron Curtain maps the story of games in the Czechoslovak Socialist Republic in the broadest possible context, starting with the "setting" (computer technology in the country) and ending with the analysis of many games created by the local amateur scene.

The author, Jaroslav Švelch, is a game scientist born in Czechoslovakia who has been working on this topic for over ten years, having done more than thirty interviews and gone through most of the available documents including magazines, fanzines, books, statistics and other relevant sources. But as the author himself mentions, his inspiration lies in A. Keer's call for "social and cultural histories of games",[3] so the book is merely a collection of facts. Gaming the Iron Curtain tells a story of a small (even niche, as the author sometimes calls it) section of people's everyday life. It shows that their experience with digital games was very different from the experience we usually read about in global game studies discourse. The difference is based on the very setting of the socialist country. The economy was more closed than open, five years plans were not able to fulfil many basic needs, and the idea of owning software was strongly lacking behind the British, American or Japanese markets.

However, socialist Czechoslovakia was not in total isolation, and goods were being moved through the borders (more in than out, of course). Also, institutions such as the army or technical universities used the first computers early, so people knew about the technology, and everyone who was willing to go through some discomfort could get their

1 For more information, see: KENT, S. L.: *The ultimate history of video games: from Pong to Pokémon and beyond: the story behind the craze that touched our lives and changed the world*. Roseville : Prima Pub, 2001.
2 See also: DONOVAN, T.: *Replay: The history of video games*. Lewes : Yellow Ant, 2010.
3 KEER, A: *The Business and Culture of Digital Games: Gamework/Gameplay*. London : Sage Publications, 2006, p. 1.

hands on computers and digital games and even own some. The different and complicated environment required adapting different (and often complicated) tactics by Czechoslovak citizens. One of the best illustrations of the need to explore locally via social and cultural perspectives is the story of the people waiting in a queue the night before the shipping of Didactic Gama (a local ZX Spectrum clone) to an electronics store. The phenomenon was well known from capitalist countries where people usually waited to have the newest product first. But in socialist Czechoslovakia, waiting in queues was not the matter of being first, it often was the matter of having even a chance to buy things, as there was a great lack of computer products. These seemingly similar tactics have very different cultural and economical roots. Similarly, other tactics can sometimes look alike, and the book goes deep to explore why they were adapted.

For example, it is obvious that digital games were played in Czechoslovakia, but since most of the copies of Western and Japanese games were pirated versions copied many times, the way Czechoslovaks played was much more exploratory, since they did not have the manuals and other physical materials usually coming with games. Švelch identifies these tactics through the concepts of "Vnye", "Bricolage" and "Coding acts". The first concept proposed by A. Yurchak[4] is a way of being in and out the totalitarian regime at the same time. Activities of Czechoslovak players fit this concept very well, as they were concentrating mostly in state-controlled clubs or institutions, but the conservative regime of normalisation (the period of Czechoslovak history after the Prague Spring) did not understand this novelty and all the consequences that came with it. This situation meant that Czechoslovakia was probably one of the first countries in which political (and strongly antiregime) games appeared.

The second concept "Bricolage"[5] is also characteristic for many countries facing limited imports. To say it simply, Bricolage is engineering with limited resources. This resulted in many self-made hardware and software solutions. Consequently, it meant that Czechoslovak players were much craftier than their Western or Japanese counterparts. Lastly, as mentioned before, "Coding acts" were the results of games being cracked, hacked or reprogrammed from scratch. Gaming the Iron Curtain follows many of these games, but games themselves are only a vehicle to tell a compelling story about life in one peripheral socialist country. There is little to reproach, the text is easy to read, and the reader will not get lost in an overloading of resources (bibliography and ludography stretches through more than 30 pages). At some moments, mostly in the early part of the book, the author sometimes could have given more insight (or sources) to the context, as foreign readers might not be so familiar with all the nuances of socialist Czechoslovakia. But for the most part, this is not a big deal, as most necessary contextual information is provided. On the other hand, what a reader may miss in the ludography, are the countries of origin of the mentioned games. This detail makes it harder for further researchers to quickly identify where the game was created. Otherwise, the appendix part of the book is full of useful lists including a timetable of important dates and a glossary.

Gaming the Iron Curtain is a necessity for every game historian, and also for historians of technology and pop culture, as it brings a new local perspective of a formerly colonized state to the well-known (and many times repeated) discourse.

4 YURCHAK, A.: *Everything was forever, until it was no more: the last Soviet generation*. Princeton : Princeton University Press, 2006, p. 141.
5 LÉVI-STRAUSS, C.: *The savage mind*. London : Weidenfeld and Nicolson, 1962, p. 17.

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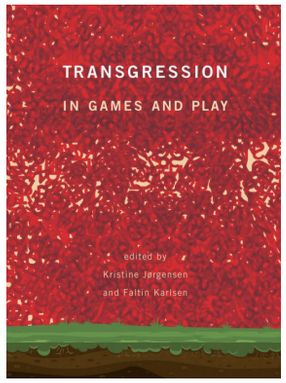
Author of the review

Mgr. et Bc. Silvester Buček
Masaryk University in Brno
Faculty of Arts
Arna Nováka 1/1
602 00 Brno
CZECH REPUBLIC
sboochek@gmail.com



TRANSGRESSION IN GAMES AND PLAY

JORGENSEN, K., KARLSEN, F.: *Transgression in Games and Play*. Cambridge : The MIT Press, 2018. 318 p. ISBN 978-0-262-03865-2.

Michal Smrkal

The word "toxic", or rather "toxicity" is nowadays often used, especially in connection with games and gaming communities. League of Legends, World of Warcraft, or Rust, are just a few of many examples that even a less experienced player can name. As games emerge as the new champion of a new perspective for both entertainment and storytelling, another, much darker side becomes more visible. But, what does it actually mean to be toxic? This volume, Transgression in games and play, tries not only to answer this particular question, but rather create new ones along with a set of several possible directions where answers can be found. The book was written as part of the Games and Transgressive Aesthetics research project in the Department of Information Science and Media Studies at the University of Bergen, and was financed by the Research Council of Norway. As such, its perspective is broad and ranges from discourses in sociology, philosophy, to cases directly rooted in media and game studies. This is certainly not a limiting approach.

The topic of transgression is split into five parts – concepts, practices, emotions, content and society. Each of these parts contains several contributions to this topic from various angles. Specific contributions offer case studies of transgressiveplay, how gameplay practices can be at once playful and violate social etiquette at the same time; investigate players' emotional responses to game content; or simply examine the aesthetics of transgression in gameplay. The context of societal gameplay is emphasized very heavily, as it is beyond any doubt one of the most important aspects of modern game design. Yet, the actual and personal player experience is not forgotten. The book offers several cases of the contextual understanding of content and practises usually framed as simply problematic. Each of these contributions presents a case, that the games themselves are boundary-crossing, which means that to consider them as only "play" or "fun" can be hazardous. Games, as any other form of art, can include transgressive or upsetting content, the most visible being excessive violence and nudity, actions still experienced as socially and personally taboo.

What can be seen as positive is the overall agreement that the games and game makers themselves are often not directly responsible for solving these ethical and aesthetic conundrums. As other types of art makers, they are even somewhat expected to be, at least, partially transgressive. Yet there is also a certain level of expectation to provide boundaries within them. Even if the transgressions demand the lack of any of these boundaries. This is the paradox, one of many, presented inside the book. What is to consider, is that this norm-breaking can have a positive influence on the player. A victim of griefing (a concentrated effort to sabotage the gameplay experience of other players) can decide to behave in a different manner and become a helpful member of the community. On the other hand, he can embrace this type of behaviour and align his gameplay goals with those of his griefer or ganker (player who intentionally kills other players, who are in a disadvantageous position, i.e. engaged in a fight with an NPC). Which one will prevail? This is where the developer could, or maybe should, step into the play (pun intended). To set at least basic boundaries for such behaviour and encourage the player to "take the high road", can be more beneficial for the game system in the long run, than the easier road of imminent transgressive behaviour.

Yet, it is not as easy as it may look. The transgressive experience in games is much more than that. It is not only influenced by the choices allowed by the game systems, but more often inside the human experience which is brought by the player from outside. How can a game developer influence that? For this, each of the 15 contributions offers a personal, special look at this problem. The result? By its nature, the transgression in its artistic, or even if you like, its business, form is polarising. As these aspects can and certainly will scare away players, distributors and even developers themselves, there are others which will happily engage in this type of activity. Transgression can be a seductive marketing tool in an oversaturated market.

One of the most important approaches to this problem lies in the basic understanding of what transgressions are. Transgressions act as an expanding barrier, a paradox of repulsion and attraction. The overstepping of boundaries becomes a chore and a relaxing enjoyment at the same time. It often starts to exist, brought by the players themselves from the outside world, where the mundane experience begs acting, not thinking, about the consequences. The choice appears to be nesting inside the rules sets and game mechanics, yet the expanding fractal of the transgression itself is always centred around the player himself. And this is probably the most important part of the whole project. The personal experience brought into the book by each of its contributors, not only as scientists and academics, but also as players, the followers and breakers of norms, transgressors themselves, frightened and amazed at this artistic experience acting as a mirror. Are the other players any different?

There are no final answers in the book, and this is what makes it interesting and a worthwhile read. The shared experience makes it more approachable, to think and to talk about the experience inside the game systems and how it changes us. Or is it the other way around? If there is any final thought of this book, it is most probably this – Am I playing the game, or is the game playing me? And the answer? Yet to be found.

Author of the review

Mgr. Michal Smrkal
University of Ss. Cyril and Methodius in Trnava
Faculty of Mass Media Communication
Námestie J. Herdu 2
917 01 Trnava
SLOVAK REPUBLIC
michal.smrkal@ucm.sk

Slovak Arts Council: Grants to Support Digital Games Creation

Maroš Brojo

The gaming industry represents a significant driver of advanced economies. Slovakia does not want to lag behind in this respect. There are some possibilities of how to support the development of digital games. One of them is also offered by the Slovak Arts Council, which subsidizes the creation of digital games and helps to start business activities by using the creative and artistic potential of game designers. The Slovak Arts Council is a self-governing public institution guaranteeing support of art activities, culture and creative industry. The Council replaced a substantial part of the former grant system of the Ministry of Culture of the Slovak Republic and is independent of the central bodies of state administration. Its main mission is the support of "live" arts and culture with a special focus on diversity. The Council provides grants especially for the creation, production, distribution and presentation of works of art; support of international cooperation; educational programs in the fields of art, culture and creative industry; grants for individuals who contribute to the development of arts and culture in a creative way or by research.

Support for the creation of gaming and non-gaming multimedia works in the Slovak Arts Council was first launched in 2017. In 2018, under the previous call, the Council supported 25 of 47 applicants. Nowadays, the third call of the sub-program is in progress. Digital game developers can apply for non-repayable subsidies at various stages of digital game creation. The total amount of the subsidy set for all projects is 350,000 EUR in 2019.

The Slovak Arts Council supports the creation of digital games in three different phases that follow each other seamlessly, with a one-year deadline set for each phase. Overall, at the stage of development and production, the Council can finance a part of the costs of up to a maximum of 95% of the total project budget. The remaining minimum 5% corresponds to the amount of mandatory co-financing that the applicant must provide from other sources. Individual phases refer to creative scholarships, vertical slice development and final beta version production.[1]

In 2017, the Slovak videogame community welcomed the De Minimis grant aid as a positive step, allowing individuals and smaller studios to create digital games without the need for complete funding from their own resources. However, the grant scheme budget is not suitable for larger digital game studios. They cannot, from a sum of 100,000 EUR, which represents the maximum subsidy per entity, cover a sufficiently large part of their costs. However, the Slovak Arts Council is not focused on them in its major targeting. It supports games with an emphasis on artistic value, educational aspects or innovation, limiting thus its scope in this way. Thanks to this setting, the Council prefers projects with a certain added value, thus influencing the improvement of digital games quality created in Slovakia. The support is not sufficient for all though. The Council's representatives also evaluate the creation of a multimedia support sub-program positively. This can be seen from the budget increase in 2018. The sub-program enjoys great interest – nearly 100 projects have applied for funding in 2 years of its existence.

1 For more information, see: www.fpu.sk.

Event Horizon and LARPs in Slovakia 2019

Lukáš "Elf" Reviľák

Event Horizon, o.z. is a residents' association focusing on development, support and education in the field of cultural, social and educational events. It not only organizes LARP by itself, but also helps other organizers and educates a new generation of LARP organizers. Their art and scientific-research activities include, for example, the professional conference Slovak LARP Talks (Slovenské hovory LARPové), intended not only for organizers of LARP and other role-playing games, but also focused on an exchange of experiences and a diverse professional discussion, social games in cooperation with Connect Coworking and Dungeon Pub, discussions with writers, creative lectures and workshops, how participants can cheaply prepare everything necessary (not only) for their LARP. In 2019, besides Event Horizon, other groups are also organizing as well as participating in several LARPs throughout the whole of Slovakia.[1]

At the beginning of April, the fourth part of the *Prešov Watch* (Prešporské hladky) will take place. LARP is situated within the world of books series by Russian writer Sergei Lukyanenko (Night Watch, Day Watch etc.). Despite the continual storyline, LARP is suitable for everyone without need for any special training, besides creating their own character. The same month, *VIC Stolen Lives*, by main organizer Ján "RG" Strašifták, from the World of Darkness world will also be held, this time in the shadows of Bratislava. In this international LARP, fans of vampires can join one of the vampire clans.

May is particularly suitable for fans of post-apocalyptic themes. From May 9-12, a post-apocalyptic LARP will take place in the village of Mníchova Lehota near Trenčín, that, however, requires thorough preparation according to the instructions of the organizers Ragnar and Lokern. At the same time (May 11), Event Horizon will bring a fantasy battle game *The Border* (Hranica) from the world of the *Kingdom of Wine* (Kráľovstvo vína).

On the first two days of June, you can LARP-hike inspired by the world of J. R. R. Tolkien, the *March of Rangers through the Mountains of the Wind* (Pochod hraničiarov Veternými vrchmi), that will be held for the seventh time. The organizer Bibi Zeliková will once again lead the participants through the beautiful countryside around Trenčín, who will certainly enjoy exciting battles in the Middle-earth. June 21-23 will be promising for superheroes and supervillains, who will measure their powers in Nová Dubnica within the urban LARP *Oakfell City: New Era* by Sára and Michal Fúsik. The core of LARP will not be fights, but the game itself and surviving the conflicts

July 15-22 is planned for the thirtieth year of the *DobrofantH*, taking place in Krásnohorská Dlhá Lúka, where at least one game is hidden every year. This year, the main game, *The Great FantH* directed by Lukáš "Geroja" Levický, will introduce to participants the world of Game of Thrones. The end of July (July 25-28) is reserved for the largest LARP in Slovakia, *Kingdom of Wine* by Event Horizon. It is a humorous game in the style of Terry Pratchett. Traditionally, it takes place in the forests a short distance from the Červený kameň Castle. Kingdom of Wine welcomes many newcomers among players each year, so no LARP experience is required. With the arrival of autumn, the residents' association PanzerHaus will realize *Project Exodus*, a one-day post-apocalyptic survival LARP that will

1 Remark by the author: More information and a calendar of events are available at www.larpy.sk.

take place in the vicinity of the preserved military observatory in Bratislava Rača. The main motive will be to compete with players for limited resources and food. Participants will experience hunger, winter as well as "primitive conditions" and constant reconsiderations of their survival chances. LARP from another area will be *Mars 2037* by E&H Games, which will take participants to a base on Mars and introduce them to life there. *Mars 2037: The First Run*, from 2017, took place in the Botanical Garden of Košice, and the story was full of secrets, mysteries, and intrigues.

Trnava Game Guild

Michal Kabát

The Trnava gaming community is growing. The regional town of Trnava, which is close to the capital of Slovakia, has been providing good conditions for young creative people in recent years. Students maybe go to vote at their residence, but they live, study, and even more often work in Trnava. Their opportunities are going to be developed also by a new non-profit organization, which responds to the growing amount of young people interested in digital games. The *Trnava Game Guild* is thus reacting to the impulse of the Faculty of Mass Media Communication, University of Ss. Cyril and Methodius, where the first students of the complete 5-year study program Theory of digital games will be finishing next year.

Regarding Slovakia, some organized game development communities exist mainly in Bratislava or Košice, and there are only a few game studios, which can employ new people. Apart from them, there are indie developers and freelancers, and many of them are also in Trnava. They are the primary target of the Trnava Game Guild that would like to offer them a space for mutual communication and cooperation to support creating and financing of common projects. At present, the Trnava Game Guild is looking for financial sources and a suitable residence, but its members have been already working on various projects. Besides game development, they organize game jams, festivals and game-related events, through which they are trying to strengthen the local community as well as promote the idea that digital games are a valuable part of our culture and a vital segment of the economy, progressing in time, when many others stagnate or disappear.

The main goal of this effort is to spread awareness about job opportunities within this field, in various positions from digital game design, trade and consumption, and other related opportunities related to the area of culture and sport. The next step should be the expansion of gaming education to secondary and basic schools. Primarily, this will be done in cooperation with the Hemisféra association offering courses *Gamecraft* (for children aged 8-12, it has already been offered in Trnava and Bratislava for 4 years) and *LevelUp* (for older students, starting in Trnava this autumn). According to our current experience, young people are not only interested in gaming, but also in the creation of games, and with even greater passion than their older colleagues.

In addition to courses, the Trnava Game Guild will assist its members in grant application processes and provide opportunities for investors' support through planned acceleration and incubator programs. It wants to be helpful also during the promotion of its members' creation and activities at domestic and foreign events. The official opening of the Trnava Game Guild is planned at the beginning of June at the Game Days 2019 festival (www.gdays.sk) in the Little Berlin Cultural center, located in one of Trnava's squares, Trnavské Nádvorie.

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Found in Translation

Zdenko Mago

Mgr. Zdenko Mago, PhD.
University of Ss. Cyril and Methodius in Trnava
Faculty of Mass Media Communication
Námestie J. Herdu 2
917 01 Trnava
SLOVAK REPUBLIC
zdenko.mago@ucm.sk

Zdenko Mago as a professional deals with interconnections of games studies and marketing communication, particularly focusing on advergaming. He is the author of the scientific monography *World of Advergaming: Digitálne hry ako nástroje reklamy* (World of Advergaming: Digital games as advertising tools). In 2014 and 2017, he was a program committee member of the international scientific conference Central and Eastern European Games Studies. At beginning of 2018, he acted as a visiting researcher at the Ritsumeikan University in Kyoto, Japan. Currently he is Editor-in-Chief of the scientific journal Acta Ludologica.

E. Aarseth presents the concept that there are two levels of text within digital games: *texton*, a text existing in the form of text as game code, a source, an essence of the digital game's being; and *scripton*, a text presented to gamers on screens (or other display devices) through a traversal function.[1] Essentially, it is analogical process as within the Shannon-Weaver model of communication, according to which the information from sources are encoded and decoded during their transmission via channels to the receivers.[2] However, in the case of digital games, this process is split into two separate phases, because the digital game itself is already encoded by developers, and decoding starts after its distribution, when a player is playing it through a game device. Thus logically, scriptons are encoded as textons and decoded back as sriptons, even though scriptons themselves cannot exist without textons. Based on that, playing digital games can be understood as a process of continuously decoding information represented by rendering their audio-visual representations. But what if the player takes a screenshot (using external software) while they are normally playing their favourite game, and will be considerably surprised by the resulting image, because it will rather look like the Predator's vision (see Picture 1) than the game graphics perceived by himself just a moment before? On one side, it generally indicates that the scriptons are not constant, and their right decoding and presentation are dependent on system compatibility. On the other hand, we can consider both such scriptons as "right", because they existed together at the same time. As different meanings found in translation. In any case, the game's artistic value is therefore undeniable one way or another.

Picture 1: Random color representation of normally depicted Fortnite Battle Royale's visual
Source: EPIC GAMES: *Fortnite Battle Royale.* [digital game]. Cary, NC : Epic Games, 2017. *Author's screenshot.*

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1 AARSETH, E.: *Cybertext: Perspectives on ErgodicLiterature.* Baltimore : TheJohnsHopkinsUniversity Press, 1997, p. 62.
2 SHANNON, C. E., WEAVER, W.: *TheMathematicalTheory of Communication.* Urbana : TheUniversity of Illinois Press, 1949, p. 98.

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