

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. Brams⁵ 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. Bratská⁷ 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 of 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

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. Mandryk¹⁷ 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. Bakkes¹⁹ 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

- 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 terénymi 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_psyech_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_psyech_zataze.pdf>.

- 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 himself).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. Bakkes²⁷ point to the difference

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. Ibidem, p. 120.

25 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>.

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. It 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)?

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 : Vodňář, 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

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.

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

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

category of frustrating situation	result of frustration			
	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
Σ	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. Mandryk³⁸ in-game and at-game frustration showed similar magnitudes, but in-game frustration led to higher enjoyment and more internal attributions. According to J. Juul³⁹ 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.

Acknowledgment: *This study is an output of a research project FPPV-27-2018: Frustrácia ako motivujúci faktor [Frustration as a motivating factor].*

BIBLIOGRAPHY

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. 119-123.

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

BATTIGALLI, P., DUFWENBERG, M., SMITH, A.: Frustration and anger in games. In *CESifo Working Paper Series*, 2015, Vol. 34, No. 5258, p. 1-53. ISSN 2364-1428 [online]. [2019-02-20]. Available at: <<https://ssrn.com/abstract=2591839>>.

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.

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

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. 188-200. [online]. [2019-02-20]. Available at: <https://link.springer.com/chapter/10.1007/978-3-319-71649-7_16>.

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

BRATSKÁ, M.: *Osobnosť v situáciách psychickej záťaže*. Bratislava : FF UK, 2002, p. 1-15. [online]. [2019-03-10]. Available at: <https://cdv.uniba.sk/fileadmin/cdv/U3V/studijne-materialy/Bratska_Osobnost_v_sit_psych_zataze.pdf>.

BRITT, S. H., JANUS, S. Q.: Criteria of frustration. In *Psychological Review*, 1940, Vol. 47, No. 5, p. 451-470. ISSN 0033-295X.

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. 119-136.

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.

DUNN, L., HOEGG, J. A.: The Impact of Fear on Emotional Brand Attachment. In *Journal of Consumer Research*, 2014, Vol. 41, No. 1, p. 152-168. ISSN 0093-5301.

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. 228-232. [online]. [2019-02-20]. Available at: <<http://eprints.lancs.ac.uk/12452/1/p228-gilleade.pdf>>.

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. 237-252.

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>>.

KONDÁŠ, O.: *Klinická psychológia*. Martin : Osveta, 1977.

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

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

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. 225-234. [online]. [2019-02-20]. Available at: <<http://hci.usask.ca/uploads/405-TouchFrustration.pdf>>.

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. 1-8. [online]. [2019-02-20]. Available at: <<http://www.digra.org/wp-content/uploads/digital-library/10343.56524.pdf>>.

NAKONEČNÝ, M.: *Lexikon psychologie*. Prague : Vodňár, 2013.

- 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. 32 p. [online]. [2019-02-20]. Available at: <<http://urn.kb.se/resolve?urn=urn:nbn:se:umu:diva-104904>>.
- O'CONNOR, K.: *Control The Controller : Understanding And Resolving Video Game Addiction*. London : Free Association Books, 2014.
- PLAYDEAD: *Limbo*. [digital game]. Copenhagen : Playdead, 2006.
- 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. 1-9. [online]. [2019-02-20]. Available at: <https://pure.uva.nl/ws/files/2709607/168446_roest_bakkes_2015_1_.pdf>.
- 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. 334-360. ISSN 0146-7239.
- ŠIŇANSKÁ, K., ŠANDLOVÁ, V.: Vyrovnávanie sa so stresom a záťažovými situáciami terénymi sociálnymi pracovníkmi. In *GRANT Journal*, 2013, Vol. 2, No. 1, p. 41-45. ISSN 1805-0638.
- THAYER, R. E.: *The Biopsychology of Mood and Arousal*. New York : Oxford University Press, 1989.
- VEČEŘOVÁ-PROCHÁZKOVÁ, A., HONZÁK, R.: Stres, eustres a distres. In *Interní medicína pro praxi*, 2008, Vol. 10, No. 4, p. 188-192. ISSN 1803-5256.
- 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. 1-4. [online]. [2019-02-20]. Available at: <https://www.researchgate.net/publication/318789109_Internal-External_Locus_of_Control_Scale>.
- YOUNG HORSES: *Octodad: Dadliest Catch*. [digital game]. Chicago : Young horses, 2014.

