The Impact of Video Game Plots on the Formation of Destructive Trends and Anxiety in Adolescents

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Abstract: Video games are a popular entertainment in many countries, however, among video game users, experts identify people with addictions.

This article presents the results of our studies of the factors affecting the nature of actions within the game framework and the mental state of adolescents. On the basis of source data and our own clinical research, we have created and applied a diagnostic questionnaire to identify preferences in the choice of genres, plots and characters of computer games. One hundred and forty teenagers were examined, seventy males and seventy females.

It has been established that the use of inanimate objects as the main character is directly related to the user's desire for destructive actions within the game framework ($p < 0.05$).

The influence of the act of self-destruction of a computer game hero on the psychological state of a user is studied. The relationship between the high level of personal anxiety and the sign "acceptability of self-destruction in the game" ($p < 0.05$) was established.

It is concluded that restricting the use by children of role-playing computer games with inanimate objects or the self-destruction of heroes, as well as online games for the purpose of entertainment, will help to prevent the formation of negative trends in the mentality of adolescents.

Keywords: Anxiety disorders, Computers, Children, Gambling.

INTRODUCTION

Currently, dependence on the Internet and video games are referred to as social epidemics. Studies conducted in different countries show that from 6% to 33% of people using the Internet and computer games for the purpose of entertainment are computer addicted (Kaess *et al*., 2014; Zhang *et al*., 2018; Mezianaya *et al*., 2014). In children and teenagers, entertainment and leisure time spent in the virtual space are becoming increasingly popular. This is facilitated by the availability of computers and the simplified use of programs. According to research data, the number of Internet users in adolescence in many countries is close to 100% (Young *et al*., 2010; Soldatova *et al*., 2011). All this contributes to the development of addiction to virtual spaces as a new habitat. In this regard, the study of the problem of child and adolescent dependence is given special attention.

The main part of the studies in this problem is devoted to the search for the causes and mechanisms of its development. English scientists are exploring the mechanisms of the formation of addiction to computer games depending on the nature of the use of the game program (Choi *et al*., 2018; Lim *et al*., 2016). In China the influence of the family environment, the impact of the social environment and gender distribution are being studied in order to establish risk factors for the development of dependence (Li *et al*., 2018; Griffiths *et al*., 2017; Westwood *et al*., 2010).

Scientists have already recognized that due to the fact that the Internet has become available from any technical device, it is advisable to study the dependence on the Internet, especially to video games in real time, which have gained a multi-million audience. For example, the number of online users of the game Warcraft III on all platforms, according to the developer's company, reached twelve million people in October 2010.

The mechanisms of the formation of addiction depending on the game genre and the choice of hero behaviour style are studied to a lesser extent. In the available sources no analysis has been found regarding children using games, or of the choice of game hero by the criterion of animateness / inanimateness. Scientists established long before the

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advent of computer games that the identification of a child with inanimate objects, mechanical devices, vehicles, etc. is noted in children with a late manifestation of a perceived self. In this case, the child's emotional sphere changes for the worse: they are inclined to ignore the other person's nature, they do not realize the importance of emotional life, and they do not criticize their destructive actions performed during the game (Bardyshevskaya *et al*., 2010; Kovalev *et al*., 1979; Chuprikov *et al*., 2013).

As is known, activity in the gaming environment contributes to self-affirmation. The desire to lead, to manage processes and people in the game world corresponds to the age-related needs of socialization and self-determination of a teenager. At the same time, in many computer games of the slasher and horror genres widely used by teenagers, mass destruction of characters in a human form is demonstrated. In such scenes, as a rule, no emotional reactions of the slain are reflected-these are mechanical actions of the game characters. It should be noted that the research on the impact of the destructive behaviour in the computer game world on a child's mentality has been insufficient.

As is known, gamers identify themselves with the game hero in the gameplay. Along with the destruction of various characters and objects, there is such a phenomenon in games as the hero's self-destruction. The impact of the act of self-destruction on the user's psyche has not yet attracted the attention of scientists, or the possibility of formation in children of the phenomenon of a prolonged playful reincarnation described by T. P. Simson, Russian psychiatrist (Simson *et al*., 2013).

Our study investigated the effect of role-playing games on adolescents, as well as the relationship between online games, the self-destruction phenomenon and anxiety disorders among users.

Research Objective

To study the factors contributing to the formation of disorders in the behaviour and emotional state of the adolescents is using computer video games.

Object of Study

Teenagers who are fond of role-playing computer games.

MATERIALS AND METHODS

The study involved one hundred and forty adolescents from the pupils of two secondary schools in the city of Minsk, of which there were seventy males (50%) and seventy females (50%). The average age was 16.1 (± 1.9) years. Of these there were: secondary school students (grade eight)-97 persons; high school students (grade eleven)-43 persons. The survey was conducted anonymously, after obtaining an informed consent, in the second half of the school year (April). The survey was conducted by continuous method of interviewing. Based on the analysis of scientific sources and their own research the authors, K.N. Mezianaya, K.D. Yashin, and K.M. Karaneuski, created and applied the questionnaire "Method of screening diagnostics of video game dependence and its mental health effects" in order to study the nature of using computer games in the adolescent environment (Mezianaya *et al*., 2017). It is developed on the basis of criteria common to all forms of addictive behavior and includes diagnostics of the loss of control over time, social dysfunction, withdrawal, and an increase in the tolerance to the intensity of computer games. Questionnaire-survey method obtained data on personal goals of activity in the playing space. Through a deductive analysis of preferences, in the selection of a game character having a pattern of actions and ways to achieve interests in the game world, the characteristic of game programs for the emotional-volitional sphere of users is given. Spielberger-Hanin anxiety self-assessment test was used to determine the personality anxiety (Spielberger *et al*., 1983).

Statistical analysis of the data obtained was carried out in order to check the hypothesis of homogeneity of data distribution and the search for the relationship between the factors of the game world and changes in the psyche and behavior of users using the χ^2 contingency tables of the Pearson criterion. Differences were considered statistically significant at $p < 0.05$. The coefficient of contingency φ, based on χ^2 statistics, can be considered as a measure of correlation between the signs A and B, with values of close to 0 showing weak association and those close to 1 strong association. The data obtained in the course of this study were processed with the standard Microsoft Office Excel 2010 application and STATISTICA 10.0 package.

RESULTS

The analysis showed that secondary school students had been using Internet for 5.5 years, and video games for 4.5 years; high school students had been using Internet for 6.8 years, and video games for 6 years. This indicated that the attraction to games among secondary school students began at the age of

9.5 years, which is two years earlier than that of children in grade eleven.

One hundred and nine persons played computer games with different frequencies and durations of sessions (77.9% of the total number of respondents). One hundred and eight persons were keen on watching movies and videos (77.1%). Fourteen persons engaged in online gambling. A gender analysis showed that 95.7% of males and 60% of females played computer games.

It was established that fifty-two persons (37.1%) had sessions from three to five hours long, while twenty persons played for five hours or more (14.3%), which is a risk factor for the formation of computer addiction. Twenty-seven persons played daily (19.3%) and thirty-six persons (25.7%) played three to five times a week, which also increases the risk of developing computer addiction. A high level of personal anxiety on the Spielberger–Hanin anxiety self-assessment scale was revealed in forty-one persons (29%), and situational anxiety in nineteen persons (13.5%).

Role-playing games, mostly in the first person, are used by 76% of teenagers. Players can choose different characters as a hero of a computer game. The analysis of the choice of the game hero was conducted using the principle of animateness/inanimateness. It was established that inanimate objects-transformers, robots and tanks-as the main character were preferred by eighty-three persons (59.3%). Of these, forty-six persons (32.9%) chose transformers and thirty-seven persons (26.4%) chose tanks. Seventeen persons engaged in destructive actions (12.1%), twenty-six persons preferred submission and suppression (18.6%). Twenty-eight respondents chose to protect some characters by suppressing others (20%). Eighty-eight persons (62.9%) preferred reconciliation with rivals, of which ten persons reached the goal through submission. Twenty-five high school students (17.85%) chose only inanimate characters as the game hero.

The choice of an inanimate object as the hero leads to the construction of action-style play, taking into account the properties of the selected game character. In this case, the child chooses the most primitive actions to achieve the goals in the game. Due to the lack of moralities and emotional components in the characters and the spread of violence in some game genres, an aggressive style of behaviour is formed. Gamers do not show criticism towards their destructive actions during the game, and they ignore the presumed physical and emotional suffering of the virtual victims of their actions. The hypothesis put forward by us was confirmed in the course of the study (Table **1**).

The analysis of priority interests in a computer game showed that schoolchildren are attracted to leading roles in games, acting in different worlds. Among high school adolescents the desire to control people around them ("rule themselves") is higher by 7% in comparison with secondary school.

It was established that forty-two teenagers (30%) avoided cruel game genres, while forty-five persons (32.2%) preferred cruel and bloody plots. Figure **1** shows the distribution of sensations that adolescents experience in using such genres of video games.

As follows from the obtained data, forty-three persons (30.7% of respondents) strived to stimulate their emotional state, which is an indirect sign of a lack of emotional sensations in the real world. At the same time, fifty-three persons (37.8%) noted indifference to the scenes of violence, which is probably a sign of habituation and exhaustion of emotional reactions. It is worth emphasizing that seventeen persons (12.2%) continued to use such genres while maintaining equanimity. This may indicate the formation of addiction, which contributes to the increased production of neurotransmitters during the game (Weinstein *et al*., 2010). Sixty persons (43%) of the surveyed teenagers readily used games with cruel plots.

Another example of character abuse is the phenomenon of self-destruction. In some video games, in case the game hero's actions are unsuccessful or burdensome for the team, the gamer may resort to the hero's self-destruction. In our study, it was established that forty-two teenagers (30%) consider this

Table 1: The Relationship between the Destructive Actions in a Computer Game and the use of Inanimate Objects

	Use of inanimate objects in the game		
	Pearson Chi-square	Phi for 2 x 2 tables	p value
Destructive actions in a computer game	3.42	0.24	<0.05

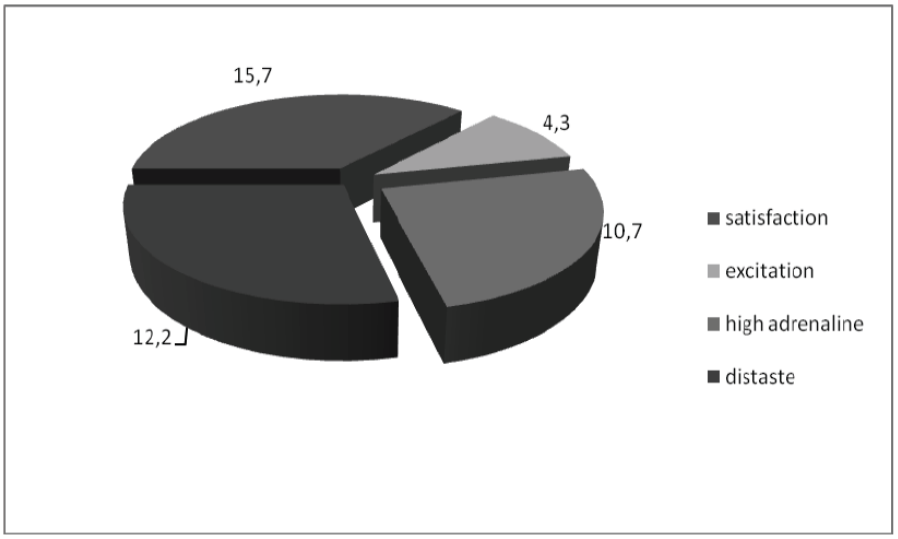

Figure 1: Distribution of respondents according to their feelings when using cruel game genres (%).

acceptable. The tendencies to the development of psychological disorders in individuals who are fond of self-destruction during the game were revealed (Table **2**).

This relationship indicates that users are aware of the negative side of such a decision but are forced to accept it in view of the current game situation. Negative emotional reactions arising from the death of the hero lead to the formation of internal anxiety (Chutko *et al*., 2011)

DISCUSSION

In adolescence, many children use games to compensate for the lack of attention and support for their initiative in independent decision-making from their parents. Showing freedom of action in the gaming space, adolescents satisfy the need for self-expression and control, which contributes to the rapid formation of their addiction (Schneider *et al*., 2017).

However, gaming activity in the virtual space is unable to fully meet the needs that have arisen in the real world and become the basis for the creative development of a self-sufficient person. The use of inanimate objects in a game with subsequent identification with them can pose a threat of formation of an autistic perception of reality.

Limiting children's use of games with heroes which are inanimate objects, as well as games with the possibility of the hero's self-destruction, will contribute to the normalization of their psychological state. On the basis of such studies, it is necessary to create programs for the prevention of behavioural and mental disorders arising from the excessive use of video games. Psychologists should check the products created for entertainment and leisure time in the virtual space.

CONCLUSION

The study suggests that the use of inanimate objects (vehicles, combat vehicles, etc.) in the game by adolescents, with the subsequent identification of themselves with them, contributes to the choice of the destructive actions of in the game world ($p < 0.05$). The use of mechanisms and other inanimate objects as the hero of the game, according to the study, activates and supports destructive tendencies in the game space due to the absence of an emotional and moral component

Table 2: The Relationship between the Signs: High Level of Personal Anxiety and the Acceptability of Self-Destruction in a Computer GAME

	Acceptability of self-destruction in a computer game		
	Pearson Chi-square	Phi for 2 x 2 tables	p value
High level of personal anxiety	6.91	0,240,49	<0.05

in their behavior pattern, which can contribute to the formation of behavioral disorders in the user when the character's actions patterns are followed for a long time in Game.

The hypothesis about the connection of the style of player activity in a role-playing game, through the choice of an imperative hero, and signs of dependence formation has been confirmed. The choice of a hero with an imperative style of behavior ─ "rules the game himself", contributes to the fact that the gamer is not able to comply with the time limit allocated to the game, since the game process satisfies and strengthens the need for self-realization and self-expression. This contributes to the formation of computer gaming addiction.

A significant proportion of children (30.7%) are involved in games with cruel plots, and this can cause disorders in the emotional sphere, as evidenced by the relationship between high levels of personal anxiety and acceptability of self-destruction in a computer game implying cruel treatment of the hero the gamer identifies with ($p < 0.05$).

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CONFLICT OF INTEREST

All authors declare that they have no conflicts of interest.

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CONTRIBUTORS

K.M. Karaneuski developed the study and provided a summary of previous studies, conducted a statistical analysis. K.M. Karaneuski and K.N. Mezianaya wrote the first draft of the manuscript, and all authors approved the final manuscript.

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