



The evaluation of computer games addiction incidence among teenagers of young adolescent age

La evaluación de la incidencia de adicción a los juegos de ordenador entre adolescentes de edad adolescente

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ABSTRACT:

The article considers the problems of computer game dependence among younger adolescents. The results of the study are aimed at revealing the level of expression of computer game addiction among adolescents. To diagnose the game computer dependence among adolescents, we introduced a specially developed questionnaire. The questionnaire included five main scales, which are as follows: an emotional attitude towards computer games; self-control in a computer game; a purposeful focus on a computer game; a parental attitude to a computer game; a preference for the virtual type of communication and not the real one. The study showed a significant difference in the level of computer game addiction between boys and girls. We analyzed the sample of 246 students aged from 10 to 11 years, e.g. boys (N = 122) and girls (N = 124). The research demonstrated that boys were more likely to experience computer game addiction than girls. Simultaneously, girls were more likely to be attracted by computer games, which is typical of a given age and does not have a detrimental effect on their personal

RESUMEN:

El artículo considera los problemas de la dependencia de los juegos informáticos entre los adolescentes más jóvenes. Los resultados del estudio tienen como objetivo revelar el nivel de expresión de la adicción a los juegos de ordenador entre los adolescentes. Para diagnosticar la dependencia informática del juego entre adolescentes, se introdujo un cuestionario especialmente desarrollado. El cuestionario incluyó cinco escalas principales, que son las siguientes: una actitud emocional hacia los juegos de computadora; Autocontrol en un juego de computadora; Un enfoque deliberado en un juego de computadora; Una actitud parental hacia un juego de ordenador; Una preferencia por el tipo virtual de comunicación y no por el real. El estudio mostró una diferencia significativa en el nivel de adicción al juego de computadora entre niños y niñas. Se analizó la muestra de 246 estudiantes de 10 a 11 años, p. Niños (N = 122) y niñas (N = 124). La investigación demostró que los niños eran más propensos a experimentar la adicción al juego de computadora que las niñas. Simultáneamente, las niñas

development. The everyday use of computers by teenagers has a multidimensional structure, the key factors of which are the intensity and individual style of computer use.

Key words. An adolescent, younger teenage age, game, computer, addiction, questionnaire, computer game addiction, subjectivity.

eran más propensas a ser atraídas por los juegos de computadora, que es típico de una edad dada y no tiene un efecto perjudicial en su desarrollo personal. El uso cotidiano de las computadoras por los adolescentes tiene una estructura multidimensional, cuyos factores clave son la intensidad y el estilo individual del uso de la computadora.

Palabras claves. Un adolescente, una edad adolescente más joven, juego, computadora, adicción, cuestionario, adicción al juego de computadora, subjetividad.

1. Introduction

Information violence in modern world is a comprehensive phenomenon that affects all structures of the society. It manifests itself in the form of the imposition of false ideals and false meanings of human life, as well as neurolinguistics programming. Information violence can result in public debauchery, conducted through the media, in the form of pseudoinformation of a socio-political nature, it also hinders the evolution of human consciousness.

Much evidence suggests that nowadays there is a special form of information violence, which is known as a computer game addiction. This phenomenon is no longer a new one in foreign and Russian psychology, but due to serious negative consequences, its relevance does not subside, but also becomes more acute due to the increase of pathologically dependent computer players.

The problem of computer game dependence in the Russian Federation is recognized at the state level. The initial data of the national Russian monitoring showed that the number of children and adolescents, aged 7-14 years, with varying degrees of expression of computer game dependence varied from 2% to 10% of people, which in absolute values was from 146.5 thousand to 2,082.4 thousand.

The prevention of computer game dependence is a relatively new and still insufficiently developed direction for ensuring information security of the country, which Russian scientists began to study quite recently, i.e. in the early 2000s.

Over the past decade, there was a significant increase in the number of studies on the problem of information and psychological security of the individual and the impact of information technology on people's consciousness. A number of studies are devoted to the issues of the Internet security, involving the protection of the individual from the potential risks associated with being in the network (V.P. Solomin, O.V. Shatrova, A.E.Voiskunsky, Y.D. Babaeva, G.V. Grachev, S.N. Enikolopov). Nevertheless, both for foreign and Russian scientists, the issue of preventing computer game dependence at different stages of ontogenesis remains open for study.

In scientific research, the problem of technological and the Internet addictions has been studied from different viewpoints. It included the causes, mechanisms of formation, peculiarities of the impact on the individual, measures for the prevention, correction and therapy of gambling and the Internet addiction. The most influential works were written by M.S. Ivanov, B.R. Mandel, A.V. Gogoleva, A.V. Kotlyarov, T.D. Sterledeva, V.G. Titov, Y.V. Fomicheva, A.G. Shmelev, I.V. Burmistrov, S.A. Shapkin, Y.V. Fomicheva, A.G. Shmelev, I.V. Burmistrov. Mass social phenomena caused by the influence of the Internet on human consciousness was described in many works (G.N. Mustafieva, Yu.D. Babaeva, A.E. Voiskunsky, O.V. Smyslova, D. Bell, O.V. Doronina). In the expert literature, researchers described the features of the Internet communication related to the effects of negative virtual communication, such as cyberbullying, trolling, mobbing. (V.M. Ruf, U. Shvartau, G.T. Tavani, K. Hamelink, A.E. Voiskunsky, A.I. Naftulev). The ideas of the inclusion of aggression and violence in the forms of discursive and semantic racism are contained in the works by V. Voronkov, O. Karpenko, A. Osipov, B. Jarska. However, these studies are more applicable to the adult age category. Evidently, there are not

enough studies about younger adolescents.

The results of theoretical and empirical studies focus on a comprehensive study of the most diverse areas of the problem under consideration. However, despite the abundance of publications, there is still no general approach to the definition of computer game addiction, which is potentially dangerous for the psychological and social well-being of children. In addition to that, there is no model of psychological and educational support for the interaction of children with computer games. Existing methodological developments in the field of providing psychological safety for children and adolescents in interaction with the computer at this stage do not allow to solve this problem in a complex way, since they are directed, mainly, at the prevention and elimination of negative effects in pathological computer players. There is not any homogeneous view of the complex of interrelated conditions for ensuring the safety of children in interaction with computer games. There is a lack of criteria, content, and structure of the competence, necessary for the persons responsible for this security.

Of much importance, in our opinion, is the study of the psychological features of gaming computer addiction among adolescence, when there is a need for self-knowledge and self-determination, interpersonal communication with peers and significant adults. This age group is characterized by an intensive development of logical and theoretical thinking, qualitative changes in peer assessment, and also in relations with adults (L.S. Vygotskii, 1984).

The adolescent period is a special period in the development of the personality, characterized by heterogeneity and phasing of the course - from younger to older adolescence: younger 10-11 years, middle 12-13 years, older 14-15 years (D.I. Feldstein). During this period, significant changes occur. They are characterized by a transition to a qualitatively new level of self-awareness and personal development (G.I. Alaverdashvili, 1986).

In the structure of the adolescent period, the younger adolescence occupies a special place and is traditionally considered to be successful from a pedagogical point of view. However, many Russian psychology experts believe that the younger adolescence is a critical period of development. L.I. Bozhovich connects the emergence of this crisis with the fact that the rapid pace of physical and mental development creates the prerequisites for the formation of such needs that cannot be satisfied in conditions of insufficient social maturity of children of this age.

The degree of formation of personalities in the younger adolescence and their further development largely determine the individual's life path, are the foundation for the emergence of new personality formations (N.V. Vaniukhina, 2004).

Our research shows, that the problem of the influence of computer game dependence on the mental and personal development of the younger adolescent has not been sufficiently studied. Modern psychology moves towards the development of an integrated system of psychological and pedagogical support for a teenager with gaming computer addiction that helps to neutralize the negative effects of existing computer game addiction, as well as reduce the risk of a deeper level of computer game addiction. This system must be aimed at gradual complication and deepening of a teenager's self-knowledge, the development of positive social ties and relationships, which is impossible without reliable information on the scale of this problem.

2. Methods and Methodology

The methodological basis of the study includes the philosophical aspects of understanding the man as an active subject who knows and transforms the world and himself in the process of his activity (S.L. Rubinstein, M.Y. Basov, L.A. Wenger, I.S. Kon, G.G. Garnet, etc.). There are provisions of philosophical and axiological theories that view the child as the highest value and the goal of social development (L.S. Vygotskii, A.V. Zaporozhets, V.S. Mukhina, A.G. Asmolov, A.N. Leontiev, A.V. Petrovsky, A.G. Gostev and others). There are Russian works which describe the causes of addictive behavior (V.Y. Zavyalov, V.Ya. Semke, N.A. Bokhan, A.I. Mandel, T.S. Korolenko, N.L. Bochkareva, T.A. Donskikh, E.P. Ilyin). In this connection, it is important to mention the concept of psychological dependence on the Internet (K. Young) and the concept of

subjectness (E.N. Volkova).

The theoretical basis for our study is defined by general psychology theories of adolescence (L.S. Vygotsky, A.N. Leontiev, V.V. Davydov, A.V. Petrovsky, D.B. Elkonin, and others). The methodological work by Russian and foreign authors on the problems of computer game dependence had a great significance for the preparation of our research: a study of the psychological causes of computer game dependence (Y.V. Fomicheva, A.G. Shmelev, I.V. Burmistrov), the analysis of factors of personal predisposition to computer game addiction, as well as the psychological consequences of computer game addiction for the individual (O.N. Arestova, L.N. Babanin, Yu.D. Babaeva, A.E. Voiskunsky, A.V. Khudyakov, Yu.V. Taroverova, M.S. Kiseleva, M. Cole, K. Young, I.V. Burlakov, M.S. Ivanov, G.M. Avilov, O.K. Tikhomirov, S. Bodker, I.G. Belavina, N.A. Sadovskaya, V.D. Gorsky, S.A. Shapkin, E.E. Lysenko, D. Greenfield, K. Surratt, O.V. Doronin, A.O. Prokhorov, A.E. Serezhkina, A.N. Mokhovikov, L.P. Gurieva and others).

In the study, we consider computer-based game addiction as a kind of addictive behavior (Goldberg, 1995; Turkle, 1997; Shotton, 1998), which is characterized by excessive and lengthy attention to the computer game, a decrease, and a violation of the ability to control involvement in this activity. As a result, the adolescent's behavior ceases to be independent, the teenager loses the ability to set goals independently, to plan his time.

The main theorist of the problem of computer psychological dependence is the American professor of the University of Pittsburgh K. Young. In his works, the author examines the dependence on the Internet (Young, 1996).

In 1996, to determine the degree of enthusiasm for the Internet, the author developed a short test, which consisted of eight questions with a dichotomous choice of answers. In the author's opinion, the patient is considered dependent if five or more positive answers were given to the questions. Currently, the test contains 20 questions, answers, which are evaluated from a five-point scale. On the basis of the developed test, K. Young identifies three groups of people according to the number of points scored: dependent, close to dependency, healthy.

Currently, Russian researchers use the following tools to diagnose computer dependence: a questionnaire by K. Young (Young, 1996.), completed and adapted in 2000 by Loskutova (Loskutova, 2004); the questionnaire developed in 2011 by E.V. Belovol and I.V. Kolotilova for assessing the degree of enthusiasm for role-playing computer games in adolescents aged 13-15 years (Belovol, E.V. and I.V. Kolotilova, 2011). Much attention is given to the "children's" version of the methodology proposed in 2009 by S.A. Kotova for assessing Internet addiction, intended for younger school age (Kotova, S.A., 2009). Experts rely on "The method of screening diagnostics of computer dependence" adapted in 2006 by L.M. Yuryeva and T.Yu. Bolbot (Bolbot, T.Y. and L.N. Iureva, 2006) and others.

However, several lines of evidence suggest that among the available tools for diagnosing computer dependency, there is not any method to determine the level of computer game dependence in younger adolescents. Therefore, based on the methodology proposed by the psychologist K. Young, we developed a modified version of the questionnaire that allowed us to estimate with a certain degree of probability the quantitative expression of computer game addiction in children at a given age stage of development (Grishina, A.V., 2014). The questionnaire was tested on many formal criteria that proved its quality and effectiveness.

The questionnaire contains 22 questions that determine the five main scales: the emotional attitude to computer games; self-control in a computer game; purposeful focus on computer game; the parental attitude to a computer game; the preference for virtual communication and escaping real life communication.

1. The scale of the emotional relationship to computer games (Ge), i.e. the index of the emotional attitude to computer games. A high figure indicates a high level of emotional attractiveness of computer games for the child. The game acts as a means of discharging the psycho-emotional tension, a means of compensating for the unfulfilled needs of the individual

(needs for communication, parental care, etc.). During the computer game, the teenager experiences a feeling of emotional recovery. A low score indicates a low level of emotional attractiveness of a computer game for a child. The game is more a means of leisure.

2. The scale of self-control in a computer game (Gs). A high score indicates a low level of self-control of a teenager in a computer game. As a rule, the child does not want to interrupt the computer game, gets annoyed with forced distraction from the game and is not able to plan the end of the computer game. A low score indicates the presence of self-control over the process of playing at the computer, the child can be distracted from the game, if necessary the child is able to plan the end of the game.

3. The scale of the purposeful focus on the computer game (Gf). A high score is the evidence of a constant striving to achieve ever higher results in a computer game, a gambling involvement in a computer game. A low score indicates a moderate desire to achieve ever higher results in a computer game, the game acts as a means of leisure and not an ultimate purpose.

4. The scale of the parental attitude to the computer game (Gp). A high score indicates a negative attitude of parents towards computer games. Parents prohibit computer games or seriously limit the time spent playing computer games. Low indicator - indicates a positive attitude of parents to computer games. Parents themselves initiate the activity of children associated with computer games: they buy upgraded versions of computer games, they are satisfied with the child's engagement with computer games at home.

5. The scale of preferring virtual communication in a computer game to real life communication (Gc). A high score indicates that the computer game acts as a means of communication and self-affirmation of the child, replacing the process of real interaction. Low indicator demonstrates that the computer game does not replace the real-life communication of the child and serves just as an additional means of communication.

Each question of the questionnaire assumes six answers: "never", "seldom", "sometimes", "often", "very often", "always". When processing results, each subject's answer is assigned a score of 1 to 6 in accordance with these six gradations. For each scale of the questionnaire, the points accumulated are added together. As a result, indices of game computer dependence are calculated, according to which the level of computer game dependence is determined. The accumulated results are arranged, according to the following pattern: low level (from 6 to 11 points); average level (from 12 to 21 points); high level (from 22 to 37 points).

A low level of computer game dependence characterizes adolescents, for whom the computer game is a matter of entertainment, which has no negative consequences. Children control their playing activity, they seldom play and think about the game. In fact, these adolescents do not have computer game addiction, but find enthusiasm for computer games, which consists in satisfying the need for the game as such, when the game acts as a means of obtaining emotional relaxation.

The average level of computer gameplay involvement shows that the game is an important part of a teenager's life. His attention is focused on certain types of computer games, but teenagers do not lose control over the frequency of gaming sessions and the time spent on the game. A computer game for the younger adolescent serves as a means of relieving psychological stress, a means of self-affirmation, when the idea of the prestige of computer games is associated with the corresponding position among peers. Computer game allows him to smooth various life difficulties and troubles, acts as a means of compensating of failures in communication.

A high level of computer gameplay involvement demonstrates that the computer game takes all the free time of the child. The teenager thinks about the computer game, about the results achieved, and seeks to raise the level of these results. Children who have demonstrated this level of dependence cannot divert their attention to any other forms of activity, they are completely absorbed in computer games, for them the game replaces the real interaction.

The questionnaire allows comparatively quickly and effectively determine the level of computer game dependence (CGD) among younger adolescents and investigate the following indicators of

gaming behavior as a model of the leading activity: the emotional attitude to the computer game (Ge); self-control in a computer game (Gs); parental attitude to the computer game (Gp); preference for virtual communication and escaping real-life communication (Gc).

$$CGD = 0,21 * Ge + 0,43 * Gs + 0,08 * Gp + 0,34 * Gc + 0,3$$

(p<0,001)

3. Results

What stands out from the conducted diagnosing gaming computer addiction among younger adolescents is that 61% of the surveyed (150 people) demonstrated the low level of computer game dependency. The average level was discovered in 36% (89 people) and a high level was observed in 3% (7 people) of cases. Thus, most children have a low level of computer game addiction, which does not pose a threat to their personal development. It is necessary to discuss computer game dependence of adolescents, only if they showed the average level of addiction.

Based on the data obtained, the sample was divided into two groups. The first group was the children with a low level of computer game addiction (61% of the surveyed), we identified them as a group of teenagers involved in computer games. The second group – the children with medium and high levels of computer game addiction (39% of those surveyed) – was defined by us as a group of teenagers with computer game addiction.

It is established that the prevention of gaming computer dependency among boys and girls is different. The assessment of the reliability of average differences among boys and girls according to the level of computer game dependence expression was carried out using Student's t-test (Table 1).

Table 1. The distribution of levels of game computer dependence among teenage boys and girls.

The level of computer game dependence	Girls (N = 122)			Boys (N = 124)			Total number of people (N = 246)
	The number of people	% from the sample	M± σ	The number of people	% from the sample	M± σ	
"Involvement"	78	64	10.52±2.1*	47	38	12.43±4.8*	125
"AddictionZ"	44	36	19.08±2.7*	77	62	20.26±3.3*	121

Note: * - significant differences, p <0.001

The results show that boys (62%) are more likely to experience computer game dependency than girls (36%), and computer games are more popular with girls (64%) than boys (38%). In this case, the level of game computer dependency among boys is significantly higher than among girls. Therefore, boys are more interested in computer games and the risk of developing a computer game addiction among boys is higher than among girls.

The differences in the mean values of indices of computer game dependency (CGD) among adolescent boys and girls are shown in Table 2.

Table 2. The differences in the mean values of computer

game dependency indices among adolescent boys and girls.

CGD indices	The level of CGD				Group		
	"Involvement"		"Addiction"		Boys N = 124	Girls N = 122	Total sample N = 246
	Boys N = 47	Girls N = 78	Boys N = 77	Girls N = 44			
Ge	8.71±5.8**	8,02±5,2**	16.52±5.8**	15.38±5.2**	13.57±5.8**	10.68±5.3**	12.14±5.7**
Gs	18.71±6.9**	15,39±7,3**	29.13±6.9**	28.92±7.3**	25.19±7.0**	20.28±7.4**	22.77±7.6**
Gp	3.86±1.9*	3,72±1,5*	4.35±1.9*	4.62±1.5*	4.16±1.6*	4.04±1.6*	4.1±1.6*
Gf	10.36±3.5**	8,02±3,6**	15.74±3.5**	13.85±3.6**	13.70±3.5**	10.13±3.7**	11.94±4.0**
Gc	6.86±3.0**	5,65±2,5**	11.30±3.0**	8.69±2.5**	9.62±3.1**	6.75±2.6**	8.21±3.2**

Note: * - the differences are not significant, $p < 0.5$; ** - significant differences, $p < 0.001$.

The results of the research show that there are significant differences between boys and girls on all the scales which are as follows: the emotional attitude to the computer game, self-control in the computer game, the targeted focus on the computer game, the preferences of virtual communication to the real. In this case, boys' indices on these scales are higher than that of girls. There is much evidence which shows that boys are more involved emotionally in computer games than girls, boys have lower self-control while playing a computer game, boys are less able to plan the end of the game at the computer and they prefer virtual communication to the real-life communication.

4. Discussion

The results of our study show that the desire for emotional self-expression is inherent in psychological dependence. Emotions are an integral part of addiction. A teenager does not depend on computer games, but he depends on the received emotions. And first, it is not the modality of the emotion (positive or negative) that is important, but its intensity. The stronger the emotion, the stronger the dependence.

The reasons for the boys' increased interest in computer games, in our opinion, lie in the aspects of their psychological development and in the content features of computer games that allow them to become an addict agent.

The higher level of computer game dependency in boys can be accounted for due to the specificity of gender development, along with social factors and a lack of competence in communication. Many foreign and Russian psychologists, observing the crisis of the transition period, distinguish various difficulties in the interpersonal interaction of adolescents (V.A. Averin, 1998; N.V.Vaniukhina, 2004; T.D.Sterledeva, 2003). Despite the differences in the approaches to the set of younger adolescence characteristics, psychologists are unanimous in the idea that the crisis situations of this period and their resolution or non-resolution have a significant influence on the formation of the personality and its socialization.

The reason for the boys' increased interest in computer games, in comparison with girls, may be that girls are psychologically older than boys. Girls of any age group show greater signs of maturity than boys in terms of their physical status (gender determining) and social orientation,

as well as cognitive skills and interests. For boys, the spirit of adventurism, excitement, and the ability to be absorbed are more characteristic. They tend to be the first, to achieve high results in computer games, to captivate, which results in gaining a sense of risk and other emotions.

Girls' enthusiasm for computer games is more common, but less pronounced than in boys, the phenomenon may be accounted for the fact that girls remain more socialized than boys and computer games. Computer games for girls are challenges which present a new activity they study but not at a very deep level. Girls have more socially important occupations than boys. Girls more often attend sports sections, read books, are more often with friends.

5. Conclusions

The paper described the possibilities of studying the prevention of computer game addiction among younger adolescents with the help of a special questionnaire. The questionnaire serves to reveal the level of computer game dependence created based on the method of determining the degree of the Internet addiction developed by K. Young.

The levels of computer game dependency among younger adolescents are as follows: natural, compensatory, dependent.

In accordance with the scales of the questionnaire, the young teenager's emotional attitude to computer games was evaluated, according to the following criteria: his level of self-control in a computer game; the purposeful focus on the computer game; parental attitude to a computer game; preferences of virtual communication and escaping real-life communication.

According to the results of the evaluation, it was revealed that 61% of the surveyed (150 people) have a low level of computer game dependence; 36% (89 people) - medium level and 3% (7 people) - a high level of computer game dependence. Therefore, the computer game dependence of adolescents can be diagnosed, starting from the average level. The total number of younger adolescents with different levels of computer game addiction was 39% (96 people)

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