Computer modelling of cognitive processes as preventing method of addictive behaviour

Aliya Tolegenova[a]∗, Fariza Oskenbay[a], Elmira Kalymbetova[a], Nadejda Galiyeva[b], Anuarbek Onaybay[b], Danna Naurzalina[c]

[a]Al-Farabi Kazakh National University, al-Farabi ave.71, Almaty 050038, Kazakhstan
[b]Satpayev Kazakh National Technical University, Satpayev str.22, Almaty 050013,Kazakhstan
[c]K.Zhubanov Aktobe Regional State University, A.Moldagulova Str., Aktobe 030000,Kazakhstan

Abstract

Problem Statement: Much has been documented concerning addictive behavior in modern society,but it's still requires to explore the opportunites of computer modelling system as preventing method of addictive behavior of the person

Research Questions: Computer modelling pretend to fulfill the needs of addictive person and cope with his internal conflict which brings him to game addiction.

Purpose of the Study: One of the widespread types of addictive behavior is the game addiction. Full immersion in game creates effect of participation in a certain virtual reality. The purpose of this research is to investigate theoretical and practical aspects of game addiction, and whether there are any connections between addiction and trauma among game players.

Research Methods: The following methods were conducted in the present study:
1. The questionnaire of identification of computer game addiction (Balonov);
2. PTSD symptom scale Interview (pssi) by Foa

∗ Corresponding author. Tel: +0-000-000-0000; fax: +0-000-000-0000,
E-mail address: aliyatts@mail.ru

Findings: The findings of present study shows that virtual reality environment can be a training field of learning to cope with psychological trauma and stressful situations which causes the addictive behavior of the gamer.

Conclusion: As a result of made analysis we can conclude that the virtual reality of the addictive person recreates the stressful and traumatic situations, where the gamer can fulfill his needs and finish unfinished psychological issues. The collected data allow us to make recomentations to create special psychological game for addictive persons with the purpose of successful copying with traumatic events.

Keywords: Game addiction, Computer modelling, Psycholgical trauma.

---

1. Introduction

The phenomenon of computer addiction is a serious problem of modern society. The computer — is not only electronic device for processing of various information, but also the machine which can entertain the person and allow the person to communicate in distance, without making any special efforts by absorbing and involving in the boundless virtual world. Personal engagement of the people in this "virtual world" may cause computer dependence. The most affected by this process are children at the age of 15 — 17 years as in this transition period they are most vulnerable in the emotional plan, and are as a result more aggressive.

Computer addiction can be described as the excessive or compulsive use of the computer which persists despite serious negative consequences for personal, social or occupational function For most young people, playing games on a computer, video game console, or handheld device is just a regular part of the day. Most are able to juggle the multiple demands of school, sports, work or chores, and family life. Gaming becomes an addiction when it starts to interfere with a person's relationships or their pursuit of other goals, such as good grades or being a contributing member of a sports team.

Computer and video games, especially the massive multi-online role-playing games allow players to behave very differently from their normal persona. A shy child can suddenly became gregarious; a passive child can become aggressive. Young people, who often feel powerless in their daily lives, suddenly have the ability to command armies, drive (and crash) cars, and wreak havoc on a virtual world with no real-life consequences. And when that boy or girl is already finding it a challenge in the "real world" to make friends, computer and video games offer a way to interact with others in their "virtual world," without the distress of face-to-face interactions. Many mental health professionals feel that video games are similar to gambling as an addictive process. By some estimates, as many as 10 percent of gamers exhibit addictive behavior.

Here are some symptoms of game addiction - the more of these symptoms could be identified, the greater the need to get professional help:

- Most non-school hours are spent on the computer or playing video games
- Falling asleep in school
- Falling behind with assignments
- Worsening grades
- Lying about computer or video game use
- Choosing to use the computer or play video games, rather than see friends

- Dropping out of other social groups (clubs or sports)
- Being irritable when not playing a video game or being on the computer

There also are physical symptoms that may point to addiction:
- Carpal tunnel syndrome
- Sleep disturbances
- Backaches or neck aches
- Headaches
- Dry eyes
- Failure to eat regularly or neglecting personal hygiene

For the first time computer addiction was investigated by the American and English researchers started talking in the early eighties. The English psychologist Shotton explains the reason of emergence of this phenomenon for that teenagers and adults perceive the computer as some "competitor" — consecutive, clever, multipurpose (Voyskunsky, 2004). The essence of the competition of the person with the machine consists that teenagers and adults try to exercise "control" of this hi-tech device, especially if it is impossible to receive control in other fields of activity at them. At dependent teenagers, most often, control is lost not only in various fields of activity, but also in the social relations: they try to control acts and words of other people, quite often of the relatives, however they badly manage it. Concerning teenage dependence Shotton notes also danger of exhaustion of the emotional sphere of the teenager as in the process of game still nobody managed to win. It means that the teenager, enduring a storm of negative emotions in itself from loss tries to pass again and again an ill-fated stage that in turn generates series of negative emotional splashes. Studying computer dependence scientists repeatedly confirmed with the researches that the emotions endured from defeat in process of game are very similar to emotional experiences of a grief. The majority of computer games, according to the author, provoke aggressive behavior, unstable mood and inadequate reactions (Voyskunsky, 2004).

The founders of psychological studying internet addiction are Young & Goldberg (Young, 1998). In their works they give characteristic to types of computer dependence:

- dependence on the Internet — is a dependence sort where person tests moral satisfaction from information search on the Internet (often useless), also the person strikes up the aimless acquaintances on the Internet which aren't leading to development of social contacts (from this position people look for interlocutors in various parameters, communicate, but thus don't bring benefit for development of the personality);

- Dependence on game — is persuasive hobby for computer games on a network.

It should be noted that approximately in the same the period of time the psychologist Sh. Tekl conducted research of stages computers learning by children and teenagers (Voyskunsky, 2004). She also noted that for a number of the examined participants an important point is implementation of "control" over the computer. For our research as an important indicators of computer dependence allocated by Sh. Tekl was: unwillingness to distract from work or game at the computer; irritation at the compelled derivation from work at the computer; a forgetfullness

about household chores, duties, study, meetings in the course of work at the computer; neglect own dream, health, the social relations for the sake of time at the computer.

A number of physiologists who studied causes and effects of emergence of computer dependence found out that in the process of gaming teenagers and adults have a number of the chemical reactions similar to feeling of happiness, satisfaction. Scientists found out that in blood of participants there are serotonin (a happiness hormone) after a series of successful computer rounds. After a number of losses in computer games the high content of testosterone (a hormone of aggression and a stress) was recorded in blood of participants. On the basis of it the conclusion that computer games directly influence a psychoemotional condition of the person was drawn. By scientists it is proved long ago that testing positive emotions and euphoria, the person seeks to have this feeling again, and thus fall into dependence. In a case with a computer game, the person feels pleasure from a victory, then is seeking to test it again, comes back to game, but it is impossible to win always, the victory is followed by defeat which causes negative emotions.

In post soviet psychology this perspective becomes the sphere of scientific interests of Lichko (1992), and Ivanov (2007) which define computer dependence as a disease. Authors draw parallels between computer dependence and drug addiction, reporting about their similarity in behavioural reactions. These psychologists also note that teenagers show brighter aggressive behavioural reactions owing to computer dependence, than adults (Ivanov, 2007).

Yuryeva and Bolbot (2006) claim that the addictive personality chooses a universal way of a survival – running away from problems.

Motivation of addiction is the aspiration to avoid pain (i.e. to leave from problems and their decision) and to derive pleasure (Loskutova, 2009)

Thus, computer addiction overcoming is a complex problem which rewuires the coordinated work of experts of various areas.

2. Problem Statement

Much has been documented concerning addictive behavior in modern society,but it's still requires to explore the opportunites of computer modelling system as preventing method of addictive behavior of the person.

3. Research Questions

Computer modelling pretend to fulfill the needs of addictive person and cope with his internal conflict which brings him to game addiction.

4. Purpose of the Study

One of the widespread types of addictive behavior is the game addiction. Full immersion in game creates effect of participation in a certain virtual reality. The purpose of this research is to investigate theoretical and practical aspects of game addiction, and whether there are any connections between addiction and trauma among game players.

5. Research Methods

The following methods were conducted in the present study:
1. The questionnaire of identification of computer game addiction (Balonov);
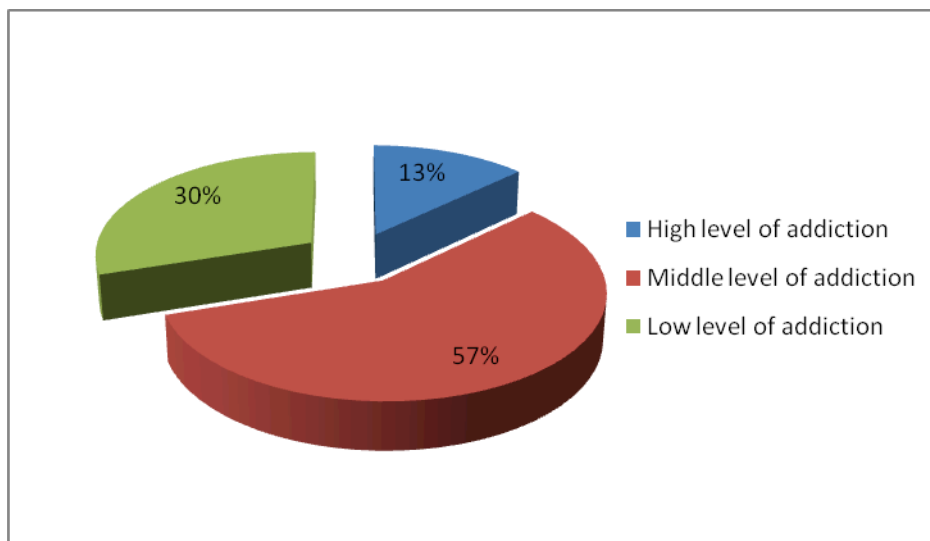2. PTSD symptom scale Interview (pssi)

6.   Findings

6.1. Results of identification of computer game addiction according to Ballonov
With the purpose of computer game addictions 50 teenagers were tested by Ballonov questionnaire.
Details are in Table 1.

Table 1. The questionnaire of identification of computer game addiction (the author - I.M.
Ballonov)

Scales	Mean in %
High level of addiction	13%
Middle level of addiction	57%
Low level of addiction	30%

As it seen in the Table 1. Most of the respondents showed middle level of computer game
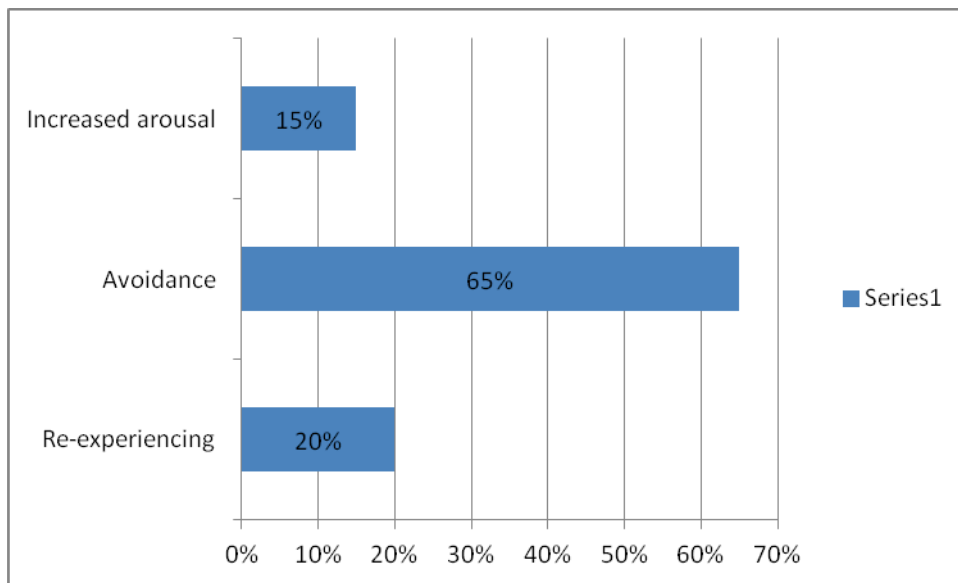addiction.

Figure 1. Computer game addiction level

6.2. Results of PTSD symptom scale Interview (pssi)

Results show that among 65% of respondents Avoidance scale is applicable, which interprets particular trauma characteristics. Results are shown in Table 2.

Table 2. Results of PTSD symptom scale Interview (pssi) in %

PTSD symptom scale Interview (pssi)	Mean in %
Re-experiencing	20%
Avoidance	65%
Increased arousal	15%

Figure 2. Results of PTSD symptom scale Interview (pssi) in %

6.3. Correlation analysis of game addiction and PTSD scales

With the purpose of investigation of game addiction and its connection with the PTSD scales we made a correlation analysis using Pearson Coefficient, where significance correlation revealed, which could mean that PTSD scales may influence the game addiction level of the teenagers.

Results are shown in Table 5.

Table 5. Correlation analysis results between game addiction and PTSD scales

SCALES	Re-experiencing	Avoidance	Increased arousal
High level of addiction		0,287*	
Middle level of addiction	0,292*		0,325*
Low level of addiction			

7. Conclusions

As a result of analysis we can conclude that the virtual reality of the addictive person recreates the stressful and traumatic situations, where the gamer can fulfill his needs and finish unfinished psychological issues. The collected data allow us to make recomentations to create special psychological game for addictive persons with the purpose of successful copying with traumatic events.

References

Ivanov, M. S. (2007). *Psychological aspects of negative influence of game computer dependence on the identity of the person.*Minsk: Harvest.

Lichko, A.E. (1992). *The dictionary of modern American psychiatric terminology with its differences from accepted in Russia*. Moscow, M:Spb.

Loskutova, V.A. (2009). The Internet – dependence in a medical paradigm/ //Internet dependence: the psychological nature and dynamics of a development / Edition - сост. A.E. Voyskunsky. - M.: Acropolis,. - Page 152-164.

Voyskunsky, A.E. (2004). *Actual problems of psychology of dependence on Internet*. Moscow, M:Spb.

Young, K. S. (1998). Caught in the Net: How to Recognize Internet addiction and A Winning Strategy for Recovery. New York, NY: John Wiley & Sons, Inc.

Yuryeva, L.N. & Bolbot T.Y. (2006). *Computer dependence: formation, diagnostics, correction and prevention*. Dnepropetrovsk: Thresholds