

가상 현실 인터넷 게임의 부작용 대응 연구

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요약

컴퓨터 게임 중독은 일반적으로 지나치거나 건전하지 못할 정도로 컴퓨터 게임에 시간을 보내는 것을 의미한다. 또한 가상 게임 중독자들은 대부분의 시간을 실제 세계에 집중하기보다는 가상 게임에 몰두하고 있다. 그들은 다른 사람으로부터 자신을 고립화하고 다른 중요한 책임져야 하는 일들을 소홀히 하는 경향이 있다. 오히려 자신이 좋아하는 게임의 성취, 성적, 상태를 더 중요시 한다.

인터넷의 열풍으로 가상 상점, 가상도서관, 가상영화관, 가상전시회, 가상학교, 가상인물 등이 등장하고 있다. 가상이라는 말에 가상현실이라는 IT 단어도 나타났다. 외계인이나 UFO와 같은 신드롬도 생겨나게 되었다. 이런 사회적인 현상이 가상과 현실을 혼돈하게 만들고 있으며 실제로 존재하지 않는 것을 존재하는 것으로 착각하게 만들기도 한다. 본 연구는 가상현실의 게임을 중심으로 가상현실 게임과 그 중독의 부작용을 살펴보고 그 원인을 분석하며 그 대응방안을 제시하고자 한다.

키워드: 컴퓨터 중독, 컴퓨터 게임, 가상현실, 게임 중독, 게임 부작용, 대응방안

Countermeasures for Side Effects of Online Virtual Reality Games

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Abstract

Computer game addiction generally signifies excessive or unhealthy inclination for computer games. Game addicts spend great amount of their time engrossed in playing games while neglecting the real world. They have the tendency to neglect important responsibilities and isolate themselves from others. Instead, they place greater importance on their status, performance, and achievement in games. Virtual stores, virtual libraries, virtual cinema, virtual trade shows, virtual schools, virtual characters have been emerging due to the popularity of the internet. An ambiguous term *virtual reality* has appeared in addition to the word *virtual*. There also appeared alien and UFO syndrome. Such social phenomenon has brought about confusion of reality and virtual world in which things that do not exist are mistakenly believed to exist. This study focuses on virtual reality games and provides an assessment of the causes and the side effects of game addiction and proposes countermeasures.

Key words: computer game, virtual reality, side effects, real world, countermeasures

1. Introduction

The concept of virtual reality came to public attention when it first appeared in 1989. In the mid-1970s, this concept had already been coined "artificial reality" by one of the pioneers Myron Krueger who created the concept of Video place. Then it had become popularized as "Virtual Reality in 1989 by

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Jaron Lanier the founder of VPL Research.

There has been significant interest in how this technology will be used in various fields. On the other hand, it is believed that virtual reality could be as lethal as drugs to human emotions. William Gibson the author of *Neuromancer* warns of the dangers of simulated sensory systems and their impact on morality and culture.

Henceforth, if virtual reality technology becomes highly advanced, it could lead to the possibilities of problems such as "electronic LSD (a hallucinogen)" or "teledildonics (remote simulated sexual intercourse)". It not only causes one to become delusional replacing reality with that of the virtual world in order to avoid and escape reality but also causes one to undergo virtual self-hypnosis that brings about psychological conditions in which one does not desire be extricated.

This study focuses on virtual reality games and provides an assessment of the causes and the side effects of game addiction and proposes countermeasures.

2.Virtual Reality Game and History

2.1 Virtual Reality Game

In Neal Stephenson's novel *Snow Crash*, "metaverse" is a new worldone that is constituted of virtual reality-based internet. According to the protocol of the metaverse, the conversion of all things into digital goods and the exchange of these goods are possible. This shows that anything is possible even beyond the geographical limitations of our realities.

In fact, World Company, a three-dimensional virtual reality American corporation has been endeavoring to raise the level of online chat to that of virtual reality. Digital hand-held virtual pets such as Hello Mommy, Dragotchi, Baby Dinosaur Mino, similar to Tamagotchi have been very popular among young students.



(Figure 1) Virtual reality game tools

The US is no exception. Various hand-held digital games developed by American companies can be found in addition to Japanese company Bandai's Tamagotchi. Tiger Electronics has released a game they developed called Gigapet.

Tamagotchi has already appeared. Unlike the relatively simple hand-held digital games, there is a growing trend of cyber-pet games that allow for more realistic pet-raising simulation. Last year, Fujitsu in Japan had already released Pinpin a digital dolphin-like pet game. American PF Magic has recently released [Odd Balls] a unique cyber-pet resembling a dinosaur in addition to their previously released digital cats and dogs.

A game called Creatures soon to be released next month by Mindscape Corporation has also been drawing attention. In this game, the player raises alien creatures called Norns. It is much anticipated by game fans; in the game, the players are provided with information such as digital DNA, chemical makeup, health status, and much more

enabling them to have realistic pet-raising experience (Chosun Ilbo, 1997).



(Figure 2) Virtual reality game

There is a trend of applying video game graphics and audio technology in virtual reality. For example, Nintendo developed Virtual Boy; Virtual I-O developed iGlasses; Victormaxx developed Cybermaxx; and Forte Technologies developed VFX-1. These games have been developed focusing on a series of realities. Other games include Wii Remote, the Kinect, and Play Station Move.

Diplopia is a game designed to help people with amblyopia (lazy eye) and strabismus (crossed eye) by restoring vision through exposure to new information in their suppressed eye by connecting it to their good eye based on scientific research in virtual reality. However, whether or not one suffers from these symptoms, Diplopia is an exciting and challenging game for everyone.

2.2 History of Virtual Reality

Students In the 1950s, Morton H. Eilig, a Cinematographer, built a single-user game console called Sensorama, that included stereoscopic display, stereo speakers, and a moving chair. This console enabled the player to view television in three-dimensional ways. Moreover, in 1961, Philco Corporation developed Headsight, the first Head Mounted Display.

This device consisted of a helmet equipped with a tracking system and a video screen.

Furthermore, in 1965, a computer scientist named Ivan Sutherland embodied his vision in what he called the Ultimate Display. This display was used by the player to visualize a virtual reality that was very similar to the real world.

Today's virtual reality can be viewed as the sum of several disciplines; artificial intelligence, three-dimensional or stereoscopy, simulation, including computer graphics. In other words, it is a world referred to as artificial reality, virtual environment, virtual world technology, or cyberspace; and the system that enables the implementation of this is referred to as virtual reality system.

In 1984, Jaron Lanier found a venture company called VPL Research in the garage of his house in the city of Sausalito, California. He was very interested in music and was immersed in devising ways in which computer could be combined with music.

He was excellent in mathematics; he dropped out of high school at age 15 and took classes in mathematics at the University of New Mexico. He turned into a 19-year-old computer programmer and created a game called Moondust. Then he began a business from the profit of this game. Upon meeting a man named Zimmerman, Lanier was able to conceive of "Air guitar"; the idea of a system in which music can be played with the movement of the body without an instrument.

3. Problems with the reality of a virtual reality game

The potential social impact and side effects of the new technology such as virtual reality has increasingly become a concern. Mychilo S. Cline in his book *Power, Madness and Immortality: The Future of Virtual Reality* points out that virtual reality brings about many major changes in human life and

activity.

3.1 The reality of virtual reality

Scientists have studied possible ways to develop biosensors for virtual reality games. The biosensors detect and analyze the nerve and muscle activities. The computer makes an analysis of the user's movement in physical space and makes a corresponding application in virtual space. Virtual reality games are becoming increasingly popular in graphics, animation, and most of all, among young people who like to interact with other players.



(Figure 3) European architecture and landscape complete with a windmill

The virtual, includes remote or telecommunications environment that provides the user with the concept of telepresence and telexistence or visual artifacts using input devices such as a keyboard and mouse. The most positive aspects of the development of science and technology are without exception their effect on education and the developments in medical technology.

As a university can operate completely in virtual space, it has become possible to attain a degree from an existing foreign university from another country without the university having to go to that country. Another advantage of cyberspace is its use in financial institutions. Gradual computerization of bank operations lead to decrease in bank tellers until eventually it gave rise to automated banking.



(Figure 4) Fine Art Gallery with member's Art work displayed

Furthermore, NASA is studying ways to use virtual reality techniques to actually go inside and manipulate the joints and muscles of the human body and reveal the structure of the human body. Moreover, before an orthopedic surgery, Greenleaf Medical Systems uses 3D Gait Analysis System to evaluate how a person walks and uses virtual reality data gloves and suit to represent it graphically.

Symptoms of strabismus (crossed eye) in which both eyes do not look at the same place at the same time due to poor eye muscle control appear in 4% of children. In such a case, the human brain receives two different pieces of information from the eyes. As a result, the information from the weaker eye tend to become suppressed leading to loss of depth perception and 3D vision.

3.2 Side Effects of Virtual Reality

Virtual Reality technology provides the computer user a more new and powerful way to interact with a computer than the traditional keyboard or mouse. In addition, the VR technology is being incorporated not only in recreation but in many other fields such as medicine, engineering, etc. In fact, UK and many other countries are studying the VR technology in order to develop a wide range of products commercially.

However, the development and the use of

this technology are accompanied by other side effects. Many recent studies have proven that the use of VR game equipment brings about undesirable physiological side effects. These studies describe potential side effects of VR game devices. VR appears to be safe at first but it gradually becomes much more dangerous.

The more things can be carried out in the virtual, the more serious the destruction of human ethics will become. Additionally, students will suffer academically while adults will cause enormous problems at work. Adults and students will spend a lot of money on games they will miss school or their work performance will worsen. This will become the source of much tension and conflicts between family members. As a result, computer game addiction leads to social isolation; they will spend significantly less time with others; they will avoid social interaction and lose friends.

They will be exposed to game violence; further immersion in the game will cause physical and mental problems. Overly excessive competitiveness will interfere with a healthy social life; they will confuse reality and virtual reality and exhibit violent behavior. They will also show symptoms of Reset syndrome.

When the computer does not work properly, it can be brought back to life by pressing the reset button; Reset Syndrome is a phenomena in which one tries to restart a relationship or action that he has carried out up to that point that he has been dissatisfied with. The most prominent features of this syndrome are impatient, inconsiderate, and self-centered behaviors extending to irresponsible behaviors.

4. Countermeasures for Virtual Reality Games

4.1 Treatment of Game Addiction

Time spent playing VR games should be gradually reduced. Time spent playing interactive games should be gradually reduced as well. The player needs to come to the recognition that his status in the game is not his status in real life. Also, games must be gradually deleted from the computer.

In addition, he needs to quit game communities. Time spent playing games and surfing the internet must be better balanced in 1 to 1 ration. Furthermore, violent games must be gradually replaced by non-violent games. Instead of trying to raise his status in a game, he needs to improve his status in the real world through sports, culture, hobbies, sexual activities rather than his status in games.



(Figure 5) Sports Treatment

The player needs to learn the proper way to play a game and its necessity. Moreover, he needs to find an appropriate way to deal with stress but also manage time autonomously through effective time management. Through physical exercise such as basketball and hiking, he needs to develop interest in realistic hobbies other than games and prevent bad posture because of the computer use.

Since games tend to cause one to become self-centered he needs to increase time spent with family and friends to strengthen human bonds. Moreover, he should keep a regular bedtime; playing games late into the night

brings about lack of sleep that interferes with daily life. Further, he should enjoy at least 30 minutes of sunshine; sunlight activates the immune system, calms the mind, and helps to create emotional stability.

4.2 Countermeasures for Virtual Reality

The perspective that violent games or movies promote violence in real life is wrong. At first glance, it may be considered that way but there are incontestable differences between virtual reality and real world. In order to prevent a crime committed under the influence of the virtual images in the real world, what is needed is not the restriction of such virtual images. Rather, what is necessary is a training program that enables one to discern between what is virtual and real.

One can experience great fun in a short period of time in a game. In fact, he can obtain much psychological reward such as joy and happiness that he would otherwise be unable to experience in the real world and the process would be very fast. This is common all around the world.



(Figure 6) Virtual Reality Therapy

However, because the process is too fast there has neither been enough time to study the side effects of playing games nor for the gaming industry to be concerned about the shortcomings of games. And most of all, due to the phenomenon of cultural lag most people have never had an accurate awareness regarding games.

In this way, while the gaming industry was declining, with more freedom in the society in the 21st century, the value of the individual began to be respected. It went in two directions. First, the overall trend in the industry is that as it became consumer-oriented, consumer demand for games and game corporations increased. On the other hand, as the value of the individual began to be respected, an issue that was raised addressed the problem of neglecting school violence.

Games, among virtual reality, are realistic virtual reality in which the game players participate in actuality. Because of this, mentally unstable people who are easily affected by external media can be affected by games in their real lives. For instance, there is a possibility for such people to commit a real murder if they play games that included murder. Aside from such cases, the merit of games is that they relieve stress and provide virtual experiences. Also, games provide greater entertainment than any other cultural content and bring in more profit than any other cultural content. This refers to not only nominal returns but investment returns and profits

5. Conclusion

PC Games Genre s are comprised of the action, adventure, shooter (gun shooting, etc.), horror, strategy, simulation, and role-playing games (RPG). In role-playing games, the individual players live out a specific role (character) they have selected within the game world. The player's main role isn't to attain a specific task or goal but build up his alter ego character. Some RPGs are Lineage, Diablo2, Baldur's Gate, A Thousand Years, Ultima Online. Once one sets foot in RPG, there is a strong possibility of game addiction.

The three main features of the games are

these. First, they constitute an online game space (cyber community). This is addictive as an RPG gamer identifies himself with the character living in the virtual community. The gamer could fall into a shared illusion as he believes the growth of his character to be his own personal growth. The longer the time spent playing the game, the longer he is likely to confuse the virtual and the real worlds; this in turn leads to a self-development process whereby his desire to play games is intensified.

Take a look at Lineage which is a very addictive game. Lineage possesses a virtual world as tangibly as the real world. The gamers select a role among four characters (monarch, fairies, wizards, knights) and participate in two virtual spaces made up of Talking Island and Mainland. The gamers compete and form relationships with other gamers through their alter ego characters in the virtual world. Sometimes the virtual world is connected to the real world. They can also exchange weapons they have acquired throughout the game in the real world. Or they can buy or steal a gamer's ID of a specific character and pose as that particular character in cyberspace.

Psychologists warn that game addiction can lead to the confusion of identity in real life. Being unable to distinguish between reality and the virtual world, the gamers fall under the illusion that they are the characters in the game. Furthermore, gamers tend to become increasingly obsessed with the virtual world because the illusions vanish when they come back to the real world.

Naturally, there are people who insist on the positive aspects of the game. They claim that aggression can be mitigated through vicarious gratification; and that the children will become more familiar with technology. In addition, some findings suggest that games foster independent thinking and

problem-solving skills. Inevitably, PC online game addiction debate will eventually converge into the problem of balance and moderation. In moderation, it would not be bad at all. The problem would be the maintenance of balance and moderation.

References

- [1] Bates, K. L. Seasick in cyberspace. *The Detroit News*, December 11, 1995. Detroit Michigan: Discovery. 1995
- [2] Bussi, C. A. *Virtual reality-based investigation of four cognitive theories for navigation*. Unpublished doctoral dissertation, Virginia Polytechnic Institute and State University, Blacksburg, VA. 1995
- [3] Eung-nam Ko, Sung-ryong Hong. *A Web Based Error Manager for Societal Security Service*. Korea Digital Contents of Society Vol 15 No 1. 2014.
- [4] Howarth, P.A. *Virtual Reality: an occupational health hazard of the future Presented at RCN Occupational Nurses Forum, Glasgow, Scotland, "Working for Health", 22 April 1994. Page 22 of 23*
- [5] Kulkarni, S.D.; Minor, M.A.; Deaver, M.W.; Pardyja k, E.R.; Hollerbach, J.M *Design, Sensing, and Control of a Scaled Wind Tunnel for Atmospheric Display*, Mechatronics, IEEE/ASME Transactions on, vol. 17, no.4, pp. 635 - 645, Aug. 2012
- [6] Kalawsky, R.S. *Exploiting Virtual Reality Techniques in Education and Training*. Technological Issues. 1996
- [7] Regan, E. C. *An investigation into nausea and other side-effects of head-coupled immersive virtual reality*. *Virtual Reality*, 1(1), 17-32. 1995
- [8] Regan, E. and Price, K. *Some side-effects of Immersion on Virtual Reality*. APRE Report 93R010. 1993.
- [9] Wilson, J.R., Nichols, S.C. and Ramsey, A. *Virtual Reality Health and Safety: Facts, Speculation and*

Myths. VR News, Vol. 4, Iss. 9, pp 20-24.
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