The Study of the Video Games' Impact on Human Psychology

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ABSTRACT: *In this work we planned to investigate the synergy between psychology and video games and document the effects video games cause to its users. Hence the psychology issues related to video games have addressed the effect they have on the users' personality, health, and psychosocial aspects. This work will focus a recount of the attempts to evaluate the effects video games have on users from a psychological outlook. The major issues the video game studies have had due to a conservative ideology that marks the designs of today's psychology would be studied. The new inclusion as a disorder in the non-substance related addictions section within the DSM-5, until its definitive incorporation into the World Health Organization's International Classification of Diseases (ICD-11), we can clearly identify a timeline of events and processes that have led to the construction of a discourse about the dangers of video games in people's mental health.*

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1. Introduction

To talk about the relationship between psychology and video games is to talk almost completely about the studies of the effects video games cause to its users. Therefore, it can be said that most of the psychology matters concerning video games have focused on the effects they have on the users' personality, health, and psychosocial aspects. This essay gives a recount of the attempts to evaluate the effect video games have on users from a psychological outlook. It must be signaled out that these investigations have been inclined, from their early origins to moral prejudices, which hasn't allowed for non-biased research. Recurrent prejudices are allusive to the harmful effects video games have had on youngsters and society out-large, which are the very same judgments made on movies and TV when they first appeared in the nineteenth and twentieth centuries. Thus, we can observe the epistemological problems video game studies have dragged along due to the conservative ideology present in psychology –as a scientific discipline until nowadays.

From a historical point of view –within the psychological tradition– a close relationship between ideological conservatism and video game research can be easily traced. Since its origin in the American neoliberal conservatism context of the '80s, up to its recent incorporation into the World Health Organization's International Classification of Diseases (ICD-11), we can clearly identify a timeline of events and processes that have led to the construction of a discourse about the dangers of video games to mental health.

This process has been made through a double procedure: taking into account the conservative moral bias as an axiological principle in video game research made by psychology, we assume false propositions had been assumed in the construction of psychological research models concerning video games and their adequacy to the expansion of such dubious categories like non-substance related addictions. Moral conservatism, neoliberal ideology, and a psychological complex have been the main routes traced between psychology and video games throughout the last 40 years.

Thus, it is necessary to develop a critic outlook on the relationship between psychology and video games to warn about the processes of construction and manipulation of subjective practices concerning them. It is necessary, also, to warn about the procedures of pathologizing leisure practices in the video game context, being able to identify the subjects and institutions active in this process, as well as their motives and connections with other psychosocial practices presented as possible personality disorder highlights in the core of our societies. Analyzing the relationship between psychology and video games allows us to observe wider processes that have permeated and affected our daily practices in the last decades from a privileged place thanks to its clarity and proximity.

2. A Psychological Outlook

Psychology's interest in video games started to manifest when they became popular in the early '80s in American homes. The reception made by psychological and health concerns about possible video game effects was not very positive, as exemplified by Charles Everett Koop –American Surgeon General– in a conference given on November 10th, 1982, at the University of Pittsburg. This prominent symbolic figure in the American health field stated that video games are one of the three main causes of domestic violence, as well as TV and economic problems [1].

Such affirmations had no academic grounding whatsoever and were merely a sum of moral prejudices and ignorance towards the field. The statements given by academic authorities were the foundation of its reception, the creation of generalized opinions, and discourses based on mistrust towards video games and their effects. In 1983 Harvard University organized the first conference about the psychological effects of video games, in which the most diverse discussions took place: from psycho-pathological consequences to studies concerning fields like personality and health, or hand-eye coordination [1]. Curiously enough, these first investigations reached positive conclusions concerning video game effects in young people.

A wider analysis of the foretold research can be found in the book *Mind at Play, The Psychology of Videogames*, published in 1983 by Geoffrey Russel Loftus [2]; in it, he analyzes these early research on video games from a psychological outlook. There seemed to be an almost generalized consensus about the interdependency between playing video games and any other negative or pathologic effect. Between the research that defends this position are such works like *Personality Differences between High and Low Electronic Video Game Users* [3] and *Correlates of Children's Usage of Video Games and Computers* [4].

Concurring with the video game industry crisis from the early '80s, the researcher's interest towards video games seemed to decrease; the interest would appear again one decade later, in the early '90s, with the boom of video games as one of the early industries of domestic entertainment. Around this time, the same prejudices about video game's negative effects upon youth and society out-large would reemerge. The fact that the negative view upon video-games appeared once again can be explained by the fact that this second generation of investigations considered demonstrable facts the prejudices made by Dr. Charles Everett Koop in 1984. This means that prejudice was recognized as a demonstrated fact for this second generation of researchers who, retroactively, based their studies on the discoveries made by the first research.

We can find a clear depiction of this second generation in works like *Video Kids, Making Sense of Nintendo* [5], in which the author defends the theoretical postures contrary to these stereotypes: it is reasonable to assume video games do not contribute to the development of deviant conducts between their users; furthermore, they can be helpful in their growing-up process [6]. Some articles published in Spanish by Estalló [7,8] present empirical research about this topic. Funk [9] ad-

dresses such arguments with these words: Despite the fear related to hypothetical problems that video games might cause, current research can not establish a relationship of any kind between frequent video game usage and the development of a concrete psychopathology [6].

It wouldn't be until the beginning of the new millennium when, by the hand of video game cultural and social recognition, that video game research started to get rid of these negative prejudices, making it possible to explore the real relations within this field. This situation concurs with the maturity of the first generations of video game users who started to grow up into the adult world as parents, teachers, or researchers. Video games stopped being considered a simple childhood or youth-related issue and became a trans-generational cultural phenomenon. It was at this moment when video game studies were instituted as their own discipline, drifting from the rest of academic outlooks. This situation has been constituted in parallel with more exhaustive research about video games in different disciplines. The following chapter illustrates some of the most common beliefs in psychological studies that have given ground to public opinions such as fears, prejudices, and discourses about video game usage.

3. Fear of Getting Hooked: Addiction

One of the biggest concerns surrounding video games is perhaps their capacity to generate addiction, a situation is usually mistaken with the time the user interacts with them. Most of the times, the attempt has been to detect addiction through response towards certain triggering items, while some others have tried to directly adapt international criteria for substance-related dependency diagnoses applied to video games without context. The problem with such adaptations is the tendency to replace the concept of a substance by video games. As early as 1995 Dr. Sue Fisher [10] reproduced the procedure by making the same protocol-based diagnose questionaries, using the abbreviation DSM-IV-JV with regards to the Diagnosis and Statical Manual of Mental Disorder (DSM) used by psychiatrists and psychologists worldwide.

Some other times, the attempt was to generate tools capable of detecting abuse towards video games [11]. Taking into account these demanding activities can become conflictive for those involved in them, no defense can be made for them being addictions. Thus, from a closer and less alarmist perspective towards the realities generated by video games, it could be said that certain problems can be generated by the abuse upon the number of daily hours spent in their engagement, or the attention towards them when compared to other activities.

Gonzales [12] goes as far as to distinguish between video games' addictive capability between each other. Concerning video games he says: This type of video game does not imply all of the individual and familiar consequences possessed by video game gambling (. . .), we recognize human beings to be capable of displaying compulsive conduct towards any object [6]. This is to say, no one denies the fact of certain conducts to be developed by video games, as they can be the starting point of certain problems, but they also –widely– imply video games to be a threat by themselves.

4. Violence Outside the Screen: Aggressiveness

Another prejudice towards video games is their capability to generate aggressive conduct in their users. Such accusation is related especially with video games belonging to particular genres like fighting games and shooters; the wide rangeof genres within the video game world must be taken into account. It can be said most video games do not show or use verbal nor physical aggression. These accusations have been generalized without taking into account this consideration of genres with aggressive or violent topics. This is to say, the violence accusation has been generalized to all genres, simplifying their topics and game mechanics; this would be comparable to accusing TV or movies to generate aggressiveness in their users without taking into account the genres that conform these media.

First, we have to contextualize the theoretical framework from where these accusations towards video games and aggressiveness come from. These theoretical outlooks use vicarious learning models, whether imitative, social [13, 14], or the social cognitive theory [15], to formulate their hypotheses about aggressiveness increase and the lingering violence after playing video games. There is a generalized idea of violence-related video games generating a moment of excitation making them more aggressive than non-users. This research assumes that constant exposure to video games can generate a negative influence through the decrease of empathy in the user towards the world around them since they perceive it to be a dangerous place.

Aggressiveness and video games is a topic which has been studied from other theoretical frameworks, but with lesser academic production. Some of the research approaches that have been proposed are catharsis theories [16], activation [17], and cognitive models [18] but they have all lacked the influence and reach of the aforementioned social learning theories.

Other research has counteracted arguing a series of considerations that are necessary to have in mind before generalizing the hypothesis of aggressiveness being generated by video games. The first criticism is made against the imitative theoretical model in which said affirmations were made, especially through the introduction of the distinction between the symbolic nature of video game violence. Lott & Lott [19] state that a big part of aggressive or violent video game content is presented symbolically, and is therefore situated in a different registry than reality. This distinction between the imaginary world generated by video games and the user's reality seems to be clearer in the minds of children than in researchers.

The active identification that exists between the user and imaginary characters is bigger than with other media like TV or movies; this situation has contributed to the belief of aggressiveness reproduction among its users. According to Schutte, Malouff, Post-Gorden, and Rodasta [20][20], video games generate a type of immersion between the user and the character where there is control upon the wide identification between both. To this, we must add at the common mechanic of fighting and aggressive genres, where violence is rewarded and helps to progress in the game. Commonly there is not such mechanical transference between the game's mechanic to reward violence and user's real life.

Even research that has proved a certain degree of relationship between playing violence-related video games and an increase in short time aggressiveness [21], warns about confusing correlation with chance. Goldstein [22] says: there is no doubt about there being a relationship between televised exposure and aggression, but there are nonetheless doubts concerning the cause of such aggression being television itself. [6]. It is relatively frequent to find in this kind of research about possible video game effects concerning aggressiveness among users conclusions that stretch the statistical correlations found –weak in most of the cases– rather than offering concrete evidence of what causes this aggression.

Within the research made about aggressiveness related to video games comes into attention that there exists, in fact, some kind of relationship between them, although it isn't possible to state that the effect caused by playing video games can last after the immediate moment of playing them nor that they can cause a medium or long-term influence. It is impossible to affirm that the effects generated by video games with violent themes or game mechanics have a bigger influence than other activities like watching TV or a movie, surfing the internet, or the relationships with friends or family members. There are very few studies that analyze long-term effects, and those that do don't offer concrete results of any kind, they are rather weak when trying to demonstrate their hypotheses about the negative influence of video games. As stated by Ferguson [23], there isn't enough data to demonstrate the affirmations made about the relationship between video games and violence in children.

Most of the studies defend the existence of a possible effect upon users that have been exposed to violence-related thematics or aggressive game mechanics, although this is a low duration stimulus [24]. There are few authors, like Anderson [18], that claim long-term effects, but the problem consists in not being able to assure these aspects being only negative, as it is usually believed. There exist the possibility that users generating, in front of violent or aggressive themes, comprehension strategies to face them and to generate a positive outcome outside the video game context and into society.

5. Violence Outside the Screen: Aggressiveness

Within the vastness of prejudices on video game's effects towards society, one of the most widespread beliefs is the relationship between playing with them and social withdrawal. Each user interacts with the game individually through a controller and an interface, which has contributed to the perception of a demanding relationship between user and machine that secludes him from the rest of the world. Actually, these perceptions are not that far from the truth, but the inferences made about their effects are. Video games are, contrary to common belief, a more social game than what one would think. Consoles –especially early ones– implied a fix technological support, making video games a domestic entertainment. This means that in order to play with them one needed to be – metaphorically– wired to these machines that gradually conquered living rooms and bedrooms. Later on, mobile devices appeared making it possible to take video games outside from home; nowadays, most cellphones have pre-installed games and their use has been popularized everywhere.

One of the early critics from this perspective was made by Selnow [25] in a paper where he defended a hypothesis related to

the fact of playing video games is a solitary activity; therefore, the more time users spent immersed in them the more they would ignore and drift apart from their friends and every other social interaction. Also, this dynamic seemed to generate a loss of social abilities in the user necessary for real life. As it has been noted in this recap through the research made in the psychological field, the results prove how much prejudices about the effects of video games are related to the user's reality.

Research made about the influence of video games on social surroundings has been found to contradict the idea of social withdrawal. First of all, users prefer to play with friends or with other users [26, 27] than playing alone with the console. Therefore, video games become an element that makes possible new relationships with other users either by sharing the same liking with new friends or by generating friendships with other users. Interconnected game play and online gaming have facilitated the interconnectivity of people with shared likes and hobbies [28]. This is to say, contrary to what is commonly believed, gamers prefer to perform this activity along with friends or other users. Also, being able to interact with other users generates new social relationships through a shared liking: video games.

The possible influence of the relationship between users and certain aspects that may demonstrate social withdrawal such as the number of friends they have has been investigated, without finding significative results. Other research has tried to find a relationship between playing video games and situations such as loneliness, popularity, or social status. Investigating personality features like shyness or hypersensitivity have found no relationship whatsoever [29]. No evidence of playing video games affecting sociability or the capability of making friends has been found [4], neither an effect upon the frequency in which friends see each other or interact between them [30]. Furthermore, most of the people that get initiated into video games make it through a friend or sibling [31]. As explained by Estalló [32], video game users don't have the impression of their hobby being harmful to their social interactions.

Within this research, appear those that relate the use of video game usage and academic failure. This negative effect upon scholar performance would cause negative effects like being absent to school, not studying enough, and not doing homework for playing video games [33]. These effects do not appear in all users nor in all ways of usage, for which it is problematic affirming that video games –and not other variables– are what cause academic failure. On the other hand, authors such as Estalló [6] defend that the regular and continuous practice of playing video games does not imply any special modification in scholar performance.

6. Violence Outside the Screen: Aggressiveness

The accusations made about the dangers of video games in society have reached higher levels in this activity than towards any other illness. The two most important accusations made about this are pathological gaming and the usage of toxic substances, keeping in mind the proximity between them. As shown below, previous comparisons have been made between gambling (whether coin slots, bingos, or casino games) and recreative gaming lounges (which incorporate coin slots into their arcade game machines) to the domestic usage of video games in a very simplistic manner.

Like Tejeiro mentions [1], pathological gaming is a common accusation that has been filtered to public institutions; this is the case of Zaragoza's town hall where the documentation of the Youth Council includes video game addiction within the general classification of ludopathies, without there being any explicit motives to justify this. Although commonly rejected to bringing related to the world of gambling, gaming lounges have generated an important fascination. Filled with visual and auditive stimuli, they offer a mechanical circus that captures the attention and curiosity of their guests; these often resemble Las Vegas casinos rather than juvenile recreative places [10].

The rejection of gaming lounges seen as places of moral corruption is a long story. We need to go back to the concept of game galleries, which remind of polar commercial galleries of the XIX century: avenues filled with commerces and shops whichWalter Benjamin identified as an early sign of urban modernism [34]. Since the first half of the XIX century, these galleries include –apart from shops and boutiques– innovative attractions like dioramas or cosmoramas. It was in this moment when the accusation of them being pernicious places to society began, as told by Huhtamo [35]:

Despite their huge and immediate popular attractiveness, game galleries were often considered as morally questionable. They were accused of being breeding stock for vices and even infectious diseases. Gaming galleries attracted a socially heterogeneous public, women included. They were seen as obscure and gloomyplaces, which reminds a lot of how the first movie theaters and projection rooms –nickelodeons– were perceived.

Back then, one of the most galleries-enthusiast groups were teenage kids, as they ditched classes to go. Literature from that era, included in comic strips and postcards, show popular illustrations of fascinated young people looking through a mutoscope. It has been observed how the sign of the Samuel Swartz Gallery which had written Only men allowed drove children in like a magnet.

It is interesting to observe that accusations towards the negative effects of the new media introduced in society are nothing new and that –nowadays– they reproduce the same model of prejudices. Once again, no research demonstrates the possible relationships between pathologic gaming and video games other than the suspicions about them and gambling [36].

Related to pathologic gaming is the accusation of toxic substance usage. Studies that have touched this subject haven't found a clear relationship between them [6]. This accusation might be more related to generalizing gaming lounge attendants with domestic video game users than with the actual assumption made. This possible pathological gaming present in the recreative place context often includes the presence of dependence on certain toxic substances. The reviewed investigations [1, 6] have not found differences between common video game users and non-users with regards to tobacco consumption, alcohol, nor illegal drugs.

Within the health field, it has been attributed to video games to trigger certain low physical disorders (cephalalgies, muscular pain, visual problems) and some more important, like epilepsy. Some authors, like Dorman [37], went as far as to coin a specific kind of epilepsy called dark warrior epilepsy. Other studies have remarked upon most of the kids that had a seizure while playing video games have had previous seizures doing other activities [38]. Epileptic seizures are often related to hypersensitivity to blinking images [39], as can be seen in similar audiovisual cases like those of television. In 1997, more than 12,000 children in Japan presented photosensitive epilepsy symptoms while watching an episode of the popular children series Pokémon. The episode *Cyber Soldier Porygon* showed a blinking image sequence that created panic about the series being the cause of the aforementioned epilepsy.

In the context of living a healthy life, video game usage has been related to a sedentary life and, therefore, with high levels of obesity [40], although it is necessary to mention that this may well be caused by television or other habits. Nevertheless, we must take into account that the most recent advances in the industry have incorporated motion detection sensors (Nintendo Wii, Kinect), which resulted in video games in which continuous movement is required to play. Perhaps this accusation, in the medium or long-term, will become adequate only about television and not to the video games of the future.

There are not conclusive investigations that show a relationship between video games and their negative aspects. Thus, most of the discourses about these effects have been grounded in moral prejudices rather than in well-based research.

7. Violence outside the Screen: Aggressiveness

The research made in the psychology field through more than thirty years hasn't been able to find evidence about a conflictive relationship between video game usage and psychological problems. Why have stereotypes and prejudices endured then? Everything seems to point out to the impossibility of it only being an epistemological mishap from psychology researchers. The virulence with which video games tried to be accounted as responsible –with the evidence gathered– for psychosocial problems isn't justified either. It looks like this trajectory of accusations and research respond to an ideological positioning by psychologists and the psychological discipline itself.

Obviously, ignorance towards a new media is always a generator of discord as seen with movies and television but, is it really only ignorance? The first researchers in the psychological field in the early '80s affirmed there was no relationship between psychosocial problems and video game usage. This first generation responded to a hypothesis based on ideologic stereotypes from the conservative wing of American politics. Let's not forget that Dr. Charles Everett Koop –American Surgeon General– had its naming in the era of the Ronald Regan administration. The neoliberal conservative revolution [41] that was happening in America couldn't avoid resounding in the world of video games, young experimental fields.

In fact, there seems to be a process of ideologic construction about the negative effects of video games clearly leading –in relationship to a much more transversal process– to the introduction of disorders not related to the use of substances, which appeared for the first time in the DSM-5 under the category of non-substance related addictions [42].

This is the first step needed for a posterior inclusion of the behavioral addiction category. This spin in the definition of addiction is perfectly aligned which the ideologic overlook of hegemonic psychology. Therefore, it is no longer the conduct involved, but the way of interacting with it established by the sub ject [43] will determine a future classification. This sets us in front of a complex situation to classify –potentially– any normal pleasant activity as addictive. The division line is drawn by the loss of control upon the activity despite the negative consequences produced by it [44].

Thus, the new classification of addictions not associated with substances translates to any repetitive conduct that produces pleasure and stress relief, and the eventual loss of control upon it, deeply altering everyday life in the familiar, social, and work-related aspects [45].

Although video games have not yet been introduced within their own category, the internet gaming disorder has appeared in the section of conditions that need further study. Within its specific definition, this disorder is characterized by its spacial location, which occurs on the web. It is social, played with other participants or contestants, and implies a playing time of 8 to 10 daily hours [42]. The age profile is young, mainly children and teenagers, geographically situated in oriental counties –although expanding among developed countries–, which is not necessarily making a big effort to situate a big part of video games –especially MMORPGs– as synonyms for Internet gaming disorders.

The introduction of non-substance related addictions into the DSM-5 is the previous step for the introduction of the so-called behavioral addictions into psychological diagnosis systems. This is not a casual step, on the contrary, it responds to a clear ideologic line of psychology that leads necessarily to the attraction of a series of conducts out of their control in precise classifications. Psychology's trajectory regarding video games must be taken as an example of a historical research process through the construction of a new diagnostic category to prevent the abuses to which those that deviate from normal conduct can be subdued into, in the era of cognitive capitalism.

References

[1] Tejeiro, R., Pelegrina del Río, M., Gómez, J. L. (2009). Efectos psicosociales de los videojuegos, *Comunicación*, 1(7), 235-250.

[2] Loftus G., Loftus E. (1983). Mind at Play: The Psychology of Video Games. Basic Books, New York

[3] Gibb, G., Bailey, J., Lambert, T., Wilson, W. (1983). Personality Differences Between High and Low Electronic Video Game Users, *Journal of Psychology*, (114), 159-165.

[4] Lin, S., Lepper, M. R. (1987). Correlates of Children's Usage of Videogames and Computers. *Journal of Applied Social Psychology*, 17(1), 72-93.

[5] Provenzo, E. (1992). Video Kids. Making sense of Nintendo. Harvard University Press, Cambridge.

[6] Estalló, J. A., Masferrer, M. C., Aguirre, C. (2001). Efectos a largo plazo del uso de videojuegos, *Apuntes de Psicología*, 19(1), 161-174.

[7] Estalló, J. A. (1991). Videojuegos: efectos psicológicos, *Revista de Psiquiatría Infantil y Juvenil*, (2), 106-116.

[8] Estalló, J. A. (1994). Videojuegos, personalidad y conducta, *Psichotema*, 6(2), 181-190 (1994).

[9] Funk, J. B. (1992). Video Games: Beningn or malignant? *Developmental and Behavioral Pediatrics*, (13), 53-54.

[10] Fisher, S. (1995). The amusement arcade as a social space for adolescent: an empirical study, *Journal of Adolescence,* (18), 71-86.

[11] Tejeiro, R., Bersabé, R. (2002). Identifying video game pathological playing in adolescents, *Addiction*, 97(2), 1601-1606 (2002).

[12] González, A. (1988). Joc Patològic: Una nova adicció. *Tibidabo Edicions*, Barcelona.

[13] Bandura, A., Ross, D., Ross, S. A. (1963). Transmission of aggression trough imitation of aggressive models, *Journal of Abnormal and Social Psychology*, (63), 575-582.

[14] Bandura, A. (1969). Principles of behavior modification. Prentice-Hall, New York.

[15] Bandura, A. (1986). Social Foundations of Thought and Action: A Social Cognitive Theory. Prentice-Hall, New York.

[16] Feschbach, S., Singer, R. (1971). Televisión and aggression: An experimental field study. Jossey-Bass, San Francisco.

[17] Berkowitz, L. (1969). Roots of Aggression. Atherton, New York (1969).

[18] Anderson, C. (1997). Effects of Violent Movies and Trait Hostility on Hostile Feelings and Aggressive Thoughts, *Aggressive Behavior*, (23), 161-178.

[19] Lott, B., Lott, A. (1985). Learning theory in contemporary social psychology. In G. Lindzey & E. Aronson (Eds.), *The handbook of social psychology*, p109-136. Random House, New York.

[20] Schutte, N., Malouff, J., Post-Gorden, J., Rodasta, A. (1988). Effects of Playing Videogames on Children's Aggressive and Other Behaviours, *Journal of Applied Social Psychology*, 18(5), 454-460.

[21] Dominick, J. (1984). Videogames, television violence, and aggression in teenagers, *Journal of Communication*, (34), 136-147.

[22] Goldstein, J. (1993). Video Games. A review of research. Non-published report. Toys Manufactures of Europe, Bruselas.

[23] Ferguson, C. (2008). The school shooting/violent video game link: causal relationship or moral panic?, *Journal of Investigative Psychology and Offender Profiling*, 5(1-2), 25-37.

[24] Barlett, C., Branch, O., Rodeheffer, C., Harris, R. (2009). How long do the short-term violent video game effects last?, *Aggressive Behavior*, 35(3), 225-236..

[25] Selnow, G. (1984). Playing video games. The electronic friend, *Journal of Communicacion*, 34(2), 148-156.

[26] Tejeiro, R. (1998). La práctica de videojuegos en niños del campo de Gibraltar. Asociación de Jugadores de Azar en Rehabilitación del Campo de Gibraltar, *Algecira*.

[27] De Waal, B. (1995). Motivation for Video Game Play: A Study of Social, Cultural and Physiological Factors, *Doctoral thesis*, Simon Fraser University, Canadá.

[28] Kline, S. (1998). Video Game Culture: Leisure and Play Preferences of B.C. Teens, Simon Fraser University, Burbany, Canadá.

[29] Van Schie, E., Weigman, O. (1997). Children and Videogames: Leisure Activities, Aggression, Social Integration, and School Performance, *Journal of Applied Social Psychology*, 27(13), 1175-1194.

[30] Creasey, G., Mayers, B. (1986). Video Games and children: Effects on Leisure Activities, Schoolwork and Peer Involvement, *Merril-Palmer Quarterly*, 32 (3), 251-262.

[31] Griffiths, M., Hunt, N. (1995). Computer Game Playing in Adolescence: Prevalence and Demographic Indicators, *Journal of Community and Aplied Social Psychology*, (5), 189-193 (1995).

[32] Estalló, J. A. (1995). Videojuegos. Efectos a largo plazo. Texto no publicado. Institut Psiquiàtric. Barcelona.

[33] Hasting, E., Karas, T., Winsler, A., Way, E., Madigan, A., Tyler, S. (2009). Young children's video/computer game use: relations with school performance and behavior, *Issues in Mental Health Nursing*, (10), 638-649.

[34] Jennings, H.(1987). Pandemonium. The Coming of the Machine as seen by Contemporary Observers 1660-1886. *Picador/Pan Books, Londres.*

[35] Huhtamo, E. (2007). Máquinas de diversión, máquinas de problemas, *Artnodes*, (7), 43-60.

[36] Delfabbro, P., King, D., Lambos, C. Puglies, S. (2009). Is video-game playing a risk factor for pathological gambling in Australian adolescents?, *Journal of Gambling Studies*, 25(3), 391-405.

[37] Dorman, S. (1997). Video and computer games: Effect on children and implications for health education, *Journal of School Health*, 67(4), 133-138 (1997).

[38] Kasteleijn-Nolst Trenite, D. (1994). Video-game epilepsy, *The Lancet*, 344(8930), 1102- 1103.

[39] Ferrie, C., DeMarco, P., Grunewald, R., Giannakodimos, S., Panayiotopoulos, C. (1994). Video game induced seizures. Journal of Neurology, *Neurosurgery and Psychiatry*, 57(8), 25-37.

[40] Ballard, M., Gray, M., Noggle, M. (2009). Correlates of video game screen time among males: body mass, physical

activity, and other media use, *Eating Behaviors*, 10(3), 161-167.

[41] Samour, H. (1998). Aspectos ideológicos del paradigma neoliberal, *Realidad*, (66), 603-617..

[42] Cía, A. (2013). Las adicciones no relacionadas a sustancias (DSM-5, APA, 2013): un primer paso hacia la inclusión de las Adicciones Conductuales en las clasificaciones categoriales vigentes, *Revista Neuropsiquiatría*, 76(4), 210-217.

[43] Alonso-Fernández, F. (1996). Las otras drogas. Temas de Hoy, Madrid.

[44] Echeburúa E, Fernandez-Montalvo J.: Adicciones sin drogas. En: Pérez de los Cobos J.C., Valderrama J.C., Cervera G., Rubio G. (Eds.). (2006). *Tratado SET de trastornos adictivos. Madrid: Panamericana*, 471-476.

[45] Labrador, F. J., Villadangos, S. (2009). Adicción a las nuevas tecnologías en adolescentes y jóvenes. Pirámide, Madrid.