

Technologies and Videogames: Influences on society

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Abstract: In the following paper we present the result of an exhaustive review on how contemporary video games influence multiple social aspects such as health, psychology, family, entertainment, economics and international conflicts. It also addresses the trends for the near future on the use and influence of video games in society, their consequences and trends. Multiple scientific articles and websites specialised in the video game industry were reviewed, from which information has been obtained on how they contribute to society. The video game industry quickly incorporates solutions to many social problems directly and indirectly, and their incorporation into society will soon become a prevailing need.

Keywords: Video Games, Technologies, Influence, Society

Tecnologías y Videojuegos: Influencias en la sociedad

Resumen: En el siguiente trabajo presentamos el resultado de una revisión exhaustiva sobre la manera en que los videojuegos contemporáneos influyen en múltiples aspectos sociales como la salud, psicología, familia, entretenimiento, economía y conflictos internacionales. Se aborda además las tendencias a un futuro próximo sobre el uso y la influencia de los videojuegos en la sociedad, sus consecuencias y tendencias. Se revisaron múltiples artículos científicos y sitios web especializados en la industria de los videojuegos, a partir de los cuales se ha obtenido información sobre la manera en que estos aportan a la sociedad. La industria de los videojuegos incorpora a gran velocidad soluciones a muchos problemas sociales de manera directa e indirecta y su incorporación en la sociedad muy pronto se tornará una necesidad imperante.

Palabras Clave: Videojuegos, Tecnologías, Influence, Sociedad.



I. INTRODUCTION

Video games, since their appearance, caught the attention of a society that, in principle considered them a leisure tool, while, at present, they are perceived by users, as an alternative to the improvement of emotional well-being as opposed to the classic point of view that games incite violence and antisocial behaviours.

Multiple studies have been developed on topics related to the influence of video games on society, some works defend the view that their use increases aggressive behaviour, increases emotional outbursts, and decreases inhibition [3].

The points of view that have been raised around the components of violence in video games have been relative to the time, being, in the beginning, the game *Missile Comand* (1980) was catalogued as violent even though it represented bombs and missiles through dots and stripes respectively. *PacMan* was later considered violent as he ate those who persecuted them, while, at present, violence has a more realistic and three-dimensional approach with dismemberments and blood that conveys violent messages as an attractive element for video games.

In addition, it is important to note that many people can be influenced by their environment, falling into an addiction, in which young people invest a large part of their time to interact through virtual environments, whose behaviour does not correspond to their conventional way of interacting between people in their real environment.

The industries dedicated to the production of video games develop events that aim to bring together high-level Gamers to compete in tournaments with international participation to promote their new developments and disseminate them through platforms such as Twitch, YouTube Gaming, and Mixer [6].

In the field of entertainment, the most accepted video games by young people are *Fortnite*, *GTA*, and *The Legend of Zelda*, which generate an addiction in their users causing great concern in parents due to the considerable time their children invest in these games. The concern is that the player diverts his attention to these games by downplaying the importance of studies, adopting changes in behaviour and isolation by not conventionally sharing new experiences with the outside world.

Experts state that the use of video games as a hobby potentiates cognitive and social skills, by the fact of fulfilling the sole purpose of winning and exceeding their expectations. The player is prone to conceive, through the video game, a world valued between good and bad in a way that rewards successes and punishes errors, and problems can arise when the user applies these assessments in real life.

Despite the violent content with the use of weapons, malicious feelings, and their possible alterations in real life, experts explain that video games allow adolescents to reflect on values and behaviours through their use and allow them to recognize the consequences of the actions they carry out virtually. These reflections happen because the social environment of video games allows users to exchange socio-cultural norms and values to generate perspectives of participation and apply their conclusions [11]. In contrast to the previous statement, they have developed video games that induce the intention to steal and murder, as is the case of games of the *Grand Theft Auto* type, in which these actions are essential to winning the game by acquiring both skills and abilities.

II. DEVELOPMENT

Despite the existence of a great variety of social aspects that are influenced by video games, the following areas have been considered and grouped in this study: family, psychology and health, education, culture, entertainment and leisure, politics and international conflicts, economics, and finally as a service [12].

A. Influence of video games on the family environment

Social and family relationships are influenced by the quality of their communication and ways of obtaining information from the environment. Video games are also a means of communication and require families to intervene, promoting a rational and critical consumption of video games, whose users are mostly young.

According to, the bond between parents and children was greater when they played video games together and suggests that the relationship is strengthened to a greater extent if the act of playing represents a shared interest of both. He also warns that playing as a family regularly can have a positive impact on strengthening intra-family relationships. The considerable time that a family compares a video game contributes positively to their communication. A family member may not like a specific conversation, however, common interest in a video game can facilitate family interaction [17].

Families with poor family communication benefit much more from shared play than those with high family communication. Additionally, the use of kinetic controllers in addition to benefiting health, promotes a time shared

with the family promoting physical activity.

As for the mood of people, the use of Wii-type games generates a lower sense of loneliness for the elderly and concerning those who only watch television.

Gambling addiction has as its origin in many cases, poor quality in the family relationship. For example, female gamblers begin their taste for gambling by trying to escape childhood disorders as if the game were anaesthesia or hypnotic effect.

Dysfunctional households that present a family problem between members increase the probability of exposure in young members to dysfunctional situations in a virtual context, such as the use of violent video games.

Inclusive video games have been implemented, which help children with neuromotor disabilities, and incorporate them into society starting with their own family and interacting with it through video games [23].

Parenting styles and family rules within the home about video games are a significant factor in reducing the negative effects due to video game use, especially with increased aggressiveness.

B. Influence of video games in the field of Psychology and Health

Since the beginning of the video game boom, psychologists have expressed a controversy between whether video games are considered malicious or good for human behaviour from the point of view of their short- and long-term effects.

Due to the considerable time invested by users to entertain themselves with video games of violent content, psychologists have conducted Stroop tests to evaluate the cognitive effects and lack of attention in such users. The results reflected in these tests are positive effects on people who invest a short time in playing video games and who test all their senses to understand the gameplay of video games [27].

In the use of online video games, frequency and duration are the most important parameters that influence effects on users. Positive effects of online video games have been found in children, including decreased anxiety, obesity, autism, amblyopia, psychiatric disorders, improved intrinsic motivation, visual attention, visual-spatial ability, and physical activity.

There is evidence that the use of video games combats sleep difficulties and poor quality of life in adolescents, an effect observed during the COVID-19 pandemic, anxiety has been reduced and with it its influence on the effects of sleep disorders and insomnia.

According to, if the user remains playing video games for a reasonable time, possible benefits can be maximized and be safe (that is, not to induce behavioural and emotional lack of control). However, this topic needs to be studied further, also considering the variables related to psychopathological dysfunctions.

The high state of anxiety of young people due to the disorder and load of daily activities can affect their overall performance. Experts affirm that today, video games are an effective therapy to reduce anxiety and conflicting behaviours in the socialization of young people. This is the case of the new genre of video games: "serious games" or games for therapeutic purposes, whose purpose is to create gamer entertainment content, which can rehabilitate the various disorders of young people [31].

Most video games produce greater interest to users of the male gender, this has caused the female gender not to feel identified or comfortable with the use of many video games. Currently, the video game industry generates developments that improve the inclusion of both genders, promoting gender equality and expanding its target market. The "My Game My Name" movement invites users to use nicknames according to their preferences without the fear of being judged.

According to what is stated in, it is proposed that playing video games increases the satisfaction of improving the living conditions and mental well-being of the player positively, allowing him to improve his mood, minimize his emotional disorders, promote relaxation and reduce daily stress.

Medical research highlights that video games can be used in the field of health as a type of analgesic therapy that can be provided to young people and children before surgical interventions to reduce states of stress and anxiety, keeping them focused on the gameplay of video games. Doctors say that the cognitive distraction provided by video games causes pediatric cancer patients to suffer less from the pains of chemotherapies.

According to, video games bring benefits in improving the multitasking approach and working memory. While, as risks, it is possible to incur a lower educational and professional level, problems of interrelating with peers, and reduction of social skills. The therapeutic effects of video games include treatments on some identified risks such as difficulty making new friends in real life, stress and maladaptive coping, lower social well-being and feelings

of loneliness, psychosomatic problems, and decreased academic performance [38].

Motor coordination, attention, memory, and problem-solving are additional benefits that provide the proper use of video games, also allowing to generate skills such as visual and auditory skills in players.

Video games are useful in the field of physical rehabilitation therapy, however, their usability is limited for some groups, such as the elderly or patients with Parkinson's diseases. Cases of patients with Parkinson's have been studied.

The video game industry has also developed its products so that people with physical disabilities, limited mobility, and communication problems can use video games and therefore benefit from their contributions to health.

C. Influence of video games on entertainment and leisure

For the creators of the first video games, these were not developed for use in entertainment but rather as a means of knowing if a computer could solve problems with a series of algorithms, after which the video game industry once consolidated evolved in its technology, tools and applications; it gradually increased its market towards consumers from other age groups, becoming one of the most profitable. Today video games are one step away from becoming the largest of the cultural and entertainment industries, ahead of books, cinema, or music. Video games of a violent nature and the use of weapons, according to [45], have even contradictorily become a way to turn the mechanics of panic and terror into fun and entertainment.

What in the past represented a mere form of distraction, has now been transformed into an immersive experience that allows the video game player to experience the same type of sensory perceptions, feelings, and emotions already experienced in other entertainment media, such as literature, music, theatre or movies; with the advantages of offering an appreciable improvement in the personal experience of the user, since it offers the possibility of concentrating on the narrative from a directive and active interaction.

In the current COVID-19 pandemic, it drew attention as the World Health Organization recommended the use of video games in periods of confinement, strictly for the aspect of understanding, and avoid addiction to it, it was amended that these are used for times less than 4 hours per week.

According to [48] Everyday video games are located within the fundamental aspects of culture since people from all over the world migrate to digital spaces for social purposes and entertainment. According to, young men between the ages of 21 and 30 have decreased working hours by 12% in the last 15 years to devote to leisure with video games and other activities, which represents a drop of 3.4 hours a week.

Over the past few years, technological development has led to changes in several areas, including playfulness. However, little attention has been paid to its role as pure entertainment. Leisure according to, is important as it refreshes the mind, maintains long-term health and provides peace of mind. Therefore, it is helpful to use a video game that meets the needs of leisure with the use of interactive and computer content that stimulates the emotions of its users.

In the 1980s, children and adolescents were the main consumers of video games with arcade games, later in 2009, the market diversified for more mature audiences being the average age of 35 players leading to its consumption of the Call of Duty saga whose content was adjusted to the adult audience [52].

Regarding the influence of video games in cinema, at first, these were derived from some popular movies, television programs or books, examples of these are Star Wars, Harry Potter and South Park. The 1980s produced television shows such as "The Super Mario Bros, Super Show" and later "Pokemon", whose intention was to promote the video games of the time. Series such as Tomb Raider had as their origin the video game and games such as Final Fantasy, Assassin's Creed, Resident Evil and other video games have been brought to the big screen, which shows the great influence of video games in entertainment.

Video game films such as Super Mario Bros (1993), Silent Hill (2006) and Sonic the Hedgehog (2020) have been proposed and have been created as adaptations of previous video games. While Jumanji: Welcome to the Jungle (2017) and Wreck-It Ralph (2012), are films that start from adaptations of various genres of video games and their stories and plot become widely familiar to players.

Sports video games provide a connotation as a spectacle in which players have a certain degree of belonging by being part of clans with their participation in leagues and tournaments.

D. Video games in politics and international conflicts.

They have adapted to video games [57] as a medium that uses linguistic, iconographic, and thematic codes of

contemporary culture to transmit their information to the public and are particularly attractive when considering their ability to simulate real war conflicts or fictitious conflicts that allow exposing some of the most important processes or situations of international politics, transmitting information about what war is like and offering a space for the actors of these games to communicate with the audience, dissolving the line between real and simulated war, to generate dialogues, for example, new routes for peace activism.

There are videogames with great success worldwide such as *Animal Crossing: New Horizons*, conducive to social vindication and political promotion, while in its beginnings it gave rise to the demands of demonstrators in Hong Kong against Beijing. In the recent electoral campaign of the United States, it served as a virtual space to look for followers whose objective was the young population. A congresswoman from New York generated her own video game as a virtual space for interaction with the user and whose objective was to increase its popularity in society. In the last presidential campaign in the United States, the players of *Animal Crossing: New Horizons* could support the candidacy through signs within the video game.

As a video game, candidates have converted their images to holograms allowing them to be seen from multiple places in the world, including with the ability to interact with attendees in real-time also seeking to create meanings through non-narrative elements and transmit certain ideologies.

America's foreign policy has changed its view of war, defining it as an activity that will never end against a diffuse and omnipresent (ubiquitous) enemy, thus generating new arguments for expanding the battlefield and having surveillance at the global level. An example of this case is the video game *Call of Duty*, a war game that aims to influence the user thought about the need for war and legitimacy when a person assumes a role in different sides, materializing the vision of a military doctrine since the 2000s where it aims to generate a dominant force in the development of a conflict [65].

In this last decade, war conflicts have been the inspiration for a greater content of video games, because its plot emotionally traps its players and involves them developing their tactical skills and sense of survival. On certain military fronts worldwide, the use of video games has been used as a means of simulation to train soldiers in a virtual war environment in which they face the enemy, acquire skills and make tactical decisions to fulfil missions.

America's *Army: Special Forces* is a war simulator for military tactical training of members of the United States armed forces, who must perform missions in simulated environments as close to reality as possible. The purpose of this training program is to convey a positive image of the work of the military to revalue military practice among young people.

Some video games reproduce wars and all kinds of violence based on facts of life reality, which allows the user to reflect on the way of life and culture of modernity. The video game within the modern conflict has not only served as a manifestation and representation of past events but also exposes decisive moments when making military decisions of a country. Games like *Call of Duty* and *Sledgehammer*, in addition to presenting the environment of the Second World War, provide an immersive experience that invites players to lead and form armies, control the economy or overthrow governments, and this close relationship between them causes the feeling of being learning. *Call of Duty WWII* has become a video game with more than 20 million users which has allowed them to experience virtually a Second World War in which no genocide took place.

E. Video games in the economy

The research carried out by [70] shows that the acquisition of video games triggers the purchase of an additional series of products and indicates that it not only promotes new sales but also that these are capable of being in other industries of a technological, entertainment, and commercial nature for their application and increase their productivity, which represents an important contribution to the economy in general.

Video games generate a great economic impact today due to their business strategy where it allows the user to interact with the game, such is the case of the E-sports company that transformed the stereotype of the traditional solo game and led it to generate several interactions with different players in a single game, thus achieving 453 million users who generated an income of more than 1000 million dollars for this company.

Within an economic theme, the video game *Sim City*, a city simulator that allows the player to create and manage the expansion of the territory, allows him to assume the responsibility of mayor, winning or losing the game depending on his decision making.

One of the economic aspects with greater representativeness in video games is the consumerism of its users with the content of new trends. In this last decade, the video game industry has developed a volatile evolution with

the massive publication of extensive digital content, which adheres in society as a fashion trend that drives people to buy this content.

The great success of video games has been reflected within the Twitch platform where great "streamer" characters such as AuronPlay, Rubius, and Ibai Llanos have managed to extend their popularity around the world through the gaming industry, but it is not until January 11, 2021, where The Greg a Spanish streamer manages to break the record for the highest number of views on this platform by presenting his new skin within the video game Fortnite, with 2,468,668 simultaneous viewers in the live stream [74].

Both in the economy and real life, there must be an interaction between people, whether these families or companies, to make a certain decision. Video games are a mathematical tool to support business decision-making that answers the question of how to make strategic decisions in a situation of conflict of interest.

In general, gamers are considered professionals in the virtual world since their job is to play online, even they invest by buying special devices to enhance their plays. Making money by participating in online video games has become so popular that there are world tournaments, which distribute thousands and even millions of euros. Within the online video game industry, games to make money are called Play to Earn (P2E) and consist of buying or selling digital assets called tokens, i.e., the native currency. Unlike traditional games where you had to level up while adding points, here the currency does have real value. The goal is to redeem your reward in a virtual wallet, this is the work and like any task, you receive a remuneration.

F.Video games as a service

From the English "Gaming as a service" (GaaS), the term video games as a service refer to the set of technological solutions or services available that seek to provide video games or access to video game content experiences through a continuous payment model, such as a monthly subscription, or annual, like the popular business model of technology platforms. Some of the biggest advantages of this new video game distribution model have to do with benefits for both developer companies and consumers. This model is a very effective solution against piracy since the content of the video game is stored on a secure server in the cloud, which is provided through secure online protocols.

In addition, the business model of a GaaS platform provides a lot of flexibility in terms of payments for the consumer, being the most popular in its branch, giving access to video games or their content despite not needing a specialized console, but through mobile devices, or smart TVs. The difference between a console and a mobile device is to replace the powerful hardware of the terminal (or console) to run the video games, with a high-speed Internet connection that supports the transfer of upload and download data simultaneously.

GaaS solutions can be classified into two large subsets: local rendering (LR-GaaS) or remote rendering (RR-GaaS) solutions. As for LR-GaaS solutions, any video game subscription service can be considered as a specific subscription to a massively multiplayer online game, as is the case of World of Warcraft, or a subscription service to video game libraries such as EA Play or Xbox Game Pass. These options allow access to the content through that subscription, but the video game as such runs on the computer where the content is downloaded, whether it is a console or a computer.

In RR-GaaS solutions, the content of the video game runs remotely on cloud servers, and the video output of the video game, as well as the player's input controls, are transferred over the Internet to each other, and in this way, the terminal can be a low-end computer, a mobile device, or a smart TV. In this case, the quality of local rendering and game latency are sacrificed, for the flexibility of accessing the content from anywhere through the Internet, some of the services that currently offer this modality are PlayStation Now, Google Stadia, or the recently presented Amazon Luna.

G.Future expectations in Video Games and their influences on society.

According to, the video game industry today is the largest and most successful in the world, as its sales, diffusion, and users do not stop growing over the years. Current trends and developments such as serious games, cloud gaming, videogame on demand, prospects for online downloads in video games, the online pass, will give impetus to video games in the future. The game of the future will be characterized by having a very social character, being unusual to play alone. The three-dimensional developments will gain strength and will stop using conventional controls, to give way to video games that allow the total immersion of the player in other worlds as it happens in films such as Avatar or Matrix. Video game users consider that virtual reality will have many applications even

beyond those of a game. In medicine, a kind of video game will simulate surgical operations before performing them with the real patient. Players with an average of 35 years believe that there are many expectations regarding the use of virtual reality, foresee that video games of this type will be used at all levels of education.

According to research conducted by, there will be a new interactive way of playing, an improved version of virtual reality games in which, the player has more control over the movement of the video game character. It is expected that virtual and interactive game rooms will be built in the future.

Through the perspective about the future of learning for users, it has been proposed that personalization, collaboration, and informalization (informal learning) will be the core of learning in the future through education technologies with the use of video games.

Video games and everything related to communication technologies will be part of daily life in the population around the world; for this reason considers that systematic studies should be carried out to determine the long-term effects of this exposure

In, it is considered that social media will influence the evolution and future of video games much more than other aspects within the industry. It also indicates that the most influential trends are online and shared games, while smartphones are revolutionizing the market, with Apple and Google vying for the biggest profits.

The prospects of video games are enriching from the point of view that video games will help to improve the quality of life of users in general, especially in children and the elderly; that is, a benefit of constant learning in branches of science and technology for young people, as for adults, a benefit to the management of new technologies causing adaptation with the future.

Faced with new development challenges and technological inclusions, state that younger generations will take advantage of video games to become familiar with communication technologies. Therefore, video games will represent a powerful medium for digital literacy for children, young people, and adults.

III. METHODOLOGY

From the review carried out both in scientific articles and web pages specialised in video games and mass media, constant technological development is evidenced, with a growing target market in the video game industry. Due to the pandemic, society had to opt for video games to mitigate the effects of the confinement at the beginning of 2020, when the pandemic was lying in its stage of proliferation worldwide. Organisations and countries have encouraged the use of video games to avoid psychological affectations due to the confinement produced by the quarantine.

Much of the reference documentation has advantages of video games on the psychological aspect and how this activity can supplant the usual action, especially in youth, who is one of the most affected by quarantine and the cessation of their usual social activities.

The educational field has been strongly benefited since multiple video games were incorporated into the academic curriculum at all educational levels.

There have been developments that explain contributions in the improvement of family communication, improvement of the quality of life, strengthening of digital literacy, and dissemination of new technologies, while in the disadvantages is the problem of addiction, distracting effects of daily obligations, and aggressive attitudes.

The scope of video games has even expanded to other forms of culture such as cinema, which has gone on to create scripts based on video games. The sculpture has also benefited in the visualization that virtual reality takes through the form of video games that allow better interaction and experience for the visitor.

New experiences such as multiple games in which users become spectators of the video game environment as a spectacle. In addition to this, the political sphere has found with video games an effective means of communication to attract and transmit its political precepts and campaign proposals.

The video game has taken the form of service for the user, who, to have access to multiple games, pays a subscription without necessarily having to acquire specific video game platforms and with the possibility of using it on

smartphones, tablets, and computers.

As for the future, there are current trends in the dissemination of video games that are expected to grow and have had an excellent impact on users, you want to have been expanding their range of influence in older players.

IV.RESULTS

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V.CONCLUSIONS

Excessive consumption generates different effects such as anxiety, depression, obsessive behaviors, loneliness and even a decrease in emotional intelligence, in addition to a lower expression of emotions.

Video games are useful for people with mental and physical problems. Without going any further, they have a positive impact on users with reduced mobility in the arms or with difficulties in personal relationships, as is the case, for example, with autistic people.

Las desventajas de los juegos violentos son evidentes. Algunos videojuegos de contenidos agresivos contribuyen a la existencia de agresiones físicas y a la radicalización de ideologías en el mundo real. Estos efectos pueden ser de corto o largo plazo según la edad y las habilidades sociales de cada persona.

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CURRICULUM SUMMARY



Carlos Toapanta, Mechanical Engineer from the Army Polytechnic School, experience in design, supervision, and quality assurance and control in the manufacturing and oil industry. Master's Degree in Integrated Management Systems for Occupational Risk Prevention, Quality, the Environment and Corporate Social Responsibility



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Silvia Naranjo, Master's Degree in Financial Management and Advice, Universidad Internacional de la Rioja, Spain, Public Accountant of the Technical University of Ambato, performances of vice-rectorate at the Instituto España, professor at the Instituto Superior Tecnológico Bolívar, at this moment studying the Expert in Virtual University Teaching, University of La Rioja – Spain and candidate for the Doctorate in Financial Accounting at the University of Trujillo, experience in higher education and business administration.



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