Risk, Emotion, and Aggressiveness in Virtual Leisure: Brazilian Players Standpoints

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Abstract

The virtual environment has been the centre of interest in several areas of research, such as information science, management, marketing and leisure. Virtual games, in particular, have deserved special attention from leisure researchers, as they can be considered one of the favourite leisure options in contemporary societies. This study aims to investigate subjective aspects of the relationship between humans and the virtual environment, particularly as they relate to risk, violence, competitiveness and emotions felt during the game experiences. An internet survey was developed and administered to 250 players of virtual games in Brazil, aged between 18 and 30 years. Data were descriptively analyzed and the results indicate the presence of addictive behaviour in some participants. Participants have evidenced feelings of higher competitiveness in virtual environment games due to the possibility of easily violating ethical and moral principles to supplant a virtual adversary. Risk did not seem to be a worrying factor for the players, whom during the games tended to exacerbate risk behaviours, such as aggressiveness and competitiveness. Findings suggest that virtual games, per se are not linked to an increase of violence and aggressive behaviour. To participants, personality traits are responsible for the aggressiveness expressed when virtual games are played. However, risk-taking behaviour can increase because players are protected by virtual anonymity. Further research is still needed to better understand the virtual environments used in the context of leisure experiences and their subjective elements.
Introduction

Virtual environment

As a focus of attention in several areas of knowledge such as psychology and marketing (Balasubramanian et al., 2003; Yee et al., 2007), the virtual environment has become the locus where interesting emotional aspects can be performed, including the search for the sensation of risk and the possibility of engaging in simulated activities. However, one of the most striking features related to virtual environments is still the possibility of simulating real human behaviour.

The notion of a simulated environment and its social impact was promulgated by Garson (2009), who considers that the themes and types of simulation are as diverse as the social sciences themselves, and that due attention should be paid to understanding the consequences of them. The contemporary world, especially in its postmodern guise, has been viewed as a world of simulation, a world where representations and proprioceptive clones of reality abound (Baudrillard, 1993). Each new way of understanding the new virtual technologies in the social realm brings challenges and new perspectives and possibilities for replicating reality.

Baudrillard (1993) has a particular and interesting conception of simulating reality, affirming that the essence of simulation is miniaturisation and that the real is produced from miniaturised units that can be infinitely reproduced. Due to the fact that reality is no longer enveloped by the imaginary, Baudrillard (1993) has posited that reality no longer exists but has been supplanted by hyperreality. This is the era when the truth does not exist because all referential facts are imitations. Baudrillard (1993, p. 343) has also stated that "simulation is no longer a question of reduplication or simply imitation, rather a question of substituting signs of the real for the real itself in an operation to deter every real process by its
operational double”. So, Baudrillard (1993) affirmed that simulation is characterised by a “precession of all models around the merest fact, which defines a true reality in the sense that this truth is exchangeable in the image of the models from which they proceed, in a generalized cycle” (p. 355).

All the important characteristics present in the virtual environment generate many social changes. Among these multiple effects, the changes that virtual elements have generated in relation to individual values, technological advance and new media bases have been especially significant in the leisure context.

*Virtual Leisure and video games*

The development of new linked psychosocial aspects derived from the experiences of using virtual environment in diverse social contexts is inevitable, due to the multiplicity of consumption forms and to the diversity inherent in the entertainment industry and the leisure experience. The influences of technological advances and the virtual environment have triggered countless transformations even within leisure activities (Bryce, 2001), propagating new forms of appropriation of leisure.

Schwartz (2003, 2007) has emphasized the importance of “virtual leisure” in the contemporary society. For Schwartz (2007) virtual leisure involves the use of new technologies such as the internet and video-games, for leisure and entertainment purposes. Schwartz (2003; 2007) suggests that the main difference between virtual and ‘real’ leisure is the possibility of expanding the perspectives of simulation and the lower perception of risk offered by virtual tools and technologies that offer the possibility to experience events from a simulated perspective.

Bryce (2001) examines aspects involving the use of the internet in relation to activity, place, meaning, leisure freedom and constraint, deviant leisure, and leisure and health. The
author recognizes the complexity of differing theoretical orientations in discussions related to
the presence of the internet in social life and highlights the importance of encouraging
scientific debate on the relationship between technology and leisure (Bryce, 2001). A
resulting demand for systematic innovation and human adaptation stemming from the needs
of a technological society is inescapable. However, Bryce (2001) emphasizes his concern
with the values that can be propagated by the use of the virtual environment, especially the
values deriving from the appropriation of virtual games as a content of leisure experiences.
Bryce (2001) also signaled an attendant concern that the philosophy of free communication
may be in direct conflict with some social and moral values, thus meriting public attention and
the application of specific policies. Aspects such as space, time and social interactivity
assume new meanings in the virtual environment and contribute to the modification and
simulation of attitudes, values and behaviour (Williams et al., 2009; Yee, 2006), especially
when playing with video games.

Among the various possibilities for virtual leisure enjoyment, video games have
attracted the attention of various fields of study including education and psychology (Bellotti
et al. 2007; Molesworth 2009). Bellotti et al. (2007), for example, point out the advantages of
using video games in educational contexts, as a means of enhancing educational attainment.
Molesworth (2009) focused on adults’ conceptions of video games as a way to escape from
the routine. Molesworth (2009) suggests that the unsatisfactory aspects of consumers’ daily
lives can be a motivational factor in playing video games. However, in all these fields of
study, there is no consensus about the influences of these games in human daily life.
Although some elements concerning virtual environments and video games have already
been elucidated in previous research, some subjective aspects involved with virtual
environments and video games have not been sufficiently considered in the literature regarding under-developed countries such as Brazil.

*Video games and behavioural impacts*

The singular features and characteristics of virtual games have created a compelling interest both in the objective and subjective aspects of these games, as they are experienced in the leisure context (Rienks et al., 2010; Ball et al., 2008). As Pivec et al. (2003) have demonstrated, despite different opinions about the characteristics of virtual games, there are some that are commonly acknowledged, such as interactivity, controlled risk, attractive challenges, the dynamism of visual images, rules and goals, the possibility of using fantasy, and the arousal of curiosity. Pivec et al. (2003) also draw attention to the fact that the level of satisfaction deriving from virtual games is a function of the games’ impact on the players, which itself is a function of the different levels of player skills and/or involvement with the games. This fact reaffirms the complexity of analyzing the subjective aspects of playing virtual games.

The constant use of imagination promoted by video games allows a temporary escape from reality, often sublimating daily frustrations (Ng & Wiemer-Hastings, 2005), representing one of the most important motivational aspects for games’ adherence. Through such games, people have the opportunity of being successful, at least in the virtual world. However, the pleasant sensation of success may lead to an addictive behaviour. This behaviour transformation may be correlated to levels of satisfaction, promoted by the imagination, as attained through the use of the virtual games.

In order to understand the addiction to virtual games, Chou and Ting (2003) pointed out that the repetition of activities in which a person is moderately attracted has a moderate effect on addiction. However, positive emotional states, coupled with a distorted perception,
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may have a more evident impact in the addiction process. In Shapira et al. (2003), people with addictive behaviour presented higher levels of satisfaction and pleasure during the virtual experience with games than when doing other daily activities. However, it was not always that those players with high levels of satisfaction during experiences with virtual games became addicted, which suggests the complexity of the issues and the challenges for therapeutic treatment (Shapira et al., 2003).

The sophisticated equipment used for accessing virtual environments, particularly in new games, is able to promote unusual sensations and emotions, enhancing other dynamic acquaintance processes, relationships and competitiveness. Those aspects have attracted the attention of many researchers examining the association between virtual games and risk and aggressive behaviours (Przybylski et al., 2009; Anderson & Carnagey, 2009).

These aggressive behaviours apparently depend on the relationships established in the virtual environment. The authenticity of these relationships, the right to anonymous speech, the relative camouflage of action, greater willingness to take risks, the intense use of imagination and the compulsive use of the internet are some aspects explored in many studies focusing on the virtual environment (Moore, 2009; Puzis et al., 2009).

In early studies of aggressiveness in relation to the use of technological resources like video games, Graybill et al. (1985) and Jipguep and Sanders-Phillips (2003) did not notice an increase of violent behaviour in children playing video games. Similarly, Funk et al. (1997) could not correlate the use of violent games with children’s aggressiveness. However, Fischer et al. (2010) have documented an increase in hostility when the game played contains high levels of aggressive content. The lack of a consensus in the findings of these studies reinforces the complexity of interpretation when the focus is the virtual environment.
Virtual games can present widely diverse characteristics, such as adventure and risk sensations depending on the goals and on the types of challenges. However, the encouragement of competitiveness and the possibility of penetration into a different form of reality are some of the common points that can be observed in these kinds of games. These characteristics differentiate virtual games from other types of games played in other environments due to the different multidimensional subjective aspects associated with the virtual environment (Yee et al., 2007). Even when comparing games set in the same environment, some differences are evident. Some kinds of video games require more interactivity, and also more cognitive skill, than other action games employing the same virtual environment.

A virtual game can involve innumerable psycho-neurological tasks such as visual tasks, coordination control and also mental operations like analysis, synthesis, understanding and interpretation. These characteristics presuppose the understanding of the potential of the virtual game shows through analysis of its goals and content. However, when analyzing the potentialities of a game, it is necessary to consider not only the content, but also the ways this content is presented and the adequacy and clearness of its objectives. Those elements can be related to several dimensions, such as memory, spatial and time orientation, the demands of motor coordination, visual and auditory perceptions and organization process (Caglio et al., 2009).

Some subjective issues related to the virtual environment have been scientifically discussed, such as the possibility of developing aggressive behaviour when in contact with violent virtual games (Gentile et al., 2009; Huesmann, 2007). However, the point of view of the individuals directly involved in such experiences is rarely focused on. Such a gap in the academic literature motivated this study. Due to its complexity, some aspects involved in the

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virtual environment, such as emotions, sensations, perception of risk and sexuality are not sufficiently understood. This research aims at investigating some of the subjective aspects involving human relationships processed in virtual environment. Although many of the cited studies have helped to elucidate some of these subjective elements concerning the virtual environment and video games, many challenges are still encountered, which have motivated the development of this study. The objective of this research was to understand the perception of any kind of risk, violence, competitiveness and emotion during games experienced in the leisure context, from users’ standpoints.

**Methods**

An internet survey was designed and conducted with a non probabilistic sample of 250 Brazilian adepts of virtual games, aged 18-30 years (average of 24 years old), of both gender (57 female and 193 male). The study was undertaken for one month, during March 2009. The survey was developed using self-administered web-based open-ended questions and responses were coded and grouped by similarity into 4 indicators. The first indicator grouped the responses for the sample characterization and mode of interaction with the virtual environment (time spent, who taught, type of activities, reasons for use, type of technology used). The second indicator grouped the responses relating to aspects of violence. The third indicator grouped the responses with respect to risk. The fourth indicator grouped the responses on feelings and emotions perceived during gaming activity.

The data was analyzed using pre-established categories for grouping similar themes and the answers are presented as a percentage. Myers (1997) highlighted the importance of internet surveys and research related to information systems and the internet. However, although there has been an increase in the number of researchers who are using the virtual environment and the internet to develop research and collect data, the technology for online
survey research is still young and evolving (Wright, 2005). Wright (2005) demonstrated that some of the advantages of collecting data through the internet are the access afforded to individuals in distant locations and the convenience of having automated data collection.

Among the disadvantages of online surveys, Wright (2005) included uncertainty over the validity of the data and sampling issues, and concerns surrounding the design, implementation, and evaluation of an online survey. Wright (2005) also advises researchers about the need to assess their research needs, budget, and research timeframe when implementing a web survey.

Participants were invited by the researchers via the internet. The contact between researcher and participants was made through Brazilian websites of online games and players were invited to voluntarily participate in the study. Those who agreed to participate in the study were properly informed about the objectives of the research and on how to participate. Participants were aware that they would not be identified and that they could withdraw at any time. They completed a consent form to meet the ethical procedures of the study.

The questionnaire allowed each participant to present more than one answer for each question, for this reason it was considered the incidence of each answer. Data were expressed as a percentage to illustrate and supplement the qualitative analysis (Jackson & Trochim 2002).

**Results and Discussion**

The results emphasised aspects such as the amount of time spent playing and motives of adherence to games. Other categories pre-established for categorisation were related to: symbolic aspects of violence contained in the games; comparing traditional kinds of games played in a real environment with the ones played in a virtual environment; the emotions and
sensations felt when playing video games; risk taking behaviour; self-image perception and fear.

The first question of the survey asked the participants who taught them how to play video games. Such a question is important to understand how people are introduced to the virtual environment. Among the participants, 60% were taught to play video games by their friends, 30% were introduced to video games by their parents and 10% claimed to be self-taught. The main reason for playing video games was the opportunity to have fun and to have pleasant experiences (60%), and 39% play video games just to pass the time. As seen in the first response, social groups are significant in introducing video games to other people. According to Wankel (1993) this can be explained by the desire for recognition and acceptance, and the desire to belong to a certain group. For Wankel (1993) the desire of belonging to a particular group, as well as the possibilities for recognition and social acceptance, are also determining factors for participation in activities in diverse leisure settings, creating fertile ground for the development of group relationships. It was also evident that the family often instigates the use of video games. This aspect was also evidenced by Vandewater et al. (2007) when researching the use of electronic technology among infants and preschoolers.

The participants maintained that on average they spent 3 hours a day, 4 days a week minimum, playing video games. The most frequent types of video games played were sport games, for 78% of the participants, followed by adventure games for the other 22%. Virtual game is a gaming category in which the experience occurs in the virtual environment, with the mediation of a computer and technological resources adequate for this purpose with internet access or based on computer simulators.
When analyzing virtual games, it can be observed that there are many plausible reasons justifying the choice of game. Different ways of interaction, different processes of internal logic, the objective of the games and also the type of the game are influences in the decision-making process of playing the game and even in defining the amount of time spent with that activity (Primack, 2009).

Another interesting result points out that, for 71% of the participants, the games played directly with joysticks were preferred over those played at the computer, since playing games using a computer is believed to be more expensive due to the necessity of using a computer with high definition to access all the technological magnitude of the games, consequently this kind of game is less accessible to people with low income. Among the remaining participants, only 26% preferred games played at the computer, and 3% played virtual games using their cell phones.

For emergent countries like Brazil, participants also take into account the price of the equipment. The economic aspect also has an influence over consumers’ decision making processes for choosing a game played without computer mediation. However, more research involving Brazilian game players is needed to understand the relation between economic factors and the willing of being virtually connected.

When asked about the symbolic aspects of violence contained in the games, 62% claimed that video game playing has no influence on their social behaviour. Participants asserted that aggressive attitudes are the outcome of predisposition within the perpetrators, regardless of environment, and that there is no relation with elements of violence in the virtual games. However, for 38% of the participants, virtual games can encourage violent behaviour, especially in those individuals with great difficulty in perceiving or understanding the boundaries between the imaginary and the ‘real’ life.
Although literature does not present a consensus as to whether exposure to video games increases aggressive behaviour, Krcmar and Lachlan (2009) agree that any effect of violence attributable to the games tends to decrease the longer the participants play. To Krcmar and Lachlan (2009) the length of play may have a curvilinear relationship to verbal and physical aggression. The studies of Gentile and Anderson (2006) reveal that violent games can have positive or negative consequences, although it is not proved that the effects are the same in every child. For these authors, virtual games can regulate individual and social violence, canalising violent behaviours into virtual actions (Gentile & Anderson, 2006). In this sense, there is still no consensus about the effects of virtual games.

When asked to compare traditional kinds of games played in a real environment with the ones played in a virtual environment, 63% of the participants asserted that there are differences between the two types of games. Participants stressed that traditional kinds of games allow greater social interaction, afford creative potential for communication, involve greater body participation and also promote health and cognitive stimulation advantages. For 31% of the sample, to play video games can promote individualism and generates social isolation. A proportion of 3.5% cited the predominance of imaginative functions during games played in a virtual environment and, for 2.5%, video games heightened the possibility of deteriorating health. Only 1% preferred to not answer this question considering their lack of opinion regarding the differences between the two types of game.

Stern (1999) disagrees with the idea that a virtual environment promotes individualism, but he is guarded in his conclusions. Stern (1999) believes that, when used consciously, the virtual environment may enhance interactivity by linking people all over the world, shortening distances and time if the opportunities are not misused. Focusing on the social interaction provided by a virtual environment, Stern (1999) explains that while technology may increase
social contacts, when misapplied it may also expand the capacity to express bad adaptive
behaviours and psychopathologies. Sodré (2002) also emphasised that the virtual
environment promotes a great opportunity for interaction with others. Therefore, Sodré’s
(2002) position contradicts the perception of participants in the present study regarding
enhanced individualisation as a characteristic outcome of games in the virtual environment.

Those participants who preferred to use video games instead of computers or cell
phones also commented on important characteristics of the console, in relation to ease of
control, the domain of the games and also the portability of the equipment, allowing it to be
operated anywhere. Hutchison (2007) explored the design elements that make the virtual
world so attractive to gamers. He also stressed that portability was one of the important
aspects of video games. Based on his results, Hutchison (2007) analysed and suggested
strategies for incorporating video games into educational programs. Some good strategies
when using the virtual environment in the educational realm take account of the need to
preserve the element of entertainment and the opportunities for interaction typical of
videogames experiences. Another important point relates to the length of exposure to the
virtual environment, so that the virtual dimension does not overlap the real task of education.

Other authors who demonstrated the advantages of videogames in a pedagogical way were
López and Cáceres (2010). López and Cáceres (2010) argued that these games allow the
virtual simulation of a practical situation, facilitating the visualisation of a process and
assisting in the achievement of learning.

However, the fun component of the video games serves as a motivator and a factor in
promoting learning. It should serve as a catalyst within, but not as the objective of,
pedagogical practices. López and Cáceres (2010) also asserted that it is important to be
careful with the kinds of games introduced in educational processes, especially with young
people and adolescents, and certainly it is crucial to avoid the abusive use of the virtual experience.

Regarding the emotions and sensations felt when playing video games, participants asserted that both positive and negative emotions are present. Joy, pleasure and excitement were the main positive emotions indicated by the participants. On the other hand, fear, anger and anxiety were noted as negative emotions that can arise in a virtual game. Participants also affirmed that there is a ‘mood swing’ when playing video games, and emotional states can go from positive to negative, as well as the opposite. An immediate need for pleasurable feelings and escape from daily routine during leisure time was posited by the participants.

The search for pleasure and the necessity of experiences that are not related to the problems of daily life justifies the increasing search for virtual activities with exciting characteristics, such as are afforded by video games. In regards to the emotional field, virtual games can promote moments of real catharsis for users. By playing such games, it is possible to experience different emotions inherent in human-beings, such as fear, happiness, passion and anger, without provoking evident physical, social or affective injuries, except when addiction or compulsive behaviour occurs (van Rooij et al., 2010).

It can be noticed that, by focusing attention on the attractive factors of the virtual world, the design of computer games promotes sensations of thrill and excitement, attracting sensation-seeking players and those who seek a measure of escapism (Ravaja et al., 2006). Van Rooij et al. (2010) have investigated the relationship, in the context of gaming technology, between enjoyment of computer game play and two different personality traits: sensation seeking, involving the need for novelty, and self-forgetfulness, involving total absorption in the virtual experience. It was suggested that these two types of personality traits may lead to higher engagement in computer game play and that those categorised as
highly sensation-seeking players may find a computer game more entertaining (van Rooij et al., 2010). Nevertheless, those classified in the personality category of self-forgetfulness have been perceived as having higher levels of real enjoyment.

The popularity of video games among people of different ages has inspired several studies (Kiili, 2005; Hutchison, 2007). Kiili (2005) suggests that virtual games attract people of all ages due to the fact that they usually offer fun, a range of emotions, interactivity, enjoyment, motivation and constant challenges, thus fulfilling some important expectations. For Hutchison (2007), the interactivity of games allows a continuous stream of challenging and competitive situations that have to be resolved, thus appealing to players of all ages. From Hutchison’s (2007) point of view, competition is the key element influencing players’ entertainment experiences.

The competitive aspect of virtual games stimulates players towards risk taking behaviour. In this virtual world, players are encouraged to take risks, explore, and try new things because the consequences of failure are not significant for ‘real’ life (Gee, 2007). The participants of the present research unanimously (100%) asserted that risk taking behaviour is not a worrying factor because it is exclusively related to the virtual environment. The participants also affirmed that, when playing, they tend to exacerbate risk-taking behaviours as well as aggressiveness and competitiveness, because they feel protected from ‘reality’. As shown by the data, the knowledge that social rules are not automatically transported to the virtual environment promotes a greater propensity for risky behaviour. Fear of punishment and sanctions that underlie the social reality does not exist in the virtual environment, so the values and behaviours can be changed, as expressed in some participants’ responses.
Williams and Clippinger (2002) developed research focusing on aggressiveness and competition in virtual games as well as the differences between players' behaviours in computer-opponent and human-opponent situations. The authors identified aggression and hostility exclusively as part of competitive gaming situations (Williams & Clippinger 2002). Williams and Clippinger (2002) also verified that players experienced higher levels of aggressive feelings after playing against the computer compared with levels experienced after playing face-to-face against a human opponent. These results suggested that aggression related to computer gaming may be reduced through a process of 'humanisation' of computer opponents. Larkin (2000) argued that the violence experienced in video games, television and films has an influence on, and stimulates antisocial and aggressive behaviours. However, all of the participants of this study believe that the violent content of virtual games does not induce behavioural changes in daily life.

It is therefore a social challenge, understanding about how the violence in virtual games and in real life is processed, and how the issue of violence is encoded in these contexts. Violence and fun in this virtual universe overlap, which can promote the trivialisation of aggression. However, the video game should not be mythologised as good or bad, or even taken as responsible for the spread of aggressive behavior. Indeed, video games can be considered as a tool for mediation of values, as well as other elements such as television or even the games played in childhood. However, this premise does not exempt them from representing a means of passage of ideological values, deserving therefore attention and extensive research.

Virtual games can also have an influence on players’ self-image perception. Indeed, 73% of the participants affirmed that there is a positive effect on self-image due to the strong use of imagination in virtual games. For 17% of respondents, virtual games allow people a
release from psychological constraints, while 10% of respondents did not notice alterations as a result of game playing related to self-image. Those participants who felt alterations in their self-image linked the experience to the possibility of being, momentarily, someone different from their real life persona. They also affirmed that, sometimes in real life, they face many repressive factors that, when given the opportunity, they try to counter by using their imagination in virtual games. In the virtual environment participants can transform themselves into powerful and stronger people, or even experience the feeling of crossing ethical boundaries, for example acting as ‘murderers’ without suffering any social punishment. As Taylor (2003) demonstrated, the player can self-identify with the virtual character. To Zillman (1998) and Jones (2002), virtual games give the opportunity of feeling and even of acting as courageous heroes. Indeed the virtual role of ‘hero’ or ‘villain’ can influence the imagination, the emotions felt and the virtual behaviour of players. These games are among the most popular due to the intense level of sensory, emotional and psychological involvement they offer the player. Narratives and visual and sound effects simulation add realism, enhancing the emotional content and imagination.

Fear, for virtual players, is not connected to the idea of a real death, becoming worthless and suggesting that there is an indifference to death. By neglecting this danger, a trivialisation of feelings and anxieties can be identified. These assumptions become real challenges, in order to find the mechanisms that trigger the subjective causes of this indifference and whether it can be extended to the behaviour in real life.

**Conclusion**

This study is limited to Brazilian players and their perceptions about some subjective aspects related to virtual games. So, further contributions will be important to understand subjective
aspects of virtual game players in different cultures, and places. The use of different methodologies can also enrich the understandings about emotions, risk and aggressiveness in virtual game players, offering the possibility for new discussions and methodological and theoretical approaches. However, the present research contributes to an initial discussion about the interfaces between virtual games, leisure and subjectivities. Subjective aspects of virtual leisure such as risk and aggressiveness are still rarely explored in the literature, highlighting the need for further studies in order to understand the dynamics of human relationships within the virtual environment. Based on the results presented in this research, it can be concluded that according to players’ standpoints emotional experiences are accentuated in the virtual environment. Emotions that can be seen as conflictive such as joy, pleasure, excitement, fear, anxiety, and anger were indicated by participants as emotions that can arise in virtual games. Also, players asserted that there is a ‘mood swing’ because emotional states in virtual games can easily vary, for example, from pleasure to anger. Most of the Brazilian players believe that there are differences between games played in a ‘real’ environment and virtual games mainly because the former ones allow more social interaction. Meanwhile, video games can promote individualism and social isolation.

The participants also indicated a higher level of risk taking behaviour when playing video games and a belief in the influence of virtual games on the self-image of the player. Virtual games were not perceived by the participants to be associated with an increase in violence and aggressive behaviour in daily life. However, the degree to which these subjective aspects are involved in virtual environment experiences still represents a challenge to academia. Therefore, the results of this study have a direct implication for the progress of studies on subjective aspects involving the virtual environment, emotions and
risk in order to broaden perspectives of understanding about the complexity of the issues discussed above.

The connections between the virtual environment and leisure experiences still warrants new approaches due to the need for understanding and elucidating the related subjectivities. Considering that the increasing presence of video games in modern society and that a wide diversity of motivations are present in the virtual games’ appeal, new research is needed to identify how these games could influence human life.

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