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Experiences of Time Loss among Videogame Players: An Empirical Study

RICHARD T.A. WOOD, Ph.D., MARK D. GRIFFITHS, Ph.D., and ADRIAN PARKE, B.Sc., M.Res.

ABSTRACT

Playing videogames is now a major leisure pursuit, yet research in the area is comparatively sparse. Previous correlational evidence suggests that subjective time loss occurs during playing videogames. This study examined experiences of time loss among a relatively large group of gamers (n = 280). Quantitative and qualitative data were collected through an online survey. Results showed that time loss occurred irrespective of gender, age, or frequency of play, but was associated with particular structural characteristics of games such as their complexity, the presence of multi-levels, missions and/or high scores, multiplayer interactions, and plot. Results also demonstrated that time loss could have both positive and negative outcomes for players. Positive aspects of time loss included helping players to relax and temporarily escape from reality. Negative aspects included the sacrificing of other things in their lives, guilty feelings about wasted time, and social conflict. It is concluded that for many gamers, losing track of time is a positive experience and is one of the main reasons for playing videogames.

INTRODUCTION

A WHITE PAPER by the Entertainment and Leisure Software Publishers Association (ELSPA)[1] noted that, over the last 15 years, electronic entertainment has been a dominant leisure pursuit. There are marked gender differences in relation to patterns of videogame playing behavior with males playing videogames significantly more regularly than females.[2–5] Wood et al.[3] found that 18% of the males in their sample were concerned about how much time they spent playing videogames compared to 3.7% of females. They also found that males were more likely to report losing track of time whilst playing videogames compared to females.

The findings of Wood et al.[3] indicated that videogame playing may be used by some players as a means of mood modification. They found that significantly more males reported that they played videogames for excitement and/or relaxation than females. Wood et al.[3] also found that significantly more high-frequency videogame players in their study (where high-frequency players were defined as playing videogames at least five times a week for a minimum of 1.5 h per session) reported losing track of time when playing videogames, compared to low-frequency videogame players (where low-frequency players were defined as playing videogames 2 days a week or less, and 1 h or less during each playing session). However, this does not tell us much about why time loss occurs, as those who play the longest also have the most opportunity to lose track of time. It appears that there are features of these activities that have the potential to absorb some player's attention to the extent that their perception of time is altered. Previous studies have found that regular videogame players often reported playing for longer periods than they intended.[4–6]

International Gaming Research Unit, Division of Psychology, Nottingham Trent University, Nottingham, United Kingdom.

Wood et al.[7] in an examination of the structural characteristics of videogames found that features such as physical feedback were not popular with either males or females. It was reported that such feedback may act as a "reality check" distracting the player from the game itself, and reminding them of their actual physical surroundings. Similarly, it was found that game characters that represented real people (e.g., Tony Hawkes) were not highly rated, possibly because players wanted to imagine themselves as the character on the screen. In addition, character customisation was deemed to be an important feature of a game by most participants. Therefore, it may be that the ability to dissociate when playing games (e.g., to forget about time) may depend upon certain characteristics of the game that allow the player to enter into a fantasy state.

Little is known currently about why subjective time loss (i.e., losing track of time) occurs whilst playing videogames, other than speculation that it may relate to features of escape, immersion and arousal. Furthermore, we do not know which characteristics of videogames, if any, may lead to varying degrees of subjective time loss (e.g., exploring, fighting, solving problems). The present study set out to examine videogame players' subjective experiences of time loss whilst playing videogames. The study was concerned with understanding both the meaning that time loss had for gamers, as well investigating any strategies they used to control or limit time loss experiences. In addition, the study asked about the particular characteristics of games that were most associated with losing track of time.

METHODS

Participants

A total of 280 participants took part in the study (202 males and 78 females), and they had a mean age of 22.6 years (16–51 years; SD = 5.96 years). Participants were self-defined "gamers" recruited through various videogame discussion groups and through snowballing techniques requesting the link be sent to other interested gamers. The majority of the participants were from the United Kingdom (n = 236) or the United States (n = 24), although 13 other countries were also represented among the remaining participants (n = 20).

Design, materials, and procedure

An online survey was constructed using *Autoform*, an in-house survey tool (i.e., http://ess.ntu.ac.uk/autoform/). The survey contained seven closed questions (relating to demographics, and time spent playing games), and six open ended questions (relating to gamers' views, experiences, and strategies in relation to time loss whilst playing videogames). Data were collected online, as it has been argued[8] that this medium is particularly well suited for investigating videogame players.

Analysis

Participants were contacted via a posting on various gaming discussion group web sites and informed that the study was about their experiences of losing track of time whilst playing videogames. They were informed that all responses would be kept anonymous and that their email address would not be passed onto anyone else. Participants who wanted to participate followed a link that led them to the online questionnaire where further instructions were given. Once the questionnaire was completed, the participants pressed "Send," and their responses were automatically sent to the research team.

Details of participants' views about time loss whilst playing videogames as well as their experiences of, and any strategies they use, to manage time loss were assessed through microanalytic content analysis. Emergent coding procedures were followed,[9] and two of the authors independently read through all of the questionnaires (with demographic indicators removed) and compiled a list of global thematic response categories for each of the six open ended questions. Comparison of the lists showed a high level of initial similarity (91% agreement). A composite list of response categories was collapsed into a final set of coding categories that was applied to all of the questionnaires. Two of the authors coded all of the questionnaires independently. Inter-coder agreement was high, with kappa values of 0.64–0.82. Landis and Koch[10] report that kappa values of 0.61–0.81 show a substantial strength of agreement, and values of 0.81 and above can be considered almost perfect.

Further quantitative data were analyzed using chi-squares and descriptives through SPSS version 11.

RESULTS

The mean number of hours that participants reported playing videogames was 12.5 h per week (SD = 10.9 h). The majority of participants regularly played online games (61.1%), and the mean number of hours those gamers spent playing games online was 9.4 h per week (SD = 11.2 h). Almost all

of the participants reported that they had experienced time loss whilst playing videogames (99%), of which 17% experienced time loss occasionally, 49% frequently, and 33% all the time. There were no significant gender differences ($\chi^2 = 2.33$, d.f. = 3, $p = 0.51$).

Overall, the majority of participants reported that losing track of time could be either good only (24.3%), bad only (29.3%), or both good and bad (38.2%). There were no significant gender differences ($\chi^2 = 3.227$, d.f. = 3, $p = 0.36$). There was no significant difference in views on whether time loss was good or bad between low-frequency players (i.e., those who played 5 h or less per week), and high-frequency players (i.e., those who played 15 h or more per week) ($\chi^2 = 0.75$, d.f. = 3, $p = 0.86$). Two-thirds of participants (67.9%) reported losing track of time in the evening and/or playing into the very early hours of the morning, compared to the afternoon (6.8%), and in the morning after getting up (1.4%).

Explanations for positive and negative views of time loss

Typical reasons that participants gave for time loss being good were that it enabled them to unwind, and temporarily escape from their everyday stresses and strains. Time loss could also indicate satisfaction with the game. This demonstrated that players were absorbed by the game and were enjoying themselves, and in this respect, the game was perceived as good value for money (Table 1). There were no significant gender differences on any of these, or between high and low frequency players.

TABLE 1. POSITIVE AND NEGATIVE ASPECTS OF TIME LOSS

Time Loss	%
Positive aspects	
Helps relieve boredom and/or stress	71.8
Indicates a good game and value for money	51.1
Negative aspects	
Missing other things (e.g., classes or appointments	87.7
Losing sleep	42.0
Guilt at "wasting time"	35.9
Creates conflict with others (e.g., partners, friends, relatives)	9.6

Typical responses to the question *"Do you think losing track of time when playing games is a good or a bad thing?"* included:

> Good games are good, and losing time is usually a by-product. Losing oneself and no longer self-monitoring is a good thing, almost by definition (male, age 31).
>
> I love losing track of time. I game to relax—it is a tool of escapism for me. If I was aware of time I'd be aware of all the things that stress me out (female, age 25).
>
> As long as no appointments or much needed sleep is missed then (it is) a good thing … (you can) immerse yourself in another realm (male, age 50).
>
> It's good to have a break from real world time—detaching yourself from normal time gives you the opportunity to "live outside yourself" for a while. When you do come back to normal time you feel refreshed … similar to the feeling you get after meditation (male, age 23).

The dissociative experience of time loss could also be used to distract the player from other, more physiological, unpleasant states that they were experiencing (e.g., withdrawal when giving up smoking). For instance:

> When (*Final Fantasy 7*) first came out, my boyfriend and I took turns playing and ended up playing for pretty much three days straight. We hadn't realized that two extra nights had passed and felt absolutely horrible physically afterwards. On a good note, playing videogames helped me quit smoking. I'd play instead and then huge chunks of time would go by with no nicotine cravings at all (female, age 25).

Typical negative experiences related to missing or sacrificing other things, such as appointments or sleep as a result of losing track of the time. Several participants expressed that they felt guilty after losing track of the time because they felt that the time could have been better spent doing other things. Sometimes participants experienced social conflict when partners, friends, or relatives felt that they were being neglected due to their game playing. For instance:

> Nothing is gained from playing a game . . . It prevents you from doing constructive things like coursework (male, age 21).
>
> I should be using my time more constructively, or going to sleep earlier (male, age 19).
>
> Time is valuable and wasting it on games is a tad pointless. Playing on a game means I don't get the sleep which I need to function properly the next day or I'll just get moody (female, age 18).

> You tend to neglect more important things than play, like your partner, pet, homework and sleep (female, age 23).
> Losing track of time during the day can be very bad, especially when you've got lectures/work/important meetings/girlfriend or boyfriend (male, age 20).
> I find sometimes that I miss things I shouldn't, like eating dinner or an early morning lecture. I don't think that's a good thing (male, age 22).

Characteristics of games that induced time loss

Time loss was not associated with any particular genre of game because most of the participants reported playing many different types of games, and different games often contained very similar characteristics (e.g., exploring, problem solving). However, the key reported characteristics of those games that were reported as being associated most with time loss were that games were complex and immersive, had compelling goals and levels, involved interaction with other real players, had plot-driven stories, and were exciting and stimulating (Table 2). There were no significant gender differences on any of these, or between high and low frequency players.

Games that were complex and immersive were rated as most likely to result in time loss. Players talked about being "absorbed" by these games, and immersed into a different world. Many players highlighted either particular games or game genres that were more likely to facilitate losing track of time:

> First person shooter games such as *Unreal Tournament* and *Quake III*. These games immerse the player in a 3D environment that makes you feel as though you are truly part of the action (male, age 20).
> Games that have some sort of puzzle element to them. This incorporates many games from 'shoot 'em ups' to adventure games, as long as they make you think (male, age 21).
> *The Sims*. You can easily get caught up in it all (female, age 25).
> Any absorbing game where you have "empathy" with the character. All RPGs and games like *Grand Theft Auto, Splinter Cell, Halo, Zelda* (male, age 20).
> Role play games (*Everquest*). They absorb you more and give you much more options (male, age 22).
> Puzzle games. They are much more involving and you have to think about them much harder in order to solve the puzzles (female, age 20).

TABLE 2. CHARACTERISTICS OF GAMES ASSOCIATED WITH TIME LOSS

Characteristic	%
Complex and immersive	38.9
Compelling goals, levels, scores to beat	20.7
Interaction with other real players (not artificial intelligence players)	17.1
Plot-driven stories	16.1
Exciting, stimulating game	3.9

Features that involved completing levels, missions, or beating personal high scores were also cited as reasons as to why time loss occurred. The temptation to play "just one more go" was reported as a major reason why gaming sessions could go on longer that intended. For instance:

> I play a lot of platform games and these are definitely the worst for me. I think because you have the "Oh I'll just try it one more time" factor—and because you're concentrating throughout, you don't keep an eye on the time (female, age 24).
> Puzzle games. They are continuous. The further you get you don't want to stop because you might beat a high score or personal best. Even when you lose/die you think you will do it, beat it next time (female, age 34).
> *GTA Vice City* because once I fail a mission once I become determined to complete it before I go to sleep. I want to find out what that mission is and if I can complete it and so it goes on and on (male, age 21).
> RPGs. Involvement of the overall plot, trying to achieve one last goal before stopping (male, age 32).
> Platform (games) because they are very compulsive. You keep wanting to get to the next level/world etc. (female, age 20).
> I get into games like *Bugs Bunny Lost in Time* because there are so many levels and so much to solve and find that I get hooked until I can find it or solve it (female, age 20).
> Strategy games. The need to take "just one more turn" (male, age 29).

The ability to interact with others was another reason given for losing track of time. Players referred to both the competitive aspects of game playing (e.g., playing local area network games with friends, or online first-person shooter games with people around the world). However, interaction was not just limited to competition it could also include socialising with other players, solving problems as a group, and trading virtual items particularly while playing massively multiplayer online role playing games (MMORPGs).

> MMORPG's are different. You add the social aspect and the ability to trade, chat, and kill each other. For most MMORPGs, the role-playing aspect is not equal to that of a single player one. The social aspect becomes a new intrigue for the gamer. Also there is usually no defined end, so gamers can constantly continue playing and improving (male, age 16).
> Network games because of the intensity and competitiveness between flatmates (female, age 19).
> MMPORPGs. These are like an online community that is always active. Again you become part of a group and play together. Because these games are played worldwide time zones become irrelevant (male, age 19).
> Fighting games (*Street Fighter*) because when playing with another person we are constantly trying to beat each other (female, age 20).
> MMORPGs. Involvement with players from other countries (male, age 44).
> MMORPGs. I play a lot of *Star Wars Galaxies* (that) cause me to lose track of time. I believe this is due to the nature of the game that is centred around socialisation and group work more so then solely individual achievement (male, age 21).

Games that had some kind of story or plot were also reported as contributing toward the experience of time loss. Wanting to know "what happens next?" was a characteristic that kept players involved and absorbed. A good story line evoked the player's imagination, and like a good book was hard to put down. Typical responses included:

> Plot-driven games with exploration components. You just can't wait to see what happens next. You finish a level and then there's a cut scene—a development in the story and you have to see what comes next (female, age 25).
> First person shooters with strategic components that contribute to a narrative. I get caught up because I want to solve the current problem in order to find out more of the storyline and explore a new environment (male, age 36).
> Role Playing Games such as *Zelda, Golden Sun,* and *Pokémon,* because you can get really involved with the story line. Games with a combination of good plots, stories and action (male, age 16).
> Any game with a deep and interesting story. A game which seems to keep me anxious or anticipating the next move (male, age 20).

Strategies for preventing time loss

Half of the participants (49.6%) reported using some kind of a strategy for managing or avoiding time loss (Table 3). The most popular strategies were to position a clock, watch, or mobile phone (displaying the time) somewhere in view, or to set an alarm or timer on a clock, or mobile phone. Other strategies included getting someone else to interrupt them or remind them of the time, setting time limits (using a timer), setting game goals (e.g., complete a level) to achieve and then stopping, relying on physical reminders (e.g., hunger, tired eyes), listening to a CD or radio, or taking regular breaks.

TABLE 3. STRATEGIES FOR PREVENTING TIME LOSS

Strategy	%
Have clock, watch, mobile phone in view	21.4
Set an alarm or timer	16.1
Someone else reminds them	5.0
Setting game goals	3.6
Physical reminders (e.g., hunger)	3.2
Listen to CD or radio	2.5
Take regular breaks	1.4

One participant reported leaving the window open, so that they could hear people coming home from the pubs/bars, or later still, the clubs. Of those participants who reported that time loss was a "good only" experience, 50% ($n = 34$) reported using strategies to minimize or prevent time loss. This compared to 62.5% of participants ($n = 67$) using strategies who reported time loss could be good and bad, and 42.9% of participants ($n = 35$) using strategies who reported time loss as a "bad only" experience. There were no significant gender differences on any of these, or between high and low frequency players. Typical strategies outlined included:

> Set my alarm for a certain time normally half an hour before I actually want to stop because I normally don't stop when I intend to. The other thing I do is listen to the radio because they tend to have time checks (male, age 22).
> I used to have a program to display the current time at the top of the screen during games (male, age 21).
> I try and limit how many games or levels I play. It is difficult though because the games are designed to make you want to continually progress (male, age 21).
> I play my main game in windowed mode. This way I can see the clock all the time on my desktop (male, age 19).
> Play a music album and when it finishes I know I have been there a while!!! (male, age 18)
> Playing timed games such as *Fifa* (each game is 8 minutes long) (male, age 20).
> Put the TV on a timing system so it automatically goes off after a while (female, age 18).

> Starvation and thirst usually work. Angry wife is the best! (male, age 31).

However, for others, the idea of limiting time loss was reported as counter-productive in that losing track of time was an experience that they actively sought. These players did not exhibit any feelings of guilt about the amount of time they played games. For example:

> I've never even considered something like this because losing track of time while playing a good videogame is a better feeling than anything else I can think of. It's a very big reason why the weekends are the best times for me to play games (male, age 17).
>
> I normally turn my clock away from me. I want to get lost in the game. It's my escape (male, age 16).
>
> Why would I want to keep track of the time? I play games to avoid having to be bound to the confines of time. There's nothing better than playing for what you may think was an hour and finding out that 4–5 have actually passed (male, age 23).
>
> If I'm winning I couldn't care less what time it is. If I'm losing I think more carefully about giving up for the night (male, age 42).

DISCUSSION

Almost all of the participants reported losing track of time when playing videogames, and most participants reported that losing track of time whilst playing games had some positive benefits. The main reason for this appeared to be that the experience was seen as relaxing, and a way of escaping from everyday stress. For these people, the dissociation caused by being emerged in a different reality allowed them to "switch off" from the real world and indulge in some kind of fantasy for a while. Time loss was also seen as an endorsement of a good game.

One participant in the present study reported that playing videogames had in fact helped her to give up smoking by helping to distract her from the nicotine cravings. This echoes previous research showing that videogames have been used successfully with children as distractors from other unpleasant physical states such as the pain experienced following chemotherapy[11,12] and persistent scratching (from neurodermatitis).[13] A recent study that examined problem gamblers[14] found that escape was the main reason that they continued gambling. For some this was a response to a need to fill a void in their lives. This void would reappear when gambling stopped unless there was a substitute activity to take the place of gambling. Further research could examine whether the distracting and/or dissociative properties of videogames are rewarding enough to work as a displacement activity for more problematic behaviors such as problem gambling or even drug taking.

The negative aspects of losing track of time centered upon issues relating to either missing other things (e.g., appointments, lectures, meals) or guilt feelings that the time could have been better spent. However, in order to avoid missing things, half of the participants employed strategies to limit the amount of time they would play for. The most popular of these strategies was to position a clock in view, or to set an alarm.

For some, losing track of time was an experience that they actually sought out whenever they got the opportunity. But again, they appeared to control their behavior by only playing when they knew they had the time to do so. However, there was no relationship between whether or not a participant thought time loss was good or bad, and whether or not they used a strategy to avoid time loss. Therefore, it may be useful for those who do not like losing track of time to consider one or more of the strategies outlined by other players in this paper. The reason they do not like losing track of time may be because they felt that they could not control it.

Feelings of guilt we reported by over a third of the participants and related to the notion that their time could have been better spent doing "better" things. It is not clear what those "better" things were, although there where some references to physical activities, reading, or being outdoors. It may be that the guilt experienced originated from societal views about the value of videogames. Videogames have often been vilified by the media and social scientists. These have tended to emphasise the negative aspects (e.g., videogame-related violence, and/or their addictive potential). This may make playing videogames for long periods of time more stigmatic than other more established leisure activities such as reading books.

In conclusion, there were no significant gender differences relating to time loss found in this study, neither were there any differences between high and low frequency players. This suggests that time loss while playing videogames could be a relatively universal phenomenon and is more dependent upon the particular structural characteristics of the game than upon who is playing it. It is also suggested that for many players, losing track of time is a positive experience and is one of the main reasons for playing videogames.

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Address reprint requests to:
Dr. Richard T.A. Wood
International Gaming Research Unit
Division of Psychology
Nottingham Trent University
Burton Street
Nottingham, NG1 4BU, UK

E-mail: richard.wood@ntu.ac.uk