Identification and Measurement of Post Game Experiences

Karolien Poels
Eindhoven University of Technology
Game Experience Lab, HTI Group
Den Dolech 2, 5600 MB, Eindhoven
The Netherlands
k.poels@tue.nl

Yvonne de Kort
Eindhoven University of Technology
Game Experience Lab, HTI Group
Den Dolech 2, 5600 MB, Eindhoven
The Netherlands
y.a.w.d.kort@tue.nl

Wijnand IJsselsteijn
Eindhoven University of Technology
Game Experience Lab, HTI Group
Den Dolech 2, 5600 MB, Eindhoven
The Netherlands
w.a.ijsselsteijn@tue.nl

ABSTRACT
In this paper, we conceptualize and identify post game experiences, that is, experiences gamers have once they stopped playing. We present two empirical studies: a focus group study and a game experience survey. The focus group study reveals first hand verbalizations of how gamers feel after game play. In the survey, we test a self report scale of different post game experiences as a first step towards the development of a Post Game Experience Questionnaire.

Categories and Subject Descriptors
[**J.4 SOCIAL AND BEHAVIORAL SCIENCES**]

General Terms
Measurement, Human Factors.

Keywords
Digital games, Game experiences, Focus groups, Survey research.

1. INTRODUCTION
In recent years, the game industry has developed a wide array of games and gaming devices, targeted at different ages and gender groups and to gamers with various play styles. As such, playing digital games has become a widely integrated leisure activity in which different types of people engage at various types of occasions. Everybody who has ever played a game him/herself or has watched other people play will undoubtedly agree that playing games triggers emotions. Be it the joy or pride when you beat your friend in a game of virtual tennis, the suspense you feel when fighting in a First Person Shooter (FPS), or the experience of being immersed in the story of a Role Playing Game (RPG), playing games has the potential to evoke a wide array of emotions and experiences.

Besides *in game experiences* or emotions during game play, playing games can also induce a variety of emotions once the player has stopped gaming. We refer to this as *post game experiences*. The relief after passing through a difficult level, the feeling of making new friends through online gaming, guilty feelings after having gamed too long and neglected other people or activities, are examples of post game experiences. Academic research on post game experiences is still very limited. Until now, academic studies that did investigate experiences or behaviour after game play have mainly focused on the effect of playing games on other, mostly non game related behaviour [1]. More specifically, only a few studies have focused on the positive effects of gaming such as heightened attention to visual cues [2] or bonding with friends [3; 4]. In comparison, there are ample studies that focus upon negative after effects of gaming. For example, the interplay between playing violent games and exhibiting aggressive behaviour [5] or desensitizing from real life violence [6]. These studies have largely neglected actual post game experiences. Nevertheless, post game experiences could moderate after game effects. For example, feelings of social presence can stimulate bonds with online friends. Moreover, leaving a game with a feeling of frustration, could probably also trigger aggressive thoughts or feelings of hostility, irrespective of violent game content.

Given the lack of academic research on post game experiences, this paper aims at setting a first step towards the conceptualization and measurement of how gamers feel when once stopped playing. In the next sections we first identify potential post game experiences, inspired by academic literature on players' motivations and in game experiences. Next, we present two empirical studies that probe on post game experiences: a focus group study and a game experience survey. In the focus group study we aim at getting first hand verbalizations of how gamers feel after they stopped gaming. In the survey we consolidate findings from our focus group study with the theoretical conceptualization, yielding a verbal self report scale of post game experiences. In the service of future investigations, this verbal self report scale serves as a first step towards the development of a Post Game Experience Questionnaire. We describe the preliminary dimensionality of this measure. We conclude with recommendations for future research.

2. POST GAME EXPERIENCES
Playing digital games is in the first place a leisure activity. People play games because it is fun [7]. Consequently, we assume that after game play people will be generally *satisfied* and *feel good* because they have enjoyed the activity they were engaging in. However, if playing games is comparable to watching television, the reverse could also happen. Kubey and Csikszentmihalyi [8] have argued that excessively watching television offers short term pleasure and satisfaction (i.e., a positive orienting response) but negative after-effects (e.g., loss of concentration, bad moods, dizziness). People with low self control or people who are depleted tend to prefer short term impulses in favour of long term self-interest. As such, ironically, they start watching television and keep on watching for a long period because they know they will feel worse after viewing. If this principle applies to gaming, gamers could presumably end up feeling *tired*, *depleted*, or *dizzy* after long sessions of game play.

Another important motivation to start playing games is to vent daily stress and to withdraw from daily worries [9] . If this motivation is fulfilled successfully, it should induce feelings of *relief* and *relaxation*. Along with this escape motivation comes

the motivation to immerse in a fantasy world [9; 10]. We assume that when people get extremely immersed in a fantasy world, or fully identify with their in game character, they might experience *difficulties to return to the real world* once they stopped gaming. Related to immersion is the experience of flow [11; 12]. Flow involves high levels of cognitive absorption or deep concentration. One of the characteristics of cognitive absorption is that it makes people loose track of time. As such, *time goes by faster than expected* [13]. Since playing games has the potential to get people fully drawn into a fantasy world, or to deeply absorb them in a virtual activity, people loose track of time and end up spending more time than they actually planned at playing games. However, people have limited time resources and are forced to divide their time between work, family, and leisure. If gaming, as a leisure activity, absorbs too much time, more than intended, it can cause people to forego other activities that involve responsibilities, like for example studying, work, household activities, etc. We assume that people will often only realize this after they stopped gaming, causing negative feelings of *regret*, *guilt*, or a general *bad mood*.

Many digital games include possibilities for social interactions both within the game world and in the real and tangible world of the gamer. As such, playing games is often as much about the social interaction per se as it is about the interaction with the game content [14]. The social nature of gaming and the social experiences during game play can presumably lead to a set of social experiences after gaming, both positive and negative ones. As already stated, playing games with friends can increase *bonding* and enrich friendships [3; 4]. Cooperation in an online world (e.g., being a member of a World of Warcraft guild) can induce *a sense of affiliation*. On the other side, social interactions can also lead to negative experiences such as *jealousy*, *revenge*, *anger*, or *schadenfreude* (i.e., malicious delight). Moreover, being affiliated to an online guild or clan comes with certain responsibilities and engagement towards the clan. Possibly, this could put the gamer under *pressure*, leading to negative effects such as *stress, guilt*, and *frustration*, if he or she has not the time to invest as much as he or she likes into the clan. The other way around, gamers can be deeply *disappointed* when an affiliated member does not fulfil his commitment.

Recently, embodied gaming (e.g., Nintendo Wii, Playstation Eye Toy) has become very popular. This type of game play distinguishes itself from other digital games because people's actual body movements are a part of the game play. Like in sports, these bodily efforts have the potential to induce a set of experiences after the game, for example, *release of tension*, *relaxation*, *satisfaction*, but on the backside also *exhaustion*, *tiredness*, and even *sour muscles*.

3. FOCUS GROUP STUDY

Focus groups are a qualitative research tool that are frequently used in social sciences to explore people's meanings, ways of understanding, or experiences of a complex phenomenon [15]. Through this study, we aim at consolidating first hand verbalizations of how gamers themselves feel when they stopped gaming with our earlier conceptualization.

3.1 Procedure

We organized six focus groups with gamers. The composition of the focus groups differed according to several variables such as game frequency, age, and occupational status. Two focus groups (FG1 and FG2) included infrequent gamers (i.e., people who game at least once a month), two focus groups (FG3 and FG4) consisted of frequent gamers (i.e., people who game at least once a week), two focus groups (FG5 and FG6) were a mix of frequent and infrequent gamers. Participants' ages ranged from 19 to 37 years. In FG1, participants were five undergraduate students of which two were female. FG2 consisted of three male participants, also undergraduates. FG3 had four male participants and was a mix of undergraduate and graduate students. FG4 had four participants, these were people over thirty years of age, all with a full time job. Participants from FG5 were four working people between 28 and 31 years, two of them were female. All three participants from FG6 were female undergraduate students. Each focus group took about 90 minutes and participants were rewarded 10 € for their participation.

The focus group discussion was clustered around three core questions by means of a semi-structured questionnaire. The three core questions were fixed but additional questions could be posed, probing for clarification or more in-depth insights. The three core questions were: (1) On what occasions do you typically start gaming?, (2) What do you experience or feel *while* gaming? (i.e., in game experiences), (3) What do you experience or how do you feel *after* gaming? (i.e., post game experiences). In this paper, we only discuss the third question about post game experiences. For a detailed description of this focus group study, we refer to [7].

3.2 Results

Participants generally reported *positive feelings* after game play. They mentioned feelings like *satisfaction, release of stress, relief* and *getting into a good mood*.

> *I always feel better after a session of game play. I have had some fun, so that's nice.* (Female participant, FG6, 23 years)

However, most of the participants admitted that *time goes by faster than expected*.

> *I often start gaming on Saturday, right after I wake up, around 10 in the morning. It often happens that my wife gets back from work at six in the evening and that I am still there in my boxer shorts, without having eaten anything during that day. For me, it feels like only half an hour has passed.* (Male participant, FG4, 34 years)

When probing whether this led to feelings of *regret* or *satisfaction*, the answers varied according to personal and situational factors. Frequent gamers were quite unanimous with respect to their experiences after game play. In general, they did not see it as a waste of time and often had the feeling of having done something really useful. Only in very specific situations they reported the experience of *disappointment* or *regret*.

> *If I play online games I never experience it as a waste of time. When you are cooperating in a team and one member gives up, it is a pity. Then I feel disappointed.* (Male participant, FG3, 23 years)

> *....Only if you have been gaming for quite a long time and you did not achieve anything, I often regret having spent so much time on it. Especially when I have more urgent things to do.* (Male participant, FG3, 29 years)

For less frequent gamers, regret depended on the situation in which they played the game. More concretely, *regret* or a *bad mood* were greater if the game play had restrained them from doing more urgent or more useful activities.

> *I often feel bad if I wasted my time with playing a game. However, if it is a lazy Saturday afternoon and you have nothing better to do it doesn't matter. Then I even find it useful to play a game.* (Female participant, FG1, 21 years)

Interestingly, some participants reported that they often *anticipated* these negative experiences. For example, one participant explicitly stated that he only quits gaming when he is in a favourable position. This way, he reported, he always has a good feeling after gaming. Another participant said he would not start gaming when he had more urgent things to do. Yet another mentioned only playing short games in order to prevent that he would spend his whole evening playing games.

Some participants did recognise that they sometimes really get soaked in the game and that they feel a little bit weird afterwards. It usually takes them some time to adapt to the real world.

> *I game to chill. However, afterwards I always need some time to recover, I cannot directly fall asleep for example.* (Female participant, FG5, 30 years)

In sum, gamers do generally report positive post game experiences. After probing, negative experience also come to surface. Gamers did, however, report that they are aware of the potential negative after feelings and they frequently mentioned to anticipate these experiences. The post game experiences surfaced through this focus group study are largely in line with the conceptualizations we made earlier this paper.

4. POST GAME EXPERIENCE SURVEY

This study aims at unravelling post game experiences dimensions. This study serves as a first step towards the development of a Post Game Experience Questionnaire.

4.1 Procedure

Participants were invited to take part in a study on game experience. The invitation described the purpose and the procedure of the study. More concretely, we told participants that we were interested in how people experience digital gaming and that everybody, also non frequent gamers, could participate. In the invitation we further included the instruction that before opening the link to the questionnaire they had to play a game. Participants could freely chose the game they played. However, we suggested that they would best play a game in the way they normally do (with regard to the type of game, gaming platform, physical game setting). After playing the game, participants could click on a link that guided them to the online survey. One of the questions probed on how participants felt after they stopped gaming. When completed the survey, participants could participate in a raffle to win a PS3 or were rewarded 3 Euro.

4.2 Participants and Game Characteristics

The sample consisted of 380 participants of which 254 were male and 120 were female (sex value missing = 6), with an average age of 20.8 years (range 10 to 61 years, *SD* = 5.26 years). With respect to educational level, 5% had a low education, 13% a mid level education, and 81% was highly educated. Gaming frequency varied from daily (29%), at least weekly (38%), at least monthly (13%), at least a few times per year (12%), and hardly ever (8%).

The type of games participants played, were myriad. Participants filled in the full name of the game and, with the help of a game expert, we recoded those games into 12 game genres. Participants played First Person Shooter games (22%), Role Playing games (14%), Sport games (13%), Puzzle/board/card games (11%), Action adventure games (10%), Strategy games (9%), and other genres (e.g., simulation games, fight games, children's games, music games) (11%). Research Material and Questionnaire Design

Based on the conceptualization of potential post game experiences and the experiences reported in the focus group study, we constructed a list of 21 items probing post game experience. This list consisted of varied positive and negative experiences (e.g., I felt satisfied, I felt energised, I felt regret, I felt bad, I felt weary, I found it hard to get back to reality, etc.).

All items were measured by means of a five point intensity scale with points anchored at *not at all* (0), *slightly* (1), *moderately* (2), *fairly* (3), *extremely* (4).

4.3 Results

Exploratory factor analysis (EFA) was performed on the full set of items. Dimensionality analysis resulted in four factors with an eigenvalue higher than one. Subsequent oblique rotation resulted in the following structure.

The first factor that emerged is termed ***Negative experiences***. Of the eight factors loading high on this component, six items were selected for the preliminary scale, with factor loadings ranging between .591 and .762, resulting in a scale reliability (Chronbach's alpha) of 0.832.

I found it a waste of time

I felt that I could have done more useful things

I felt regret

I felt guilty

I felt ashamed

I felt bad

The second factor was termed ***Positive experiences***. Six items of the original eight were selected to form a scale with Cronbach's alpha of 0.900, with factor loadings ranging between .678 and .854.

It felt like a victory

I felt proud

I felt powerful

I felt satisfied

I felt revived

I felt energised

The third factor only consisted of two items, referring to ***tiredness***, with factor loadings above .40 (.926 and .676 respectively), and a Cronbach's alpha score of 0.764. The two items are:

I felt exhausted

I felt weary

The fourth and last factor consisted of three items with factor loadings between .404 and .702. These three items had an internal consistency (Cronbach's alpha) of 0.619. This factor, called *Returning to reality*, consisted of the following items:

I found it hard to get back to reality

I felt disoriented

I had a sense that I had returned from a journey

5. DISCUSSION

It is important to note that the structure of the post game experiences presented here should be regarded as preliminary. This survey was part of a large survey focusing on the experiences associated with playing games. The set up of this survey was mainly targeted towards capturing and validating the experiences gamers have during game play, or in game experiences. Since we requested participants in our study to play a game of their own choice before filling in the questionnaire, we realise that this may have created a strong bias away from negatively termed items such as, uselessness, guilt, shame, or regret. After all, participants *had* to play in order to fulfil their ' job'. Consequently, the procedure might not be perfect for capturing and validating the full set of post game experiences. Future studies need to further explore and test components and subscale reliabilities.

Nevertheless, the focus group study showed that there exists a wide variety of post game experiences. Through our factor analysis, we determined four dimensions: positive experiences, negative experiences, tiredness, and returning to reality. In future studies, we plan to further validate these dimensions and test their sensitivity, with the final goal of constructing a standardized Post Game Experience Questionnaire.

Some participants from our focus groups mentioned that a lot of post game experiences are not really unique to gaming. For example, after playing sports, experiences such as satisfaction, feeling energised, or tiredness do also apply. Along the same line, reading a book or watching a movie can leave people disoriented or making them feel like they have returned from a *journey* as well. It would be interesting to investigate which specific factors cause such post experiences. More concretely for games, studying how in game experiences and post game experiences correlate and depend on background variables such as play style, type of game played, general personality traits, also needs to be further addressed in future research. Clarification of these relationships can make important contributions to the interplay of gaming motivations, game experiences, and other game-related factors (e.g., game content, game design, commercial game success) and non game-related behaviour (e.g., (anti)social behaviour, personality development, coordination skills).

6. CONCLUSION

To the best of our knowledge, this is the first paper that highlights post game experiences. We conceptualized a diverse set of post game experiences, based on previous research of player motivations and in game experiences and we combined these findings with intuitive assumptions. Next, we consolidated our conceptualization with first hand experiences surfaced through focus groups with different types of gamers. We then provided a tentative categorisation of post game experience dimensions that emerged after dimensionality analysis of survey data. We think this paper is an important first step in the conceptualization, identification and validation of post game experiences. Future research should further address how post game experiences relate to other aspects associated with digital game play.

7. ACKNOWLEDGMENTS

We gratefully acknowledge financial support from the European Commission's Framework 6 IST programme. In particular, the work reported here has been supported by the FUGA project (part of the IST – New and Emerging Science and Technology programme) and the Games@Large project (part of the IST – Networked Audio-Visual Systems and Home Platforms programme).

8. REFERENCES

[1] Buckley, K.E., and Anderson, C.A. (2006). A theoretical model of the effects and consequences of playing Videogames. In: P. Vorderer and J. Bryant (eds.). *Playing Video Games: Motives, Responses, and Consequences*. New Jersey: Lawrence Erlbaum Associates.

[2] Green, C.S., and Bavelier, D. (2003). Action video games modifies visual selective attention. *Nature*, 423, 534-537.

[3] Selnow, G.W. (1984). Playing video games: The electronic friend. *Journal of Communication*, 34, 148-156.

[4] Colwell, J., Grady, C., and Rhaiti, S. (1995). Computer games, self-esteem, and gratification of needs in adolescents. *Journal of Community and Applied Social Psychology*, 5, 195-206.

[5] Carnagey, N.L., and Anderson, C.A. (2005). The effects of reward and punishment in violent video games on aggressive affect, cognition, and behavior. *Psychological Science*, 16, 882-889.

[6] Carnagey, N.L., Anderson, C.A., and Bushman, B.J. (2007). The effect of video game violence on desensitization to real-life violence. *Journal of Experimental Social Psychology*, 43, 489-496.

[7] Poels, K., de Kort, Y.A.W., and IJsselsteijn, W.A. (2007) "It is always a lot of fun!" Exploring dimensions of digital game experience using focus group methodology. *Proceedings of the annual FuturePlay conference.*

[8] Kubey, R., and Csikszentmihalyi, M. (2002) Television addiction is not a mere metaphor. *Scientific American*, 286, 62-68.

[9] Yee, N. (2002). *Facets: 5 motivation factors for why people play MMORPG's*. http://www.nickyee.com/facets/home.html.

[10] Brown, E. and Cairns, P. (2004). A grounded investigation of game immersion. *ACM CHI 2004*, 1297-1300.

[11] Csikszentmihalyi, M. (1990). *Flow. The Psychology of Optimal Experience.* New York: Harper & Row.

[12] Sweetser, P & Wyeth, P. (2005). GameFlow: A model for evaluating player enjoyment in games. ACM *Computers in Entertainment*, 3 (3), 1-24.

[13] Agarwal R., and Karahanna, E. (2000). Time flies when you're having fun: cognitive absorption and beliefs about information technology usage. *MIS Quarterly*, 24 (4), 665-694.

[14] de Kort, Y.A.W., IJsselsteijn, W.A., and Poels, K. (2007). Digital games as social presence technology: Development of the Social Presence in Gaming Questionnaire (SPGQ). *Proceedings of the 10th Annual International Workshop on Presence.*

[15] Lunt, P. & Livingstone, S. (1996). Rethinking the focus group in media and communications research. *Journal of Communication*, 46(2), 79-98.