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Henrik Schoenau-Fog
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Teaching Serious Issues through Player Engagement in an Interactive Experiential Learning Scenario

HENRIK SCHOENAU-FOG

Games have traditionally been associated with the concept of 'fun', and the common understanding is that games belong to the realm of enjoyment, while education is associated with work (Gee 2005). Earlier generations of games used for education, were even dubbed 'edutainment' games, which were also based on the idea that educational games need to be fun and pleasurable (see e.g. Ito (2008)). However, it is very challenging if not impossible to teach a very serious topic like how it is to be a victim of war through the facilitation of amusement, pleasure and enjoyment.

Although games can be fun, they also mediate very engaging experiences. Engagement in digital games can thus be a powerful incitement to learn a variety of topics (e.g. Malone and Lepper 1987; Gee 2005, Jenkins and Squire 2004; Squire 2006; Shaffer and Gee 2005), and engagement is a key concept to investigate, when designing captivating games and successful learning experiences. This paper is thus motivated to explore the potentials of using the power of player engagement to let users experience an emergent narrative with a non-pleasurable content – in this case being a victim of war. When dealing with such a serious non-fun topic in a game-like experience, how can engagement be sustained?

A more detailed knowledge about the components of player engagement can thus be applied to the design of communicative interactive game-like experiences, which exploits the conventions of playfulness in mainstream games to drive participants through interactive dramatic experiential learning scenarios concerned with serious themes. Therefore this study will firstly describe the player engagement process based on findings from an earlier study by Schoenau-Fog (2011a) and focus on the components and causes of engagement in order to get an overview of the concept. Secondly, a comparison with Malone and Lepper's (1987) taxonomy of intrinsic motivation for learning will be presented. Thirdly, the identified elements of player engagement and the motivations for learning will be used as a foundation to describe the design of an interactive experiential/situated learning experience – the "First Person Victim" scenario (FPV). Finally, the study will investigate how engagement can be evaluated in such an experience and explore the potential for using the FPV as a tool in teaching.

Player Engagement

Games have the potential to develop into novel communication formats, which are not necessarily driven by the experience of fun, enjoyment and pleasure, and in order to harness the power of engagement in games it is necessary not only to identify the

results of engagement while playing but also to explore the essential drivers of engagement.

A multitude of descriptions address related aspects of the multifaceted concept of engagement in relation to games. To mention a few scholarly studies, some descriptions are related to *motivation* (e.g. Przybylski *et al.* 2010; Malone and Lepper 1987), *immersion* (McMahan 2003; Brown and Cairns 2004; Jennet *et al.* 2008), *flow* (Csikszentmihalyi 1991) and *gameflow* (Sweetser and Wyeth 2005). Others relate to *involvement* (Calleja 2011) and *presence* (e.g. Lombard and Ditton 1997; Tamborini and Skalski 2006), and yet others to various positive emotions and feelings such as *fun* (Koster 2004; Poels, de Kort and IJsselsteijn 2007), *pleasure* (Costello and Edmonds 2009), and *enjoyment* (Klimmt 2003).[1]

However, when players are encountering these concepts, what they experience can be argued to be supported by *continuation desire,* as the willingness to continue playing would be needed to reach deeper stages of the mentioned concepts like for example flow. When describing engagement it is therefore also necessary to investigate in detail which aspects in games *cause* players to become engaged, what makes them keep playing, and what makes them want to come back to play again.

The descriptions of the other related concepts are explaining the overall reasons for playing (motivation), the absorption while playing (immersion, involvement, presence, and flow), and the positive aspects of playing (fun, pleasure and enjoyment). An empirical investigation of continuation desire can supplement these descriptions and is necessary in order to acquire detailed knowledge about which elements of games make players want to *continue* playing. These findings can then be used to develop a framework of player engagement, which is intended to be used as a foundation for the design of experiences aimed at driving users through experiences that are not necessarily enjoyable.

In order to investigate further which elements in games trigger the desire to continue and to identify the components of player engagement empirically, 131 respondents were asked in three online surveys about their general experiences of continuation desire while playing games. The first sample consisted of 41 media technology students (33 males; 8 females; average age 23.5 years), and the open-ended questions were concerned with what it is in a game that made them want to continue playing. The answers to the open-ended questions in the first survey were analyzed and organized by the use of grounded theory. The resulting 18 categories of causes were checked through focused coding of data from two additional questionnaires (online game forums, n=48; media technology students, n=42) and compared with related concepts, such as flow, immersion, motivation and enjoyment (See Schoenau-Fog (2011a) for further explication). The categories were then used to develop a conceptual framework consisting of four components of engagement – objectives, activities, accomplishments and affect – and their causes. The framework characterizes player engagement as a progressive and cyclic activity where the player is continuously pursuing either game-defined (extrinsic) or self-defined (intrinsic) *objectives* by performing *activities.* The activities are what players report what they want to do, when they have the desire to continue playing, and these causes are: interfacing through controllers, socializing with others (e.g. by competition, cooperation, communication, or camaraderie); solving problems and

challenges, sensing the game's audiovisual and sensory feedback, experiencing the story and characters, exploring the game world, experimenting with possibilities, and creating or destroying elements in the game. While performing these activities players can experience *affect* (positive, negative, and absorption – for example pleasure, frustration or immersion) and if they *accomplish* the objective (by achievement, completion, or progression) they can also experience affect (for example by feelings of satisfaction, closure or achievement).

The resulting player engagement process (PEP) is focused on describing in detail which elements in a game cause the player to want to *continue playing during play*, while the concept of motivation describes the overall reasons of why people want to begin playing. This process can furthermore be described through the relations between the four components: Objectives, Activities, Accomplishments, and Affect as depicted in the 'OA^3' framework in Figure 1.
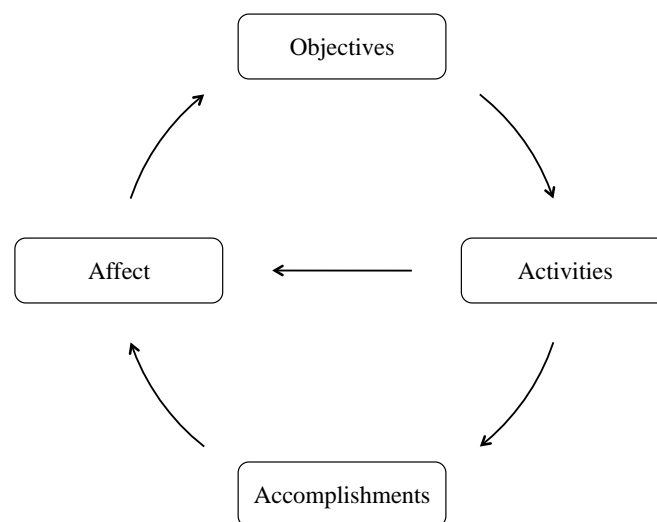

Figure 1: Relations between Objectives, Accomplishments, Activities, and Affect. (The OA^3 framework) – See Schoenau-Fog (2011a) for a detailed explanation.

The relations in Figure 1 thus illustrate that the concepts, which are usually related to engagement – for example flow, immersion, fun and enjoyment – can be depicted as the affect resulting from the performed activities or the experiences of accomplishments while the player wants to continue playing.

In this study, the identified components and causes of continuation desire are intended to be used as a foundation for the design of interactive learning scenarios. In the following section, the framework will therefore be related to motivations for learning in games.

Player Engagement and Motivations for Learning

When comparing the player engagement process with Malone and Lepper's (1987) taxonomy of intrinsic motivations for learning it is possible to identify the relations between the causes of continuation desire in the PEP framework and the various motivational factors from the taxonomy. The factors of individual motivation in Malone and Lepper's taxonomy are: *challenge, fantasy, curiosity* and *control* while the interpersonal motivational factors are *cooperation, competition* and *recognition*. In the following some examples of relations relevant to this study are described:

The factor of *curiosity* can have the potential to drive the activities of exploration, creation, and experimentation in the PEP framework, because players' curiosity set up self-defined (intrinsic) objectives (like "what if?") which can be reached by performing those activities. Sensory curiosity is related to the category of sensory engagement, where players want to continue in order to experience the game's audiovisual and haptic feedback. Cognitive curiosity can also be linked to solving problems and puzzles, as well as wanting to "fill holes" in a narrative.

The *fantasy* factor (emotional aspects, cognitive aspects, and endogeneity), can motivate the drive to experience the story and characters and lead to emotions and e.g. identification with characters. The *challenge* factor (goals, uncertain outcomes, performance feedback, and self-esteem), is for example concerned with the (extrinsic) objectives which the game set up and the player´s own selfdefined (intrinsic) objectives. Control (contingency and response, choice, and power) can respectively be related to interfacing, creation, and destruction.

Finally the inter-personal motivations (*competition, cooperation*) can be related to the social aspect while reputation and recognition can become an affect which can be experienced after competing or cooperating with others.

The drivers which players report that make them want to continue described in the PEP framework thus corresponds with the intrinsic motivational factors identified by Malone and Lepper (1987). The main difference between the PEP framework and the motivational taxonomy is that the framework organizes the triggers of engagement in a process model while the taxonomy is concerned with requirements on how to design an intrinsically motivating learning environment. When combining the taxonomy and the framework it is possible to understand the underlying reasons of what makes players want to continue playing. For example when players have the desire to continue playing because they want to explore the gameworld, the reasons might be sensory and cognitive curiosity as well as the possibilities of choice in the controls.

This knowledge can then be used to assist in developing interactive emergent narrative tools for teaching. In order to design for engagement in such experiential learning scenarios the motivational factors suggested by Malone and Lepper (1987) can then be utilized by concretely implementing categories from the PEP framework – for example possibilities to explore, problems to solve, and triggers of intrinsically motivated objectives. The following case study will focus on how to use player engagement when designing for experiential learning.

Case: Designing for player engagement in an interactive experiential learning scenario

In order to exemplify the application of player engagement in an experiential learning scenario, this section will focus on describing how the findings have been used in the design of the FPV application.

The purpose of the FPV is to communicate the topics of the tragic theme during a short play-through of the experience. It is thus essential that the design of the FPV is able to sustain the participants' engagement during the experience for the duration of the play-through. The engagement framework and the taxonomy of intrinsic motivations for learning have therefore been used as an inspiration to design for engagement in the application.

It is the intention of the scenario to initiate in-class discussions concerning the topics of being a victim of war and refugees. The idea is that users should have different experiences in order to get as much variety as possible when discussing the subjects. In game-based learning it is furthermore a common belief that debriefings and in-class discussions based on different experiences can enhance the learning outcomes (e.g. Squire and Jenkins 2003). Therefore the application is implemented as an emergent narrative, where users have a range of possible events to experience, and through these encounters they can construct their own individual narrative (see e.g. Jenkins 2004).

However, it is also very personal what drives users' motivations, so the idea is to trigger their desire to continue by stimulating curiosity and endogenous fantasy through common causes of player engagement, like exploration, experiencing the story and following the development of the characters. It is also important to implement a range of triggers of intrinsic objectives which can be interpreted individually by every user, for example cryptic phone calls or text-messages from other characters in need of help.

The experience places the participant in the role as a civilian in a war torn country during an airstrike, where it is possible to explore tragic and dramatic events. During the entire experience, the participant's narrative construction depends on encountering several different audiovisual events varying in tension (Fig 2). There are in total 42 events organized in six scenes, each with seven events. These events can be audio events (e.g. a phone call or cries for help), audiovisual graphical events (e.g. an exploding building), texts (e.g. sms-messages) or video recordings of real actors placed the 3d world.

Fig. 2. (a) Meeting a smuggler. (b) Woman being harassed. (c) Rockets hit the City

An 'Interactive Drama Experience Manager' (Schoenau-Fog et al. 2010) organizes the various events by selecting the next possible events based on the users' navigation in the environment as well as causality. For each scene there is one less event to encounter, so in the first scene in an apartment it is possible to encounter seven events, in the next scene on a street there are six events and so on. The final events are all concerned with tragic endings, and users have no options for happy endings. The scenario is mediated through the game engine Unity (2011) by inverting first person shooter (FPS) conventions so it is not possible to use weapons or engage in combat. However, the participants can be shot at, hit by rockets or explosions and step on mines, but in order to let participants encounter as many events as possible before the discussion, it is not possible to die. There is no explicit goal defined by the scenario, as it is the intention to let participants define as many intrinsic objectives as possible in order to keep them engaged through the emergent narrative.

The player engagement process has been used to guide the design in the following way: The *objectives* in the experience are mainly based on participant-defined objectives and intrinsic motivation, as the participants should feel that they are in a war situation, where everything is chaos and there are no explicit goals and guidance on where to go.

The *activities* that participants can become engaged in are for example a) experiencing the story and the characters (driven by curiosity and an interest in encountering new events), b) sensing the environment (by observing (and not interacting with) the events) and c) exploring the gameworld.

There are no *accomplishments* to achieve and the experience ends at the most tragic incident without closure, for example when the participant realizes that it is not possible to help another character who is being shot.

At the same time it is also important that the resulting *affect* supports experiences of theme related feelings like e.g. shock (exploding mines), helplessness (no one to ask for help), and chaos (no indications on where to go) in order to communicate the topic.

Based on these design guidelines a prototype version of the FPV has been developed in order to explore engagement as continuation desire in the application as well as the possibilities of using the FPV scenario as a tool in teaching.

Evaluating Engagement and Learning in the First Person Victim

Earlier tests of the FPV were conducted in a lab setting with university students and staff, and did not address the target group directly. Therefore, this study is focusing on how the prototype of the FPV would be evaluated in an actual school setting. The evaluation is focusing on three aspects, namely an exploration of the desire to continue as well as an investigation of what the participants felt and finally what they learned during the experience.

Method, Participants and Procedure

The prototype was evaluated through a post-game online survey, in-game observations, and in-class discussions. Three different public lower-secondary schools were chosen through convenience sampling and invited to participate in the evaluation. As some of the students were under the age of 18, teachers at the three schools were contacted and they all had the option to try the prototype or watch a video with the most extreme scenes before the evaluation. All teachers then approved that their students could participate in the test. The FPV application was installed on local machines and a link to the online survey was made ready beforehand. One of the designers then introduced the FPV as a game with storytelling elements and students got a short introduction to the background of the game. During the introduction no details about the experience were explained and no statements concerned with the goal of the experience were presented. However, the theme about being a victim of war was mentioned since two of the designers are refugees from war torn countries. A warning about violent content was also given, and students were told to quit the game immediately if they felt that the experience was too disturbing. After having played for 15-30 minutes the students were told to stop, and asked to answer the online survey before they commenced with the in-class discussion guided by their teachers, one of the designers and the author.

Post-game survey results

In total 40 students participated in the survey, 26 were female (65%) and 14 were male (35%). Their average age was 15.3 years (range 13-18 years) and the average time of game play per week was 7 hours (range 0-40 hours). Self-reported playtime of the FPV was 16 minutes in average (range 3-50 minutes), while the actual playtime in average was 25 minutes.

Since this study explores the continuation desire aspect of engagement, the assumption is that engaged participants will report that they want to continue the experience or try again when being interrupted. The responses were therefore analyzed and divided into three groups. The first group included those respondents, who did not want to try again, when they were asked to stop, the second group were in doubt while the third group wanted to continue playing. Table 2 illustrates the results and the demographics of the three groups.

Do you want to try again?	Disagree	Neither agree nor disagree	Agree
Total (n=40) (%)	32.5	27.5	40.0
Female (n=26) (65%) (%)	35.7	28.6	35.7
Male (n=14) (35%) (%)	30.8	26.9	42.3
Average Age (years)	16.1	14.8	14.9
Average Playtime per week (hours)	7.5	6.3	7.1
Average Playtime of FPV (minutes)	15.4	17.5	16.1

Table 2. Survey results.

In order to investigate what made respondents want to continue or not, what they felt, and what they thought they learned, the open-ended questions: "What is it that makes you want to continue / not want to continue and why?", "What did the game/experience make you feel and why?", and "What do you think you've learned?" were included in the survey. Each of the respondents' 120 statements concerned with these questions were analyzed, grouped and counted for comparison. For example the answers related to the reasons for wanting to continue or not were organized into three categories: technical issues, game design issues and content/theme related issues.

Group 1: Do not want to try again

The respondents who did not want to continue (32.5% of all), found that problems with the game design (75.9%) were the primary reasons for not continuing, by stating that there were no goals, they did not know where to go, there were no weapons, they were not able to shoot, the experience became boring due to lack of events, and finally it was hard to find the way. Technical problems (24.1%) were also the reason for not wanting to continue – primarily lagging and jerky images due to slow computers and bad graphics. Most respondents in this group stated that they did not feel anything, others felt boredom, some where confused due to the controls, one felt claustrophobic, and some felt that it was like being in a war and how it must have been to live there. 92% reported that they learned nothing related to the theme, while one learned that "That civilian towns were really bombed" (Male, 15).

Group 2: Neither nor

The respondents who were in doubt if they wanted to try again (27.5% of all) were mentioning that they did not want to continue due to game design issues (68.2%) reporting the same reasons as the group, who did not want to continue and added that it should be possible to defend oneself, there was a lack of missions, and they did not know what to do. Technical issues (13.6%) were also mentioned and again the reason was lagging due to slow computers. Finally the theme/content (4.5%) was

mentioned as a reason for not wanting to continue because it was "not anything for us" (Female, 16)

In this group those who wanted to continue stated that it was due to the game design (9.1%), as they were curious to find out more and it was also due to the content (4.5%), "because one tries to be a victim, like them in those countries we hear about in the news" (Female, 15).

In this group, most respondents (55.6%) felt something related to the theme, for example: "To feel like a victim – it is not fun" (Female, 15). One feels like escaping and one felt that he was part of it. Finally some respondents felt confused due to technical problems.

Half of this group stated that they learned something related to the theme e.g. how it would be to be there for real, that war victims suffer, that bombs are exploding over civilians and that it is difficult to be in war-torn countries. The other half of this group reported that they learned nothing.

Group 3: Want to try again

The respondents who were engaged by stating that they wanted to continue the experience and try again (40% of all) reported that it was primarily due to the content and theme of the experience (54.5%) – exemplified by these statements: "Because it is YOU who are the hunted, and you are totally helpless in this situation" (Female, 14) and "it is interesting to try how it is [to be a victim of war] to be in their shoes and live like them" (Female, 14). Respondents also wanted to continue the experience due to positive elements in the game design (36.4%) where they mention the possibilities in the game, and because it was "exciting to play in another way than normally" (Female, 14). Finally positive technical issues are also mentioned – in this case good sounds (9.1%).

66.7% of the respondents from this group stated that they felt something related to the theme like excitement, shock, angst and fear. One reported, "I felt locked in, I felt bad, and I just wanted to get away" (Female, 17), but she still wanted to continue playing. Another felt helplessness "[because] you are caught in the middle of a war, you cannot do anything and you do not get any help about where to go" (Female, 14). One was "shaken and confused" and appreciated "that we are well here at home" (Female, 14). Another felt "A bit sad, because I know something like this happens in reality" (Female, 17). "It was incredible to think that other people are fleeing from this every day" (Female, 15). Others felt nothing due to the game design as this statement exemplifies: "It doesn't make me feel anything, because I do not know what it was about [...] so I want to try again to find out how to play it" (Female, 17). Finally one wanted to continue the experience because he was feeling curious.

64.2% of this group reported that they learned something related to the theme, for example that "One feels afraid and unsecure" (Female, 15), "It is hard to live in those countries" (Male, 15), and that "It is not fun to be in war" (Male, 13). 28.6% learned nothing they did not know already, while one (7.2%) "[…] Learned that I had to set up a strategy" (Female, 14).

Observations

In order to acquire more data to compare with the findings in the survey, observations during all three sessions were conducted. The author and one of the designers walked around in the classes and observed the students playing, while recording audio and video for later analysis.

In-game observations

Before the test of the prototype several students stated that they were looking forward to trying the FPV and appreciated the idea of playing a computer game as a part of their classes. It was clear that there were a number of technical problems with the prototype, and some of the schools' computers were to slow to handle the 3D content. However, it was also observed that most students were very focused on the game the first 10-15 minutes. Many students were used to games which set up the goals and some asked or shouted, "what are we supposed to do?" or "where are we supposed to go?"

During the session at one of the schools, an interaction analysis with talk-aloud recordings and no interruptions from the research personnel were conducted with two girls (14 and 15) playing together as well as two boys (14 and 15) who also played together.

The girls played for 25 minutes, and they primarily commented on what they experienced and they discussed what to try next, when setting up their own intrinsic objectives like "try to get up to that tower" (Female, 15) and which activities to perform. They also talked about technical issues (problems with the mouse), game design issues (the lack of events in their experience of the scenario and the missing weapons). They furthermore questioned what they had to do, where to go and what to look for (missing extrinsic objectives).

Affect is also encountered, when for example a rocket hits, and they both get a shock, scream and laugh afterward. They also become shocked, when a telephone rings in the game, and one girl gets annoyed and slams a hand in the table when she is being shot at. In the post-game survey the girls reported that they were in doubt if they wanted to continue because they wanted the experience to include more events and information on what to do as well as some goals or missions.

Furthermore, they reflect about the content and stated that they could identify with the person's (the refugee's) situation, and that it is impossible to go anywhere without being shot at or hit by bombs. When asked what they thought they learned in the survey, they stated: "That we are well here at home and that it is not always so cool to live there [in war-torn countries]. You cannot really walk on the streets. Your neighbors are being shot […]" (Females, 14 and 15).

The boys who were aged 14 and 15 played FPV for 27 minutes and during their experience they comment on what they see and hear. They mainly talked about four elements: Technical issues (lagging, graphics, and comparison with other war games), game design issues including activities and intrinsic objectives (they try to get hurt in the game, but realize that it is not possible to die, they get lost, wander in

circles and it is hard for them to find the way). They also chat about external issues not related to the game, and finally they joke about the things they encounter. They reflect on the theme twice, for example when they encounter a picture of dead bodies, and one of them says that his dad also has been in a country of war and later they discuss how similar their play-through of the FPV is to a real refugee's experiences.

The boys were also in doubt if they wanted to try again. The reported reasons in the survey were that there was no goal and that the experience was repetitive. It was obvious that they were bored in the end (after having played more than 15 minutes), as one of them began to play music on his mobile phone lasting the last minutes of the test. They both reported that the experience was concerned with how it is to be a refugee, and they did not report having felt anything in particular or learned something during the experience.

Though both the girls and the boys did not clearly state that they wanted to continue or not, the recordings suggest that they all were engaged in the first 10-15 minutes of the experience because they kept exploring the world, talked about the experience of the story and characters, and they experimented with the possibilities in the game. The observations thus suggest that the experience is supporting the possibilities of player engagement through both the intrinsic objectives and the activities related to exploration, experimentation, solving problems, experiencing the story and characters. However, the observations also indicate that the lack of extrinsic objectives and enough events, which could support new intrinsic objectives, resulted in disengagement after around 15 minutes of play.

Post-game observations

In the session at the last school the students and teachers gathered in a lounge area to take a break after playing FPV. An audio recorder was placed in the room and the test personnel left the room. Analysis of the recording reveal that students and teachers initiated their own discussion and compared their experiences. In the beginning of this discussion everyone thought that they have had the same experience, but soon they realized that they had very different encounters. One female teacher even asked if it was the same game they played, as she experienced to meet a man who told her that she could get away by getting a ride on a van which was leaving the town, and none of the students had that experience. Some students mentioned that they would like to try again in order to experience more of the events mentioned by other students. This finding supports the idea behind the emergent narrative where it is the intention that participants should have different experiences.

Post-game discussions

After trying the experience students and teachers in each of the three sessions were gathered in a classroom for a discussion about the experience in order to explore the potential of using the FPV tool in teaching.

The discussion was guided by the designer, the author and teachers. A semi-structured interview approach was used and the audio from the discussions was recorded for later analysis. Students contributed actively in the discussions and some of the issues which surfaced during these discussions were suggestions for improvements related to technical problems (e.g. getting stuck in the geometry of the 3D world, lagging, problems with the controls, and blurriness that did not disappear when one got hit). There were also game design suggestions (e.g. the need for explicit goals, wishes for more people and events and more interaction possibilities, and the lack of weapons and missions. Some wanted a realistic scenario and a few wanted even more gore).

Various feelings were mentioned in the discussions and while some students just felt nothing at all, others felt hopeless, scared, shocked, lonely, frightened, powerless, and unable to do anything – "like it happens in reality" as one boy elaborated.

Students also mentioned theme related issues. For example some of them reflected on their own role in the experience: "I always thought that if I should be in a war, then it was me who should defend the others. It is the first time I see it from a point of view where I was totally helpless, and I couldn't do anything at all. That is what I've learnt" (Male, 18). Others did not get more understanding on how it is to be a refugee because the scenario "could have been more lively, more realistic and with more people around."

Some students compare the experience with other media. "This [experience] is how it would look like to walk around. [...] We just watch the TV, and we just hear that there has been a bomb explosion there or there. Now we walk around and suddenly there is a bomb exploding in front of our eyes." (Male, 13). A girl further elaborates: "It is different, here you are experiencing it yourself [...]. It is a bit like you are deciding what is going to happen... In a film you can sit and shout 'Don't go down there!' but here you can actually control what happens with this person and it is a whole different responsibility you get for this person" (Female, 14) and a boy adds to this: "[in a game] you are probably also concentrating more [than when watching a film], when you are sitting and controlling it" (Male, 13)

After the discussions, short semi structured interviews were conducted with the teachers (n=7) in order to get further feedback on the potential of using the FPV as an tool for initiating discussions about the theme. The teachers state that they observed that students had been participating actively, and especially at the last school the teachers reported that students had been more active than normally, and that some boys, who usually did not participate had been very involved in the discussion.

Findings and Discussion

The main objective of this study is to evaluate engagement in the FPV application and the results show that 40% clearly wanted to continue playing, while 32.5% did not want to try again and 27.5% were in doubt. The survey and observations show that the engaged respondents, who wanted to try again had the desire to continue due to intrinsic objectives, activities related to exploration, solving problems,

experimentation and experiencing the characters and story. Moreover, they also wanted to continue mainly because of the theme and positive elements from the game design. The evaluation furthermore investigates the affect experienced by the students, as the mediation of feelings related to the topic is important for the communication of the theme. The engaged group reported the experience of more feelings related to the theme than both the group of respondents who were in doubt and the group who did not want continue.

The group who did not want to continue playing reported that it was mainly due to game design issues and technical problems while feelings related to the theme were not as frequently reported as in the other groups. While most of the students in this group state that they did not feel anything in particular, the findings show that engaged students report that the FPV triggers negative feelings, which are related to the theme, and that they want to continue even though those feelings are not fun, enjoyable or pleasurable.

The findings thus suggest that this affect can be the result of the activities introduced in the PEP framework – e.g. exploration and experiencing the characters. Since there is nothing explicit to accomplish in the FPV, the affect encountered is not intended to include positive feelings such as satisfaction, triumph or closure, which is usually related to accomplishments in game experiences. However, disengagement can also be a sign of successful communication of the theme, since negative emotions related to the content can make participants not wanting to try again. For example, one teacher who did not want to continue stated that she felt afraid and powerless: "I felt a lot like a victim. […] that loneliness… I felt bad." (Female, 42)

When comparing the results with an earlier in-game investigation of the FPV[2], which did not explore in depth what triggered the negative feelings of for example lack of power, frustration and hopelessness, the current study shows that these feelings do not only occur due to problems with controls and lack of agency in the game, but mainly due to the theme and content among the group that wanted to continue.

The way that the theme is communicated is fundamentally different than reading a book, listening to a radio-play or watching a film because the user is encountering the experiences through their own active exploration. The participants' emotions such as fear, helplessness, hopelessness, claustrophobia and angst are triggered by a (virtual) first-hand experience. These emotions might not have been communicated through non-interactive media as effective within the short time span, the application can sustain engagement (approx 15-20 mins). However, a comparison study with other media for example a short film based on the FPV is needed to investigate these differences between media.

Another goal of the evaluation in this study is to investigate the potential for using the FPV as a tool in teaching. Findings of the survey show that the engaged students reported that they learned something related to the topic more frequently than the other groups. Moreover, a majority of the students who were disengaged state that they did not learn anything related to the theme. When discussing the experience with the classes, both students who were engaged in the experience and students, who did not want to try again participated in the discussions. Although there was a risk that the self-selective sample of the discussion could result in that only the

engaged students would contribute, the discussion showed that also students who were not engaged during the experience of the FPV participated actively. However, the factor of social expectancy could also have affected the outcome of the discussions, as students might want to answer "correct" during the interview, especially because one of the designers, who is a refugee himself, was present at the discussions.

During the post-game interviews, teachers state that applications such as the FPV could have potential in teaching as an initiator for in-class discussions about a theme. Some of the teachers mentioned that there were examples of students, who usually never contribute to discussions (especially the "quiet boys"), who took active part in the discussions after the experience.

The findings from the discussion and teacher interviews supports the idea that an in-class discussion and debriefing is important and valuable for learning as it makes learners reflect on another level, which is no always achieved during the experience. However, a comparison with a group of students who did not have a post-game discussion would be needed to verify this impression. The results furthermore suggest that the FPV can be seen as a successful exemplification of how learners in a *designed experience* (Squire 2006) can gain knowledge of serious issues by "doing and being" (ibid. p.32) in an experiential learning scenario.

Limitations and Future Work

This study is intended to explore how the prototype of the FPV engages the students and how it would work in an actual school setting. However, further investigations are needed to generalize the findings as the overall sample was non-representative, and the results thus only apply to the three classes visited. Future studies should therefore address the limited non-representative sample size and unbalanced sample (more girls than boys). Game-literacy and game-preferences which also could have an effect on the result are not taken into account in this study, and further investigations of these parameters would also be needed to identify the relation with engagement.

The PEP framework which is used in the design of the FPV is based on responses from media technology students (n=41) and validated with a total sample of 90 respondents from online forums (n=48) and other media technology students (n=42). The framework could thus be verified further by addressing other groups of players. Other methods such as psycho-physiological measures could moreover be used to corroborate the findings concerned with the desire to continue.

The participants who did not want to continue stated that it was mostly due to errors in the prototype and the organization of the events. These findings show the limitation of the prototype, as these problems affect the desire to continue and thus the results of the survey. Further work would therefore be needed to address the technical problems and to adjust the experience through changes in the design. It is assumed that eliminating these problems could increase player engagement and thus reduce the amount of participants, who did not want to continue or were in doubt. Also the lack of a extrinsic goals, closure and weapons were mentioned as

having a negative impact on the desire to continue. However, as the intention is to invert conventional first person shooter experiences in order to mediate a feeling of powerlessness, the lack of weapons, combat and competition is something that will not be changed in the next iteration of the FPV. On the other hand it could be tempting to set up an overall extrinsic objective to support player engagement – for example to flee from the town – but such a design choice could contradict the idea of the emergent narrative, where the participant should be driven by intrinsic objectives and by experiencing the story and characters through the activity of exploration while being motivated by curiosity.

Future work should also address the risk of bias, which can occur when analyzing the answers from the open-ended questions. This could be done by organizing the reasons of wanting to continue or not in categories, which could be used to acquire quantitative data. Also in-class discussions solely with teachers and students with no interference from research-personnel could be performed in order to avoid social expectancy related to the presence of the designers of the experience. Although there is an indication of a learning outcome especially among engaged students, it cannot be concluded that students indeed learned something through the self-reported learning outcomes based on the current data. Future studies could support this by investigating the knowledge of the theme before the experience, just after, and then again after a longer period. The main objectives for future research are thus to address the problems of the implementation of the FPV, to explore the learning outcomes of the experience further and to develop methods to evaluate continuation desire for example through psycho-physiological measures.

Conclusion

In conclusion this study suggests that it is possible to use conventions from playfulness and player engagement which are usually related to enjoyable experiences to drive users through narrative game-like experiences, which can mediate unconventional content and communicate serious topics.

When designing for interactive experiential learning scenarios concerned with such issues it can be beneficial to use the PEP framework as a foundation for the design of sustained engagement by not only focusing on what it is that makes the experiences fun or enjoyable but more importantly on the triggers of continuation desire such as exploration, solving problems, experimentation, experiencing the story and characters as well as supporting intrinsic objectives through curiosity, fantasy, choice and uncertain outcomes. The results furthermore suggest that the intention to communicate a serious theme by mediating emotions and letting users encounter a range of feelings which bear similarities with that of being a victim of war has been successful especially among those respondents, who became engaged in the experience. Feedback from teachers also support the idea that there is a potential of using experiential learning scenarios such as the FPV as a tool in teaching. The findings in this study thus indicate that learning in a non-fun game-like scenario can be driven by player engagement even if the experience is not necessarily pleasurable.

Acknowledgments

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Notes

[1]   For a more in-depth literature review on the various concepts and their relation to engagement in games, see Schoenau-Fog (2011a).

[2]   See Schoenau-Fog (2011b) for a detailed investigation of continuation desire during run time in the FPV.