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Casual games with a pervasive twist ☆

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ABSTRACT

In this paper we present proposals for including real world elements in games taking into account the profile of casual players. Several real world elements can be utilized so that the fictional game world merges with reality. We focused on sound, video, physiological data, accelerometer data, weather and the player's location. From our experience developing and testing casual games, resulted a set of guidelines that address technological requirements on the player side. These guidelines may be of use for other researchers and developers in order to better adapt games to their audience. By resorting to real world elements, the screen no longer is the only focus of the player's attention because reality also influences the outcome of the game. Results are presented about how the insertion of real world elements affected the role of the screen as the primary focus of the player's attention. Positive results, in what regards defeating the screen, were obtained, mainly, with sound, the electrodermal activity and the accelerometer for these elements were used in such a way that the player's daily activities became part of the game.

1. Introduction

In digital entertainment, typically, the screen assumes the primary position as the focus of the player's attention. The player sits in front of a screen and that screen is a frontier that clearly separates the real world from the game world. The player is outside and the screen functions as a narrow window through which the game's fantasy world can be visualized. That is not the case of pervasive games. In pervasive games the real world and the game world are no longer two separate dimensions. In pervasive games the real world and the game world come together, the frontier shatters, the real and the imaginary merge and the game is all around the player, fully immersing that player in a fiction that is deeply interlaced with reality. A pervasive game is a "*genre in which traditional, real-world games are augmented with computing functionality, or, depending on the perspective, purely virtual computer entertainment is brought back to the real world*" [1].

Our objective here is to include real world elements in games, in accordance with casual players' requirements. If the real world is part of the gameplay the players' attention will also be focused on what is happening around them thus defying the screen as the exclusive center of attention. Merging casual and pervasive in such a way that games do not cease being casual is an ambitious and difficult objective [2]. Casual games are simple and easy so real world elements must therefore be integrated in a way that is also simple and easy for the player, else the game will not be casual anymore. Furthermore, casual players are usually not willing to invest in expensive or specialized hardware [3]. So, for a casual game with a pervasive twist to be successful, the inclusion of real world elements should make use of capabilities already available in devices like computers, portable computers or mobile phones. Section 3 focuses on sound, video, physiological data, accelerometer data, weather and the player's location as candidate real world elements to insert in games and proposes a set of guidelines about how to merge casual and pervasive. Section 3 also presents our results on how successful each real world element was in diverting the player's attention from the screen. Related work that frames our research is presented in the next section. The conclusions and future work are presented in Section 4.

2. Related work

Here a general overview of pervasive games (Section 2.1) and casual games (Section 2.2) is presented. Previous efforts to merge these two genres are indicated in Section 2.3.

2.1. Pervasive games

Pervasive games are games that merge with real life. In a pervasive game the sacred isolated space where the game happens, the magic circle [4], is expanded spatially, temporally or socially.

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Non pervasive games are played in a certain place, during a certain time and with certain people. Pervasive games may be played everywhere, all the time and with everybody. A game does not have to equally expand the magic circle spatially, temporally and socially to be pervasive. Some games invest more on only one or two of these expansions [2]. Pac-Manhattan [5], InStory [6] and The Beast [7], are three good examples of pervasive games.

PacManhattan recreates the Pacman game in the streets of New York. In this game a player, wearing a Pacman costume, runs around trying to collect all the virtual dots. Four other players, dressed in ghost costumes, try to catch the Pacman player before all the dots are collected. The Pacman and the Ghosts each have a controller with whom they contact via mobile phone. As the dots are virtual, Pacman cannot see them. Pacman's controller, who updates Pacman's position on a map, directs Pacman to the still not eaten dots. The Ghosts' controllers also update the Ghosts' position on a map. After eating a Power Pellet, Pacman can hunt down the Ghosts. Pacman's controller communicates this information to the Ghosts' controllers who will then relay it to the Ghosts [5].

In InStory [6] users discover Quinta da Regaleira, an extremely beautiful architectural complex, classified as World Heritage, that includes a 20th century palace and a garden for initiation rites with labyrinthine galleries and subterranean grottoes. Quinta da Regaleira is connected with strong alchemical and sacred connotations. Users visit this mystical place with the help of a mobile device that provides them geo-referenced activities. The mobile device offers specific information about the place the user is visiting as well as stories and games [8]. Players interact with several virtual characters, who function as narrators, such as a Hunter, an Amazon, a White Lady, an EcoVegan animal protecting figure and a Greyhound. To gain points and advance levels players solve puzzles and enigmas where they have to retrieve in-situ information at the geographical location they are currently at [9]. Players can also upload photographs, videos, sound clips and texts to create their own personalized activities [8]. As InStory is a flexible platform, that supports mobile storytelling, gaming activities and information access [6], it can be adapted to the exploration of other cultural or historical spaces. The system provides two applications, InAuthor and InContent. InAuthor is a game editor for the creation of geo-referenced storytelling and gaming activities, which are represented as nodes. InContent allows the design of screen areas that function as content for the nodes [8].

The Beast [7] was designed to promote the Steven Spielberg film Artificial Intelligence. In the film's posters Jeanine Salla was credited as being the sentient machine therapist. Those who searched the Internet found out that Jeanine Salla had a web presence. The game never admitted that it was not a game. To support this illusion the organizers of the game uploaded, to the Internet, a collection of photos, movies, audio recordings, scripts, corporate material, logos, web sites and flash movies. Players even received faxes and packages full of game world props and artifacts via the postal system.

2.2. Casual games

Casual games are currently an interesting area that can offer a happy escape and distraction to the necessary, but sometimes dull and tedious chores of everyday life. Windows Solitaire, Tetris and Pacman are three good examples of well known classic casual games. Card and puzzle are among the most popular casual games genres [10].

Like all other games, casual games are fun. However, to fall into the casual segment, a game must be easy. Casual games are easy in the sense that they have simple rules and interfaces that make use of images and symbols, in detriment of long and fastidious text descriptions [11,12]. In casual games the gameplay should be as obvious as possible so that even novice users without game literacy can quickly learn how to play. It is not advisable, in a casual game, to require the player to have a perfect performance. In case the player commits an error the punishment is desirably light and even fun [11]. Casual games may offer long term rewards, but short term gratification is essential [3]. As casual games usually run in parallel with the player's other everyday activities the mental engagement necessary to play the game should be low. This means that a casual game should be easily interrupted if the door bell rings or if the player has to talk to a friend or if some other important event to the player occurs [11].

According to Jull [12], casual games may be played for long hours and therefore in a way that is more hardcore than casual. If the casual game is flexible it will allow the player to have a meaningful experience within a short time frame but does not discourage players from investing more time in the game. Usually, hard core games are inflexible for they do not allow players who are only interested in a short term commitment. A flexible casual game can be played in both a light and a hard core way, therefore eventually attracting hard core players.

Casual games are games for the mass consumer [13], so research done in this area will benefit a large number of persons. Casual games are also, from an economic point of view, an interesting area with revenues that, in 2010, amounted to nearly $6.00 billion [14]. Furthermore, according to the Newzoo report [15], online casual, social and mobile games take 49% of the time spent on games and account for 27% of the money spent on games. Finally, casual games accounted for 75% of the time spent in PC video games in the game titles tracked in the Nielsen report [10].

2.3. Casual pervasive games

Some games have already managed to fit both the requirements of casual and pervasive games. In Insectopia [16], a pervasive casual game, players use their mobile phones to hunt for rare bugs. Bluetooth devices around the player, detected by the phone, are the sources of the bugs. Blowtooth [17] also explores the detection of other Bluetooth devices to smuggle drugs. Flying Cake [18] resorts to a mobile device's camera to throw a virtual cake at an opponent. The game uses a face detection technique to superimpose a virtual character on the face of the opponent. Another game also resorts to a mobile device's camera and to marker tracking to superimpose a virtual chess board on reality [19]. In the mobile game Cubodo [20] players cooperate with each other to transport a virtual package around the world. The package is displaced by the players' real physical movement. In another game players slay imaginary opponents, at certain locations, with stab and slash movements of their mobile phones [21]. It is also possible to create casual games that interface with the real world using only a mere PC or portable computer. Social Heroes [22] is a game where players trade points by tagging each other using Twitter. The technological requirements are very low. Players just have to be able to connect to Twitter through their PCs.

A survey to 168 persons in Norway found out that 57% of the respondents believed that pervasiveness adds value to a game and 38% were neutral. Only 5% of the respondents believe that pervasiveness will make the game worse [23]. These results seem to support the existence of casual games with pervasive components, which were released by companies. Undercover [24,25] is a game for mobile phones where players can locate other players as well as opponents via GPS. The game is set in an apocalyptic scenario where one's mission is to fight against the increasingly powerful terrorist cells. In Foursquare [26] and SCVNGR [27] players progress in the game by visiting certain places. In GEwar [28], a web browser game that resorts to Google Earth, players recruit and train armies to capture cities. Turf Wars [29] is a mobile game that