Lost on Earth: How Play While Navigating Affects a Location-Based Game Experience for Tourist Families

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ABSTRACT

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Author Keywords

city tour; location based games; navigation; pervasive games; intrinsic motivation;

INTRODUCTION

BACKGROUND

A body of research has focused on using mobile technologies to create game experiences in the context of museums and cities. Previous studies concerning engaging children and families have looked into experiences inspired by treasure hunts, where the players search for written or visual clues in order to find specific items in a museum exhibit [4] [6]. Jensen investigated, how children can be motivated to engage in a joyful museum experience, by interacting with an agent and taking pictures of art works on a tablet device [4]. Similarly, Larsen & Svabo investigated treasure trails in pamphlets, where children were dependent on their parents reading out the questions, interpreting the answers and writing them down, making it a family-activity rather than a child-activity [6]. Since much tourism is about being together and having time with ones family [6], these type of activities are often compelling for tourist families.

Mobile devices are an ideal platform to use in this context, because they are increasingly becoming popular among families, as mentioned by Jensen [4]. In this study, we address these experiences and refer to them as mobile Location-Based Games (LBGs), as they make use of the physical space to create enjoyable game experiences. Upscaling such experiences at museums to the city context, we did not find any studies on LBGs targeted tourist families. However, we did find several LBGs, where the mobile device is used for interaction at points of interest (POIs), similar to those in museums, e.g. getting information about artefacts, interacting with them or taking pictures as typical behaviours of tourists.

Avouris & Yiannoutsou reviewed fifteen LBGs and categorized them as either games designed for player enjoyment (ludic), education (pedagogic) or a combination of both (hybrid). Most of the LBGs for the aforementioned audience fell under the hybrid category. The authors found that LBGs take place in a *physical space* (e.g. going to a specific physical location) and require some interaction by the player in the *virtual space* (e.g. doing riddles/puzzles, interacting with an avatar or following a map). This results in an interplay between the physical and virtual space, creating what is known as the game space/narrative space [1]. They also found that narrative was an underlying element in all LBGs [1]. From this, we propose that LBGs are *game experiences* that connect the *physical space with the virtual space* and make use of an underlying *narrative* element. In the following sections, we define these terms in detail.

Traits of a Game

In order to understand what the game elements of a location-based game are, it is first important to look into what constitutes a game. There is a range of different definitions of games, however McGonigal, 2009 [7] proposes four defining traits of games which fit our definition. Games must have a *goal*, *rules*, *a feedback system*, and *voluntary participation*. The goal of the game is the outcome which players aim to achieve and what gives players a sense of purpose. The rules limit or remove obvious ways of getting to the goal and push players to be creative and use strategic thinking. The feed-

back system informs players about their progress in achieving their goal e.g. through points, levels, a score, or a progress bar. This gives a promise to the player that the goal can be achieved and thereby provides motivation to keep playing. Voluntary participation requires that all players accept the goal, rules, and feedback. This establishes a common ground for the players to play together, and the freedom to enter or leave the game ensures that stressful or challenging work is experienced as a safe and pleasurable activity. McGonigal, 2009 then relates these traits to a definition made by Suits (2005) [10], which states that playing a games is the voluntary attempt to overcome unnecessary obstacles (SHOULD THIS BE QUOTED?).

In relation to location-based games, these traits are supported by both the physical and virtual spaces and together create what is known as the *game space* [1].

A Review of Mobile Location-based Games for Learning across Physical and Virtual Spaces page 2121: 'Inherent in these games is the fact that some activity takes place in physical space, like moving to a specific location, inspecting artefacts, taking pictures and recording videos or sounds. At the same time, some other part of the action takes place in virtual space, such as a) players interacting with simulators producing events, b) avatars and other characters interacting with each other and with the players, c) players doing riddles and puzzles, d) players generating information in digital for associated with physical objects etc. At the same time, the game rules define a game space.'

Play

THE FOLLOWING SUBSECTION IS FROM BENJAMIN'S FOUNDATIONS. MAYBE SHOULDN'T BE HERE!

Learning in Location-based Games

Through a survey of 26 papers and 15 LBMGs, Avouris et al. categorize the games according to their purpose and find the main characteristics of LBMGs They found that LBMGs can either be ludic; focus on enjoyment, pedagogic; focus on learning, or hybrid; focus on enjoyment and learning. In the following, the use of game space, narrative space, physical space, and virtual space is described for each category of LBMGs. In ludic games, the goal is to engage and motivate the player. Although the focus is enjoyment, learning is often an implicit element, since players might develop skills such as exploration and orientation by e.g. navigating a city. Common genres of ludic games are treasure hunts, action games, and role playing games. In treasure hunts, players typically have to collect virtual objects alone or in teams and in a specific or unlimited area, e.g. by following GPS coordinates. Treasure hunts typically do not contain strong narratives and mostly focus on exploration, orientation and in the case of players working in teams - social interaction. Due to their simple nature, they are mostly combined with more complex situations, in which there for instance might be a strong narrative or educational elements. Action games tend to be designed for multiple players, where the goal for players is to gain a certain advantage over each other through strategic thinking and decision making. This is typically done by locating other players, e.g. through GPS coordinates or pictures of players. These games allow for many diverse game situations to emerge, however with no narrative. Role playing games tend to have a strong focus on narrative and allow players to take enact roles that are connected to the narrative. They are are often called Alternate Reality Games (ARGs) and typically played by many participants and rely heavily on finding physical locations through clues. Pedagogic games in opposition to ludic games, explicitly have the purpose of educating the player. These games typically have a strong narrative where role playing allows players to enact certain roles to comprehend complex scenarios. In these games it is assessed that it is particularly important that the physical and virtual have a strong interconnection to support learning. Hybrid games combine entertainment and learning and are typically used in the context of cultural heritage, such as museums or historical cities. There are different variations of these hybrid games. One of them is museum mobile interactive games. In this genre, the objective is to deliver information about the exhibits to the museum visitor as well as allow for interaction between between the exhibits. The use of narrative in this genre is typically limited, however the interaction tends to include many ludic elements. A variation of this genre is museum role playing games, which tend to have a strong narrative. A challenge of designing hybrid games is selecting locations or POIs (points of interest) that are rich enough in information to support learning as well as entertainment activities. Furthermore, it is important to maintain a balance between ludic and pedagogic activities, as ludic activities might overshadow pedagogic activities.

Narrative in Location-based Games

Different disciplines (e.g. narratology, linguistics, literary studies, film studies and philosophy) define narrative with a great number of different characteristics[3]. A narrative can be defined as *'a perceived sequence of non-randomly connected events, i.e., of described states or conditions which undergo change (into some different states of conditions)'*[11]. Avouris & Yiannoutsou wrote a review of Mobile LBGs for learning from fifteen studies, finding that narratives are common in LBGs[1]. The game designers Katie Sallen & Eric Zimmerman emphasize the importance of choice in a game when designing meaningful play, which emerges from the interaction between players and the system[9]. Avouris & Yiannoutsou state that a narrative in the shape of an interactive course is considered a promising direction of future LBG[1]. An interactive narrative offers the user choices and to navigate within a multi-linear branching structure of the narrative[8]. Sallen & Zimmerman write that meaningful play is the goal of a successful game design. The quality of a game design can be characterized by looking at the relationship between the players choice and the systems response[**?**]. To understand what characterises the quality of choice and narrative in a game design, LBGs using an interactive narrative are reviewed.

Khaled et al. highlights how an interactive narrative can be used to explore both the physical space but also the virtual

space. By changing location the development of the story changes. The authors observed four test subjects and found that contrasts between the story world and real world forced the reader to pay close attention to the physical setting in order to make sense of the experience[5]. Similarly Avouris & Yiannoutsou found that LBGs emphasising on the narrative often have a strong interplay between the physical space and the virtual space[1]. Khaled et al. observed that when the users had a heightened awareness of both real world and story world, reflection on story contents occurred[5]. Blythe et al. highlights the study of Riot! where users explore a historical riot by changing location, which affects the narrative progression and which audio file the system plays. Results from 30 semi-structured interviews (the exact number of participants were not promoted) revealed a lack of choice caused disappointment when users could not freely discover a wanted file. The users chose which scene to hear, but no information about the scenes were given resulting in users making blind choices[2].

Navigation in Location-based Games

Expanding The Experience

PRELIMINARY STUDY

DESIGN

EXPERIMENT

CONCLUSION

DISCUSSION

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