Design of Location-Based Mobile Games: Introduction

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Abstract. The objective of this course, is to introduce the participants to location-based games and to the challenges relating to designing them. Key characteristics of this new genre are introduced first, followed by a design framework and a set of design guidelines. Examples of location-based games will be presented and typical design patterns as extracted from previous workshops will be discussed. This course has already been run in the frame of several conferences and summer schools (Sintoris, 2014). Typical course participants include interaction designers, game designers and developers, practitioners and researchers interested in location-based games. The course is presented by researchers who have been involved in designing and studying human interaction with location-based games for many years. Examples of games developed by the course organizers include MuseumScrabble, RebelsVsSpies, Taggling, etc.

Keywords: location-based games, ideation, game design, card-based design methods.

1 Introduction

This course introduces key concepts of location-based mobile games and their design. Location-based games are playful activities situated in specific real world locations. They involve human activity, as they necessitate moving in physical space, while it has been shown that they are conducive to learning, leading to acquisition of skills like critical thinking, curiosity, creativity, collaboration, consideration of multiple perspectives, social awareness, responsibility and media fluency (Schrier, 2006). In addition, their content may relate to rich information about the game location.

Various terms have been used to describe location-based mobile games. They have been called pervasive games, hybrid reality games, augmented reality games, GPS games, emphasizing different aspects of them.

The course is 80’ long and is made of four parts. (a) Introduction to key notions of location-based games, (b) A design framework for these games including design patterns from previous games, (c) Examples of games and (d) Hands on experience with ideation of a location based game for a specific location.

adfa, p. 1, 2011.

The course handouts include the set of slides that will be used, and background papers discussing key concepts, the design framework and typical game examples, as well as material for the hands-on part of the course.

2 Principles of location-based games

A recurring view of what constitutes the game-space of location-based games involves the consideration of their dual character of overlapping physical and digital dimensions. Some of the activity takes place in the physical domain and involves actions such as moving to a location, observing a physical object, taking pictures or recording sounds. At the same time, a part of the activity takes place in the digital domain where the players interact with simulated characters and events, where they generate information in digital form and consume information or engage in problem-solving activities like solving puzzles. The two spheres are not clearly separated though and involve deep interconnections between the social, physical and virtual spheres.

To describe and understand location-based games one needs to consider their main constituting dimensions: the *ludic*, the *learning*, the *spatial*, the *social*, and the *interaction* (Sintoris et al. 2010).

In the course, each one of them will be covered, with examples and design principles.

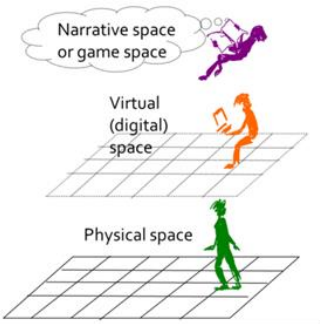

Fig. 1. Technology links different spaces: game, digital and physical (Avouris et al. 2013)

Any time we are engaged in playful activity we cross a "magical circle" and enter a new space: that of game play. New rules, new characters, new stories evolve in this new space. In location-based games the game activity takes place in a space where places may carry a meaning and participate in the game activity. In this case, we observe the co-existence of three interrelated spaces: the game space, as defined by the "magic circle" notion, the digital space and the physical space (see fig. 1). Technology and mobility interrelate the three spaces, by augmenting the physical space and supporting the game mechanics.

3 Course structure

The course introduces the key characteristics of location-based mobile games. The underlying idea is that with these games the players interact with the real world, perform physical activities situated in the real world and relate knowledge with places rich in historic value. As noted in a survey of location-based games (Avouris and Yiannoutsou, 2012), these games are conceived as tools that employ the fun of a game and engagement with a specific location. They may be played indoors (e.g. in a museum) or outdoors (e.g. in a city center). In this course examples of such games will be given, with special emphasis to games relating to cultural heritage.

In the second part of the course, the challenge of designing location based mobile games will be discussed. A design framework is presented and a set of guidelines that may inform design of such games. This includes a set of design patterns, which were extracted from game design workshops. Several workshops for designing location-based games were organized and the designers were asked to generate game concepts for a hypothetical location-based mobile game, where the players should engage simultaneously with the real-world but also with its game-world counterparts.

Designing a location-based mobile game is a complex undertaking. Besides considerations about game mechanics and fun, which are complex in themselves, other aspects such as interaction between the players, the physical location and objects, expected learning outcome, etc. make this endeavor even more difficult. Several design patterns to be used in the conceptualization of location-based mobile games are presented. These are building blocks or partial solutions that can support the generation of game concepts. As to be useful design tools, the design patterns aim to strike a balance between the aim to give designers enough options and to avoid prescribing static solutions.

Next, in the third part of the course examples from location-based games developed by the course organizers will be briefly presented and discussed, in terms of concepts, design and implementation decisions, including MuseumScrabble, RebelsVsSpies, Taggling, etc.

In the final part of the game the participants are asked to answer the following question: What are the components of a game? A good way to address this question is through an example. This question aims at grounding the design process in the deconstruction of existing games and to start thinking about a game in terms of its main components.

The participants of the hands-on activity follow a 'scenario' where they become game designers. In this scenario: The aim is the design of a game where the players move in specific site, use smartphones to interact with objects, buildings, locations in it, interact with each other forming teams, collaborating, competing or antagonizing, have fun and enjoy the game, learn about the site.

The participants form groups of 3-5 and receive the relevant material [11].

The activity is structured in two symmetrical phases. Each phase is followed by a presentation. The aim of the first phase is to familiarize the team members with the material. The actual design work is expected to happen in phase two.

Phase one (10 minutes) A rapporteur is chosen from each team. Each team formulates an idea about a location based mobile game using the Worksheet 1 to describe it

Presentation (10 minutes) The rapporteur explains and pitches the idea in a very short presentation (1 minute per team) Very fast!

Phase two (10 minutes) The teams get back and improve, detail and modify their games. They can use any of the other teams' ideas

Final presentation and discussion. The rapporteur explains and pitches the final idea in a short presentation. Discussion is encouraged

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