

The fortress of Monemvasia as play-ground for a location based game

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ABSTRACT

This paper reports on an ongoing study of the long-term deployment of a location-based mobile game “If ... in Monemvasia”. The game is played by groups of pupils that visit the historical fortress town Monemvasia in the south east Peloponnese, Greece. The players traverse the town and associate specific sites with role playing missions. The game was designed to promote understanding the history of the fortress town by the players. In the paper, we discuss the integration of historical knowledge and describe the gameplay in order to depict the incorporation of aspects of the town's history in the game.

Keywords

Location-based mobile game, playful cultural experience, learning design

INTRODUCTION

Location-based multi-player mobile games are playful activities situated in real world contexts in which gameplay is facilitated by mobile devices. These games, when played in historic settings (e.g. historic cities, monuments, etc.) enhance interaction with history and can improve history learning. The question of how to effectively design such games, taking advantage of technological potential of mobile devices, supporting learning is a new challenge (Klopfer 2011; Kurti, Milrad, and Spikol 2007). These location-based mobile games, impel the players to move in the historic site and interact with it. They should be distinguished from ‘mobile games’ where the players simply play the game irrespective of the context. The players, by performing physical activities (e.g. moving to a certain place, selecting an object among many, etc.) relate knowledge with specific places of historic value. These activities can be fun while they engage the players with the specific location motivating them to learn its history (Avouris and Yiannoutsou 2012). A challenge is also to relate these activities to formal history learning, as “location-based mobile games have not yet found their way to real teaching” (Joram Schito 2015). In this paper, we address some of these challenges, discussing the long-term deployment of a location-based game in the medieval fortress town of Monemvasia.

The location-based mobile game discussed here, “If ... in Monemvasia”, aims at engaging the visitors of the medieval castle town in a playful way, providing a platform for learning. The game is deployed by the Environmental Education Center, an institution of the Ministry of Education, that hosts one to three day visits of school classes to the

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area from all over Greece. The visiting pupils follow learning activities focused in the local environment and local culture and history. “If ... in Monemvasia” is integrated in the program since February 2016. During the first three months of its deployment, the game was played 18 times by 343 pupils of secondary education level, 19 pupils per session on average.

The background narrative of the game places the town in either of three states: Siege, Rebuilding and Everyday Life. The gameplay revolves around contact with specific sites of the castle town, following a similar approach with “Anonymized for peer review” (Anonymized for peer review). The game integrates historical concepts in the form of triggers to explore the space. This approach is different than many history-related games that provide factual information to remember or recall. The objective of this research is to investigate from the collected data, how this approach of representing historical concepts in location based games can support historical thinking and how the game can be used as a stimulus for further exploration and deeper learning.

HISTORICAL BACKGROUND OF MONEMVASIA

Monemvasia is an inhabited fortress on a rock, separated from the mainland during an earthquake, at the south east coast of Peloponnese in Greece. It was founded in 583AD and during medieval times developed to an important trade and maritime center. The name indicates that there is only one access to the fortress (moni emvasia, e.g. single entry) from the land which made it a very defensible position. The wealth of the town and its strategic position made the fortress attractive to many invaders none of which managed to break its defensive power. Only long siege forced the inhabitants to surrender and the town, which initially was part of the Byzantine empire, came under the rule of Venetians and the Ottomans (interchanging regimes), the Franks and the Pope. This is a very rough presentation of the historical background of the town, however its main aspects can be resumed as follows: a) the place attracted many invaders and came under the rule of different cultures b) the rock was densely populated but the space was limited and c) water supply of the town was solely based on rain water. These were the aspects that were highlighted in the game design of “If ... in Monemvasia” and especially in the missions of the game.

INTEGRATION OF HISTORICAL CONCEPTS IN THE GAME

The three states of the game Siege, Rebuilding and Everyday Life attempt to capture the interchange of regimes and the fact that the place suffered many invasions. The missions of each state are loosely related to the concept of role playing games in the sense that each mission is associated to a role: i.e. builder, soldier, merchant, ottoman citizen, venetian visitor etc. Thus each mission is presented as a role playing mission: i.e. “If you were building a house and you did not have much space what would you do so as to extend the house above the narrow alleys?” Or “If you were a soldier and you were asked to help with the canons where would you go?” The missions aim to highlight the multicultural character of the town (with mosques, churches, remainings of houses in venetian style) and the special architectural characteristics: i.e. lack of space and the importance of water. The aim of the game is not to transfer historical knowledge nor to ask players to recall such knowledge. On the contrary, historical knowledge is used as a point of view for the players to observe the space, analyze this knowledge, use the map to formulate a strategy and associate this historical knowledge with specific sites in the

fortress. Furthermore, the game is designed so as to stimulate discussion that will help players to analyze more deeply aspects of interest to them.

This approach to integrating historical knowledge in a location based game is tightly related to the nature of the game and to the characteristics of the devices used (tablets and/or mobile phones). These two factors formulate gameplay and learning situations where a) players move in the space and thus can be tired after one hour of gameplay, they cannot discuss extensively or collaborate the way they would do around a table; b) it is desired the players not to look at the screen but to observe the space thus the missions are short phrases designed to function as triggers for observation; c) deeper historical analysis is designed to happen after gameplay using the missions, player's difficulties and successes as starting points.

GAME DESCRIPTION

The game was designed to engage pupils with the still inhabited byzantine fortress town of Monemvasia. In this section the focus will be on the gameplay description, while the integration of the concepts of history are described in the following section. The game is played by four teams of 3-5 players each. In a nutshell the goal of each team is to associate *missions* with specific landmarks located inside the fortress. When all missions have been associated with specific locations (regardless of their correctness), the game ends.

Each team operates a hand-held device (an Android tablet) that is provided by the Environmental Education Center that runs the activity. The devices communicate via mobile network. When a team performs a game-related action that changes the global game state (e.g. a team making an association of a mission), this action is communicated to the other teams.

A number of “hot zones” have a special role in the game. A hot zone is defined as an area 20m around a landmark. When a team goes within a hot zone, the GPS sensor of the device *reveals* the landmark on the team’s device. Such landmarks can be churches or areas of interest like a square or a part of a house.

Choosing a mission

The missions belong in one of three categories, which represent different states of the fortress: Siege, Rebuilding, and Everyday Life (Figure 1-a, Figure 2). There are five missions under the state “Siege”, six missions under the state “Rebuilding” and seven missions under “Everyday Life”. Each mission is directly related to a landmark. That means that a mission will award points only when a team associates it to the correct landmark.

Missions can be chosen in arbitrary order. At any time a player can select a different state of the game and browse through the missions. Missions are defined through short questions starting with the word “If”. For instance, a mission in the state Siege is “If you found out that the pirate De Lauria was arriving with a ship, dressed as a merchant, in order to enter and plunder the city, towards which gate would you send the soldiers in order to stop him?”, or, in the state Everyday Life, “If you were building a house, what would you do to collect rainwater in the underground cistern?”

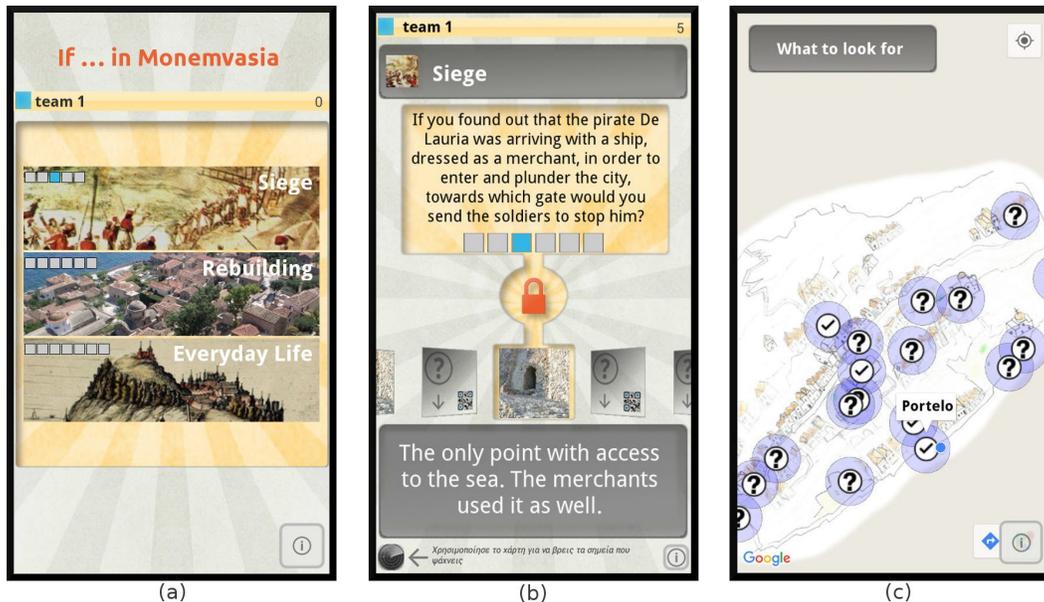


Figure 1: Screenshots of the game (the text is translated from Greek to English) (a). The three states of the game with a set of missions per state depicted as little squares on the top-left banner of each mission. (b) Inside the “Siege”: the 3rd mission is selected. Missions change by left/right swiping. This mission has been associated with a landmark represented by its photo and a short description at the gray box in the bottom. (c) A map of the area. Purple circles have a 20m radius. The blue point is the device’s current location. In the snapshot players found the landmark “Portelo” which is associated with the third mission of Siege (b).

Revealing landmarks

To complete a mission the team has to discover and reveal landmarks. To do so, the team needs to enter the landmark’s hot zone (Figure 1-c). A revealed thus landmark is added to the team's inventory: this means that a picture and short relevant info about it is available for the team to use in order to associate it with the available missions. The landmark remains available for the team until the end of the game and it can be associated with any mission. However, only correct associations raise the score for the team.

Completing missions

So far, the described actions do not affect the other teams. At the beginning, all missions are available to all teams. However, when a team associates a mission to a landmark, the other teams cannot use that mission anymore, and if the mission was associated with the correct landmark, the team gains five points. No points are awarded for incorrect associations. The team is notified after having performed the association, on how many points they gained for their action. They can disassociate the mission from the landmark for a penalty of three points.

The game ends when all 17 missions have been associated to landmarks.

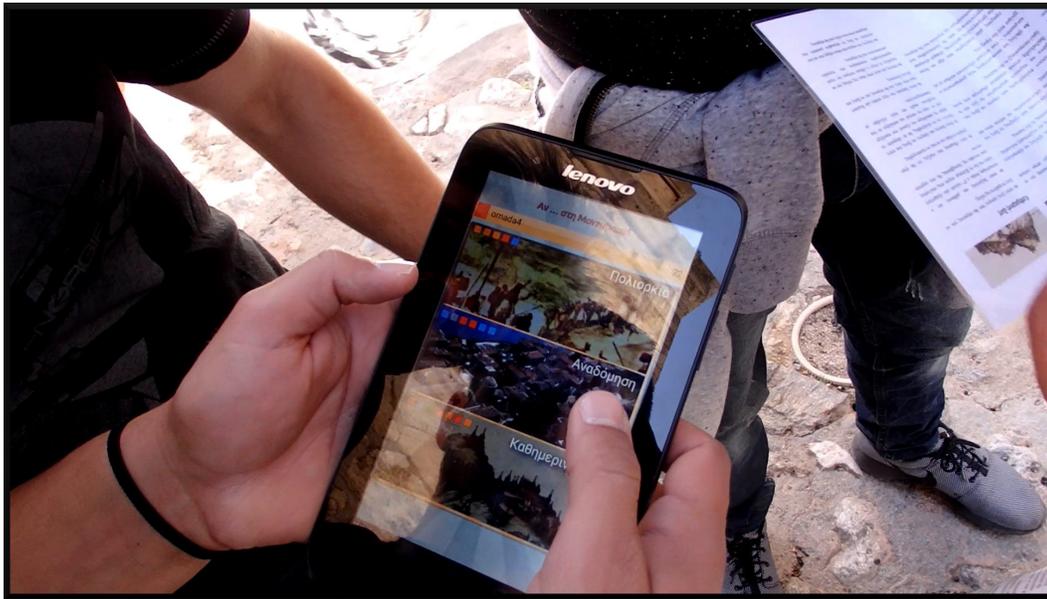


Figure 2: Players viewing the screen with the three states towards the end of a game session: Siege, Rebuilding, and Everyday Life.

DATA COLLECTION AND FUTURE WORK

The work we report here is in progress and currently we have completed the design of our research instruments and the data collection. Our data consist: a) of team discourse recorded as sound files in the devices the students used in one game session; b) questionnaires focusing on the game experience and historical knowledge gained (questionnaires collected from all 18 game sessions); c) a video-recorded session of an after-play reflective discussion with all teams d) researcher observation notes and e) location data showing the paths each team followed in space, combined with log files showing for instance if the associations between missions and landmarks were made on the spot (i.e. when a landmark was revealed) or later on.

The analysis of our data aims to provide insights a) on how players experience and perceive the historical knowledge integrated in the game and b) the influence of design decisions in the gameplay. With respect to the first aspect we plan to focus on how students use the historical knowledge integrated in the game to observe the surroundings in order to complete the missions; what are the characteristics of their reasoning; what strategies they formulate during gameplay; how the knowledge obtained during gameplay can be connected and enhanced in a reflective discussion afterwards. Some preliminary results based on researcher observations show that students become engaged with the game, discuss about the missions and the landmark descriptions and they have an interest in collecting more information than the one provided in the game, by asking the locals.

With respect to the rationale behind our gameplay design decisions, observations of players activities have identified some interesting patterns of behavior. An issue is related to search for landmarks. The players needed to optimize use of physical resources and defined strategies on where to direct themselves in the strait and steep alleys of the

fortress in order to find landmarks relevant to their mission. Revealing landmarks carries a cost in terms of the physical effort that needs to be exerted: Most of the city has to be traversed while engaging with the game and this can be quite tiring and of course it costs time. On the other hand, the landmark search strategies are opportunities for reflection on the geography and organization of life in the castle town. In addition, the players do not know beforehand how to associate landmarks to missions. This information is disclosed only after associating a certain landmark to a mission, since, if the actions are correct, the players are rewarded with points, otherwise a penalty is applied.

The players do not operate blindly though. Two sources of cues help them. First, the textual descriptions of the seventeen missions match quite well with the landmarks (Figure 1-b). Second, once a landmark is revealed, a photo of it becomes available on the screen. Initial play testing with a visiting school showed that students still had problems keeping track of the missions and the revealed landmarks. To improve this, each team is provided with an A4 “cheat sheet” which lists all missions in print (upper right corner of Figure 2). This showed to have many benefits. First, the cheat sheet provides a quick overview of the missions. Second, the player who holds the device is not the only one who has access to the missions’ descriptions. Third, it promotes discussions and cooperation among the team members.

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