“Premierløytnant Bielke”: A Mobile Game for Teaching and Learning History

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ABSTRACT

Developments in mobile phone technology, together with an increased research interest in utilizing computer games to facilitate teaching and learning, are an important catalyst for the emergence of the area of mobile, location-based computer games in schools. This article describes both the design process and an evaluation of Premierløytnant Bielke, a mobile, location-based game for teaching and learning history using mobile phones. We argue that by using the surroundings and milieu that are local to the students in a playful context, we can support the construction of meaning related to the subject of history in a way that is both engaging and worthwhile.

Keywords: Evaluation, Location-Based Games, Mobile Learning, Teaching And Learning History

INTRODUCTION

There is an increasing interest in how computer games impact education, and how they can be utilized to facilitate teaching and learning. In addition, schools are conscious of integrating technology that is in use in the everyday life of students into the learning experience. In a relatively short period of time, mobile phones have become an integral part of the lives of people, including students, all over the planet. From the cumbersome devices of the 1980s, mobile phones have evolved to be highly connective, fast and small computers. These technological developments have made it interesting to explore how mobile technology can be put to educational use, and in particular, how mobile educational games can be designed, developed and adopted. In our research, we developed a mobile, location-based educational game to investigate how the nearby surroundings of the intended users can provide meaning to a subject being studied.

This article describes a mobile educational game, Premierløytnant Bielke (Lieutenant Bielke in English, PB hereafter), played by competing teams, which has been designed and developed for teaching and learning about local history in Bergen, Norway. Through animated geographical surroundings, such as buildings and geological topology, the game gives the students insight into a historical period in

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time. The article also describes and discusses a field trial of PB in use. Attention is devoted to whether the game may prove useful in an educational setting, and how the findings relate to our goals and intentions in developing the game. Whether the game has an educational use potential or not has been a guiding light in designing and implementing the field trial, and here our focus lies in the participants’ immersion within the game, whether playing it is an engaging experience or not, and whether and how it supports collaboration. We have also been interested in the more imaginative aspects of playing the game in the location-based setting; does the combination of physical surroundings, augmented with textual information, wrapped in a competitive, quest-like location-based game, help the learner imagine the historical period that we are portraying? Since this field trial was the first test with participants other than ourselves, we also focus on evaluation of the usability of the technology.

The structure of the article is as follows. First, we provide a review of relevant research and developments in the fields of computer games and learning, mobile computer games and learning, and location-based education. Then we describe the research methods used in our study. Third, we describe the field trial scenario and the technological infrastructure represented in the PB. Finally a description and discussion of our main findings is provided.

RELATED WORK IN LEARNING WITH GAMES AND PLACE-BASED EDUCATION

Prensky (2001) has described the young generation as digital natives, where the computer is considered a naturally embedded part of youth culture. Several authors (e.g., Fromme, 2003; Gee, 2003) highlight that computer games are a significant element of computer use for the same generation. The impact for society in general is also notable. The first references to the notion that the gaming industry has surpassed the movie industry in annual turnover, for example, are now many years old (Schirra, 2001). The gaming industry and computer games are becoming an increasingly significant cultural phenomenon or an “enculturation force” (Halverson, Shaffer, Squire, & Steinkuehler, 2006, p. 1049). Computer games have also been entering the educational sector on several levels for quite a while. According to Egenfeldt-Nielsen (2006), the first experiments with computer games in the classroom started in the early 1970s.

Mobile Games

The first game developed for the mobile phone, Snake, was supplied with the Nokia 6110 model in 1997. Other games that exceed Snake in functionality, exploiting the possibilities of mobile devices further, have been growing in numbers in recent years. Interesting and pioneering examples include ARQuake (Piekarski & Thomas, 2002), which is a game that has been developed from the Quake platform for PC to an outdoor gaming experience, by using GPS and a head-mounted graphics display. Cheok et al. (2004) have described an augmented reality (AR) version of Pacman, Human Pacman, where game players take the roles of ghosts and Pacmen. This idea has also been deployed on the streets of New York, in the game Pacmanhattan ("http://www.pacmanhattan.com"). Flintham et al. (2003) describes two games: CYSMN? (Can You See Me Now?) and Bystander. CYSMN? is a game where 20 online players seek to avoid being caught by 3 real-life players on a shared map of an actual location. The real-life players’ positions are represented by GPS data, which is transmitted through an Internet radio channel, and shown as icons on the map available to the online players.

These games are often labelled as Augmented Reality (AR) (Klopfer, Squire, & Jenkins, 2002) or Pervasive (Magerkurth, Cheok, Mandryk, & Nilsen, 2005). They often rely on displays that make digital content available relative to the players’ geographical position in the real world, wireless technology to facilitate communication, and sensing technology that captures limited elements of the players’
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