Chapter 18

Death in Rome:
Using an Online Game for Inquiry–Based Learning in a Pre–Service Teacher Training Course

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EXECUTIVE SUMMARY

This chapter presents a case study that used an online game in a pre-service science teacher training course in the context of computer-supported inquiry learning. Numerous studies have shown that pre-service teachers complete their education with an inadequate range of skills and knowledge in the use of technology in the classroom. In this study, the authors focus on developing pre-service teachers' skills in using a game to teach students through inquiry-based learning. The game used in this study was Death in Rome, a free to access point-and-click game. In the workshop, the participants were required to complete an inquiry-based learning activity using an online game. Overall, this study shows a positive change in attitudes towards game-based learning in science education.

INTRODUCTION

This chapter discusses how an online game can be used to develop pre-service teachers' skills and competency in the use of computer games to teach inquiry skills. There is a growing body of research on the integration of information and communication technologies (ICTs) into pre-service teacher training programs and the varying degrees of success of these initiatives (Hu & Fyfe, 2010). Numerous studies, such as Phelps et al. (Phelps, Graham, & Watts, 2011) and Webb and Cox's (2004) literature review, have confirmed that a teacher's attitude towards technology and sustained exposure to ICTs both have a significant impact upon a teacher's decision to use ICT.

In this chapter we will focus specifically on the embedding of game-based learning technologies into the science curriculum for secondary school education through a case study. The case study used an online point and click game called *Death in Rome*. This chapter will focus on how to improve practice-based learning using online games, and will focus on developing new curriculum, embedding ICT within a content area, and developing skills necessary to source appropriate games.

PRE-SERVICE TEACHERS AND GAME-BASED LEARNING

Before moving further forward in this chapter, it is necessary to explore how pre-service teacher curricula need to change to embed ICT into content specific areas in order to be effective. After providing the background, we will describe our starting point for the studies using game-based learning.

The role of teachers in facilitating the use of ICT is pivotal in the successful implementation of selected technologies in a classroom. Advocates of the use of ICT in education foreground several benefits for the use of ICT in classroom situations. These benefits include that using ICT makes the lesson more interesting, and the novelty factor is linked with a divergence from daily teacher fronted classrooms that can invigorate students (de Winter, Winterbottom, & Wilson, 2010; Dede, Clarke, Ketelhut, Nelson, & Bowman, 2005; Goldsworthy, Barab, & Goldsworthy, 2000; Squire, Barnett, Grant, & Higginbottom, 2004). Using ICT, such as simulations and modeling, can result in better teaching outcomes as students can visualize a situation or concept that may be difficult without additional support (Brack, Elliott, & Stapleton, 2004; la Velle, Wishart, McFarlane, Brawn, & John, 2007; Lowe, 2004; M. E. Webb, 2005; Zacharia, 2003).

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