A Game-Based Approach to Support Social Presence and Awareness in Distributed Project-Based Learning

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ABSTRACT

An important factor for success in project-based learning (PBL) is that the involved project groups establish an atmosphere of social interaction in their working environment. In PBL-scenarios situated in distributed environments, most of a group’s work-processes are mediated through the use of production-focused tools that are unconcerned with the important informal and social aspects of a project. On the other hand, there are plenty of tools and platforms that focus on doing the opposite and mainly support informal bonding (e.g., Facebook), but these types of environments can be obtrusive and contain distractions that can be detrimental to a group’s productivity and are thus often excluded from working environments. The aim of this paper is to examine how a game-based multi-user environment (MUVE) can be designed to support project-based learning by bridging the gap between productivity-focused and social software. To explore this, the authors developed a game-based MUVE which was evaluated in a PBL-scenario. The result of the study revealed several crucial design elements that are needed to make such a MUVE work effectively, and that the acceptance towards game-based MUVEs is high, even with a rudimentary execution.

Keywords: Distributed Work, Gamification, Project-Based Learning (PBL), Serious Games, Social Presence

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INTRODUCTION

At the University of Skövde, project-based learning (PBL) is used at the undergraduate and master programs in computer game development. During ten week long courses, students from different fields of expertise in the area of game development work together in teams to produce digital games. These project courses, which have been taught since 2002, have mainly been campus-based which gives teams the opportunity to create permanent physical areas where they sit closely together when developing their games. Independently of teacher involvement, the development teams seize these areas and start to personalize their working space through decorations and identity markers that grow increasingly elaborate and important to the team members as the project progresses. This personalization is an important part of the students’ sense of being in a team with shared ambition and creative direction, which begs the question: how can these informal acts of team-building be supported in distributed project environments?

This paper presents a pilot design study where we’ve developed and evaluated software for addressing this question and easing problems that arise when PBL scenarios are carried out in distributed environments. The implementation was tested during a ten week long game development project course, and the study included 33 participants out of the 100 students partaking in the course. The software developed for the study is a game-based multi-user virtual environment (MUVE) titled Project Office (PO), shown in Figure 1. In the remainder of the paper, we will use MUVE to refer to the general concept of multi-user virtual environments, and PO denotes our specific software application. During the development and research of PO we identified means of providing groups of students the opportunity to bond and feel connected to each other, which we summarized in a design rationale explaining the implemented solutions and their respective problems. Our intent with the design rationale is to provide basic guidelines for designing software for PBL.
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