

DESIGNING VIRTUAL WORLD FOR HELPING STUDENTS

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Abstract

Students in Informatics are often required to work in a team environment to complete assignments. For example, in the Game Programming course, we expect students to complete a series of design projects that end with a complete game design. Classroom time is set aside each week for teams, but students need time to finish their work outside the classroom. To help them with this process and teach them effective team strategies that they can apply to their careers, we've created a supportive online environment. This paper will present the design created for this course and discuss the challenges and opportunities we experienced with building and deploying it.

Keywords: game, virtual world, student, project

I. INTRODUCTION

In the game programming course, students are in a team who work together to complete a series of interrelated projects. Unless there are mitigating circumstances, each student stays in one team for the entire semester. Because of the layout of the computer labs, the teams are small, ranging from 5-7 students. Typically, a team would consist of 5-7 students to achieve a sufficient knowledge base.[1] In this class or lab environment, 4 or more students teams would not support direct interactions between each member.

These small teams work together to design, develop, and manipulate a game system and design. Therefore, the student will have to work outside of the classroom together.

In the Computer Science Department, part of the mission is to prepare students to work effectively in a team environment. Because teachers aspire to provide students with opportunities to work with one another, many computer science courses build teamwork.

In the Game Programming [2] course, students are expected to work in a small team to complete a semester-long project. This project lends

itself to a student-driven collaborative environment because of the complex and ill-structured nature of designing and developing a game system. Most of the informatics students' current technical knowledge and skills are enhanced by collaboration [3]. This project is broken down into small tasks, taking 3 weeks to complete. Students tend to stay with one team throughout the semester because the project builds on each task and knowledge gained from any task funnels into the knowledge needed to complete the next job. To help the students work effectively in this project and prepare them to work in a contemporary project environment [4] where teams use technology to facilitate communication and the completion of tasks.

This paper will focus on these efforts and discuss their strategy for enhancing team effectiveness in virtual space, including developing a self and peer assessment tool used to determine the effectiveness of student teams.

1. Project Tecm

Each team completes a series of game design and development projects throughout the course. Each project fits into approximately six weeks.

First, students learn the theory behind a task, apply it, and then use their new knowledge to complete the group project. The team earns the grade that is assigned to the project.

During this 6-week cycle, students have about 90 minutes to 3 hours to work with one another. They are also able to determine individual responsibilities for the task completed quickly. To complete the work, though, students will need to spend time working with their teammates outside the class.

When teams started becoming popular in the 1980s, there seemed to be the expectation that good things would happen if many people got together to work on problems. It doesn't take many experiences like those described in the preceding case studies to shatter that illusion. Organizations are more sophisticated now: They realize that many factors contribute to success.[5]

2. Enhancing Team Effectiveness

To produce significant change, organizations must have a number of efforts underway at different levels of the organization at the same time. Perhaps the most prominent challenge organizations face now is aligning teams internally and with the organization's mission. It requires a management system that ensures the teams are aligned with strategic direction and line management that knows what the teams are up to and how their work contributes to the organization's business goals. Some elements of this system include:

- An overall improvement plan
- A link to the organization's strategy
- A review schedule
- A system for identifying, chartering, and monitoring team efforts
- Organizational recognition of desired behaviors and celebration of team success. [5].

3. Student Need

These adventures nurture mutual collaboration that allows learners to apply newly acquired learning in insightful, cognitive processing design without detachment from real-life situations. A judicious blend of traditional and virtual learning environments with particular attention to students' needs and satisfaction can create constructive, creative, and reflective practitioners or learners. Virtual Learning Environments are indeed the future of all educational establishments. The virtual classroom environment will

help manage this process but sometimes the easiest solution is taking attendance, identifying the reasons why team members are absent, and reviewing usage records from the online learning environment [6].

II. DEVELOPING THE VIRTUAL ENVIRONMENT

We provided students with custom-designed community space on network to support teams working in virtual spaces. This space is hidden from the world; others cannot view the students' documents, chats or activities (e.g., student-developed study guides). As an additional benefit, secluding the virtual workspace in this way allows students the ability to work without interruptions, advertisements, and virtual noise. To accomplish this goal, we enhanced the course management system to support the ideas on how to help effective teamwork in a virtual space.

We'll provide suggestions for those who may not have the same facilities later on. The following diagram depicts the virtual team environment we developed.



Figure 1 The virtual environment

The virtual environment system has two main goals. The first goal is to ensure that virtual environment-based instructions for training personnel in the manufacturing industry can be created quickly so that the use of the system can potentially realize an overall training cost reduction. The second goal is to accelerate the training process for the trainees through the use of adaptive, multi-modal three instructions. With this system, training supervisors can use a wide variety of multi-media options such as 3D animations, videos, text, audio, and interactive simulations to create training instructions. The virtual environ-

ment enables workers to practice instructions using interactive simulation and reduces the need to practice with physical components. The system is mainly geared toward cognitive skills: training workers to recognize parts, learn assembly sequences, and correctly orient the parts in space for assembly. The virtual environment was designed to be an affordable Personal Virtual Environment for training. We developed a low-cost wand design and used an off-the-shelf head-mounted display. The level of physics-based modeling that has been implemented as well as the hardware selected reflects this design decision.[7].

1. Self and Peer Assessment

: When used appropriately, self-and peer-assessment is a very practical learning tool. The present work has compared instructor formative assessment and feedback, the self-assessment, and peer assessment. The students followed a continuous formative evaluation during the first semester. Subsequently, they were divided into two subgroups based on similar performances. One subgroup performed self-assessments, and the other followed PA during the last part of the course. Results suggest that peer assessment is a more effective learning tool than self-assessment, and both are more effective than formative instructor assessment. However, a survey conducted at the end of the experiment showed higher student confidence in instructor assessment than in peer assessment. The students recognized the usefulness of acting as peer assessors but believed that self-assessment helped them more than peer assessment. [8]

2. Suggestion for External management systems

A team with representatives from essential management functions can identify and assess issues, opportunities, and existing processes. Where appropriate, including contractors, suppliers, or other external parties as part of the project team. The team will need to meet regularly, especially in the early stages of the project. A cross-functional team can help to ensure that procedures are practical and effective.

III. CONCLUSION

The objectives was to provide teams with modern tools to enhance their communication, organization, peer assessment, and quality of work.

Within the course we worked with, teams first chose a team name. Then, that name was used to create assigned space within the system and give that space to individual units. Teams could use their assigned space to chat, conduct threaded discussions, leave messages, email the team, develop wikis or blogs, assess team and peer performance, and collaborate on documents.

Because we were able to build this working space for teams within the course management system, we could keep out distractions such as virtual or cyber noise.

Students appreciated this because it allowed them to focus more efficiently. In addition, the virtual team model discussed in this article can be built outside a course management system.

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