Chapter 5

Using Moodle to Teach Constructivist Learning Design Skills to Adult Learners

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ABSTRACT

This chapter describes a case study of the design and implementation of an online project-based course for learning constructivist instructional design techniques. Moodle, a free and open source learning management system, was chosen as a tool to meet both the goals of the course and the needs and abilities of the adult learners in this course. Despite the instructor's and students' inexperience with both Moodle and online courses, Moodle greatly facilitated the process, resulting in a largely successful and motivating learning experience.

INTRODUCTION

As a first year assistant professor of instructional technology, I was asked to teach an advanced instructional design course, the second in a sequence, delivered online to masters level students. This was my first online teaching experience, and indeed, my first experience teaching graduate students, as my earlier teaching experiences were with undergraduates or K-12 students. Earlier, I had expressed interest in teaching such an advanced instructional design course - modeling it after the courses developed as part of the TRAILS project (2008, Training

and Resources for Assembling Interactive Learning Systems), and its successor, L²TD (2008, Learning about Learning-Technology-Design). As the description from the TRAILS website reads:

TRAILS aims to broaden and support the pool of talent available to address the needs of K-12 education by creating powerful technology in forms such as simulations, interactive drill and practice, adaptive tutorials, and virtual manipulatives. Through the affiliated project-based design courses, it intends to have three major effects: to support and inspire higher-ed courses on the design of learning technologies, to generate new prototype tools for K-12 education, and, ultimately, to introduce tomorrow's

designers to techniques they will use to create effective tools for future learners.

In the TRAILS and L²TD courses, education, visual design, and computer science students combine into teams to design and program interactive educational software and games.

In the first instructional design course of the sequence, taken in their very first semester of masters study, students learn the Dick & Carey model for the systematic design of instruction (Dick, Carey, & Carey, 2004), including the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation). This first course concerned modern instructional design techniques, and students developed paper-based or face to face training. Looking at the syllabi from other advanced instructional design courses at other universities, I felt a nice complement to the beginner course would be for students to a) learn about post-modern instructional design techniques, and b) develop online computer-based instructional resources. That is essentially what students in the TRAILS and L²TD courses were doing, by designing educational games and simulations. Examples of both modern and post-modern instructional design techniques are listed on a website by Martin Ryder (2008).

However, our masters students were not prepared to develop such complex computer-based instructional resources as created in the TRAILS and L²TD courses. There were at least two major hurdles. One is that these students for the most part had no previous experience with computer development tools and technologies, such as HTML, Flash, or other development tools. Students could take a course on the development of web-based resources, but this was optional and usually not taken until the last year of study. These students were first year students. The second issue was that these students had no previous course on learning theory. A learning theory class was not offered until the end of their degree program, at the end of their second year. I felt that a basic knowledge of learning and pedagogical theories, including

constructivism, and some development skill, such as creating HTML webpages or Flash animations, was a prerequisite for such an advanced instructional methods course. Other differences from the TRAILS and L²TD courses included the fact that my course was to be delivered online, not face-to-face, there not time to get the computer science department involved in collaborating with the class, and finally, these students were adult learners with less time to devote to coursework, and already working full-time jobs.

I followed two strategies for overcoming the two major hurdles, however, which allowed me to keep the same essential course goals in place of having students actually develop online constructivist learning resources and activities. The first strategy to overcome students' lack of prior coursework on learning theory was to both incorporate a crash course on learning theory in my course, and model constructivist techniques in my own teaching for the students. The second strategy for overcoming students' lack of computer-based development experience was to use a tool which allowed students to design their own online instructional activities without requiring any knowledge of HTML or programming, a free learning management tool called Moodle (2008). I describe the course, constructivist philosophy, the Moodle tool, and the adult learners who took this course in more detail below.

Course Description & Philosophy

The description of this advanced course was as follows:

In this course we'll learn about applying advanced instructional concepts and practices, including:

- techniques for designing constructivist learning environments
- multimedia design and evaluation principles
- designing e-learning/online instruction

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