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Sharon Dole

Western Carolina University, dole@email.wcu.edu

Lisa Bloom

Western Carolina University, bloom@wcu.edu

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Keywords

Online course design, How people learn, Learning environment, Collaborative learning

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Online Course Design: A Case Study

Sharon Dole Western Carolina
University Cullowhee, North
Carolina, USA
dole@email.wcu.edu

Lisa Bloom Western Carolina
University Cullowhee, North
Carolina, USA
bloom@email.wcu.edu

Abstract

This case study uses the *How People Learn* (HPL) framework as the conceptual model to examine an online course in a teacher licensure program for evidence of high level learning outcomes that involve collaboration, reflection, mentoring, and problem solving. The HPL framework focuses on the learning environment and indicates that effective learning takes place to the extent that the learning environment is learner-centered, knowledge-centered, assessment-centered, and community-centered. Analysis of the data resulted in themes that coincide with the elements of the HPL framework: professional growth, peer learning, teaching presence, and collaboration. The design of the course appeared to have a positive impact on student learning as far as complex problem solving and collaboration with peers. Results of the study demonstrate that the HPL framework provides a powerful structure for creating and assessing environments conducive to the work of prospective professionals.

Keywords: online course design; How People Learn; learning environment; collaborative learning

Introduction

Colleges and universities are offering an increasing number of fully online courses, challenging the traditional model of teaching and learning. Few of these courses, however, make significant improvements in the quality of student learning; instead, they frequently replicate the traditional face-to-face model of pedagogy rather than engaging students in complex problem-solving activities. Course design varies significantly across colleges and universities and even within institutions. Design can range from a course that is programmed for self-paced instruction with little or no interaction with other students to one that has a totally interactive environment with extensive student-student and instructor-student contact. Although there is an abundance of research on the effectiveness of asynchronous learning courses (ALN) as compared to traditionally delivered courses (Bourne & Moore, 2002), there is a scarcity of research on how the design of the course affects learning outcomes and student satisfaction.

Additionally, for teacher educators, standards for learning are now higher than ever. While recent legislation in the United States (i.e., No Child Left Behind) calls for more stringent application of research-based practices, many reformers advise putting teachers in a professional role as problems solvers and collaborators as well as both producers and

consumers of research (Liston, Whitcomb, & Borko, 2007). Bransford, Brown, and Cocking contend “Much of what constitutes the typical approach to formal teacher professional development is antithetical to what promotes teacher learning” (1999, p. 240). Not only do teachers need the knowledge and skills of their craft, they need to be learners in the classroom. They need to be able to improve their teaching through reflection and evaluation (Darling-Hammond & Bransford, 2005). Research regarding how online course design can prepare teachers for professional collaboration, problem solving, and evaluation is needed.

Some teacher education practices are based on the premise that good teaching is a matter of applying known solutions to known problems. This premise represents a technical view of teaching. In contrast, a professional view of teaching is based on the premise that the work of a professional requires finding solutions to problems that change day to day and using professional judgment and multiple sources of information to gain insight and make careful decisions regarding those problems. The concept of teacher as learner in the classroom assumes as Fries and Cochran-Smith (2000) posit, there are no universal solutions or prepackaged programs that address all issues in all classrooms. Context is important; each classroom and teacher-student dynamic is different, and as a learner, each teacher must determine what is appropriate and most conducive to learning for their circumstances.

Reflection is one aspect that distinguishes the role of teacher as a role of a professional as opposed to a role of a technician. While the role of a technician is that of applying a known solution to a fixed set of problems, the role of a professional is to that of applying reflection and judgment to predicaments within unique circumstances. Anyone who has been in a classroom recognizes that the problems and predicaments encountered by teachers and schools do not present themselves in clear-cut technical fashion, rather as messy situations and predicaments. According to Schon (1987), professions such as teaching hold that practitioners are instrumental problem solvers who select technical means best suited to particular practices.

Collaboration with other teachers can further increase the professional status of teaching (Clark, Hong, and Schoeppach, 1996). Teachers today are more likely to be expected to be active participants in decisions that affect the entire school. No longer are teachers relegated to their individual classrooms, isolated from their colleagues, and disengaged from school-based management. Applying the HPL framework to a teacher education course puts the teacher in a professional role, allows teachers to deal with authentic challenges, and promotes collaboration and reflection.

Purpose of the Study

The research was guided by the following question: How can course design promote collaboration, reflection, mentoring, and learning from one another?

Conceptual Model

The conceptual model for this study was the *How People Learn* (HPL) framework, a synthesis of the scientific basis of learning published in several National Academy of Sciences reports (Bransford, Brown, & Cocking, 1999; National Research Council, 2000; see <http://www.nap.edu/html/howpeople1/> for the full text of the study). The HPL framework focuses on the learning environment and indicates that effective learning

takes place to the extent that the learning environment is

- *learner-centered*; learners use their existing knowledge to construct new knowledge and what they know and who they are affects how they interpret new knowledge. The implications for teaching are that teachers must develop an awareness of the learning differences of their students, including those of gender, race, ethnicity, religion, socioeconomic background, strengths and weaknesses.
- *knowledge-centered*; concepts must be presented in ways that link students' existing knowledge to new understandings and build higher level thinking skills. In a knowledge-centered perspective, thinking about curriculum design is essential; teachers have to think carefully about what they teach and why they teach it.
- *assessment-centered*; teachers need to have a toolbox of assessment strategies to guide students' learning and give them feedback to improve their achievement. Formative assessments are important because they give students the opportunity to revise their work and help them learn how to self-assess their own progress.
- *community-centered*; instructors need to create psychologically safe environments in which communities of learners can thrive. They must know how to structure collaborative activities based on common behavioral norms that promote a sense of community.

Course Design

The course is an undergraduate course required for licensure in the special education program at a mid-sized state university in the southeastern part of the United States. The STAR.Legacy or Legacy template (Brophy, 2000) was used in the design of the course. The template is based on the principles of the *How People Learn* (HPL) framework. The Legacy template is problem or inquiry-based and presented as a "learning cycle," with the learner progressing through a series of phases in exploring a multifaceted challenge (see http://www.vanth.org/white_papers.html).

Following the Legacy template, the course was divided into modules, with each module having a challenge based on an important concept of the course. This modular design helps the instructional designer prioritize the concepts and skills of the course, set objectives for what the students should understand by the end of the course, and arrange activities to help develop the students' understanding (Brophy, 2000). In each module, the students progress through all phases of the learning cycle. Brophy describes the six phases of the learning cycle as follows:

- *The Challenge*—presents a statement or scenario that poses a complex objective for the students. The challenge should be related to a major concept of the course that students should come to understand in order to meet the objective.

- *Generate Ideas*—provides students an outlet for showing what they know about the challenge. It can serve as a baseline or pre-assessment.
- *Multiple Perspectives*—provide insights on the challenge. These statements or comments from experts do not provide a solution but should help the students see the many dimensions to the challenge.
- *Research and Revise*—engages students in learning activities linked to the challenge. These can be readings, homework problems, simulations, or other activities.
- *Test Your Mettle*—application of what students have learned and evaluation of what they need to know more about. This step helps students reflect on and synthesize what they know. They may have to go back to the *Research and Revise* phase if they find that they need to learn more.
- *Go Public*—provides students an outlet to demonstrate what they know at the end of the module. This could be in the form of a test, a presentation, or other assignment.

Methodology

Research Design

A qualitative case study approach was used for the design of the study. Merriam (1998) defines a qualitative case study as “a thing, a single entity, a unit around which there are boundaries” (p. 27). Case studies are particularly relevant when the researcher is interested in process, as in this study. A qualitative case study should give the researcher and reader a feel for the context of the issue and the purpose of the inquiry.

Participants

There were 24 students enrolled in the online course. The students taking the course were all non-traditional, with a wide range of experience and backgrounds. They were either lateral entry teachers seeking licensure in special education or masters’ students taking the course as a prerequisite in the Master of Arts in Teaching (MAT) program. Geographically, they were from both rural and urban areas in the western part of North Carolina.

The Course

The course, Introduction to Learning Disabilities, is one of the first courses in the sequence of courses required for licensure in special education. The following course description is given in the syllabus: “This course is designed to explore the historical concepts and theories of learning disabilities, to examine the educational characteristics of students with learning disabilities, and to discuss instructional methods to use with students with learning disabilities.” WebCT was the platform used for the course. The course was divided into 10 modules, each module based on the six phases of the learning cycle. The challenge of the first module was to create an online community; all subsequent modules dealt with important concepts specific to the course. Each module contains a summary checklist of activities for the module (see Table 1 for example).

Table 1: Module Checklist

Module 2	Assignment Details	Completed?
Challenge: Propose a new definition for learning disabilities	After you have completed the readings, interview, and discussions for this module, write a draft proposal for a new definition of learning disabilities.	
Generating Ideas: Begin an online journal	In your private online journal, write a paragraph or two on your initial thoughts about learning disabilities.	
Multiple Perspectives: Interview a parent, teacher, or individual with LD	Interview a parent, teacher, or individual with learning disabilities and participate in writing a team summary report of the interviews. Post the report on the Discussion Board and comment on the team summary report of one other group.	
Research and Revise: Read documents on the definition and assessment of learning disabilities	Read chapters 1 and 3 in the textbook, the section on learning disabilities in the Procedures Manual, at least one document from the LD Summit, and the Sternberg and Grigorinko article.	
Test Your Mettle: Reflect on your Readings	Post a reflection on your readings and post comments to at least two reflections by classmates.	
Go Public: Post your draft proposal	Post the draft of your course challenge activity--a proposal for a new definition of learning disabilities. Post constructive feedback to at least two draft proposals of classmates.	

Although other tools of WebCT were used, the discussion board served as the main tool. Private journals were set up on the discussion board so that students could record their initial thoughts on the challenge (*Generate Ideas*). The only person to have access to the journals was the instructor who gave feedback to the students on their entries. All other assignments were open and viewable by all of the students in the course. *Test Your Mettle* provided an opportunity for students to discourse with their peers in the class. In this phase, the students were required to post reflections on their readings on the module challenge and post responses to at least two reflections of their classmates. Requiring the students to post a minimum number of comments to their classmates' reflections encouraged dialogue. A rubric was given to provide guidance on writing reflections, with more detailed information given in a document called "Standards for Success" that students read at the beginning of the course.

Table 2: Rubric for Reflections

<p>Exemplary</p> <p>7-8 points</p>	<ul style="list-style-type: none"> • Content is superior in meeting the requirements of the task. • Evidence is demonstrated of deep thinking about ideas/topics presented in readings and/or videos. • Responses take into account the knowledge and experience of the readers. • Ideas are consistently clear. • Points are fully elaborated. • Details support ideas. • Responses to classmates' reflections add something to the dialogue (for example, ask questions or elaborate on the topic of discussion). • Responses are posted within the due date.
<p>Good</p> <p>5-6 points</p>	<ul style="list-style-type: none"> • Content meets the requirements of the task. • Evidence of thinking about ideas/topics presented in assignments. • Writer uses words and concepts that are understandable to reader. • Ideas are generally clear. • Points are elaborated. • Most details and/or questions support ideas. • Generally, responses to classmates' reflections add something to the dialog. • Responses are posted within due date.
<p>Adequate</p> <p>3-4 points</p>	<ul style="list-style-type: none"> • Content is adequate in meeting the requirements of the task. • Some evidence of thinking about ideas/topics presented in assignments. • Most of the words and concepts presented are understandable to reader. • Some ideas may not be clear. • Some points are elaborated. • Some, but not all, details and/or questions support ideas. • Responses to classmates' reflections may not add anything to the dialog. • Responses are posted within or shortly after due date.
<p>Needs Improvement</p> <p>1-2 points</p>	<ul style="list-style-type: none"> • Content does not meet requirements of the task. • No evidence of thinking about ideas/topics presented in assignments. • Words and concepts are used that may be unknown to the readers. • Ideas are not clear. • No points are elaborated. • No details given to support ideas. • Responses, if made, are minimal. • Responses are not posted by due date.

Data Analysis

The data were the archived student postings on the discussion board and course evaluations consisting of both survey and open-ended methods. Archived data were triangulated with student products as well as personal, telephone, and email interviews with students who were enrolled in the course. A holistic approach was used to get an overall feel for the content before moving on to a more detailed analysis (Dey, 1993). Discussion posts were read and reread by both researchers in an attempt to find categories or themes. Using colored markers, each researcher separately identified emerging themes. The next step was to use worksheets to record the participant's words in one column and the researcher's interpretation in another column. The researchers then compared themes and identified patterns.

Results

Analysis of the data resulted in themes that coincide with the elements of the HPL framework. The design of the course appeared to have a positive impact on student learning as far as complex problem solving and collaboration with peers. The results are presented below under the following themes: professional growth, peer learning, teaching presence, and collaboration.

Professional Growth

A prevalent theme was professional teacher growth as evidenced in course evaluations, interviews, and discussion posts. Students made mention of opportunities to apply what they were learning to classroom practice as well as an appreciation to engage in problem solving. The theme of professional growth relates both to the component of learner-centered environment and the component of knowledge-centered environment of the HPL framework. The MAT program was designed to meet the critical shortage in special education by helping paraprofessionals and mid-career professionals become licensed special education teachers. A majority of the students in the course were lateral entry teachers; that is, they were hired as special education teachers on a temporary basis while they worked on obtaining their permanent licenses. Some of the students were in their first year of teaching while others had more experience teaching students with special needs. One new teacher remarked, "Wish this assignment had been covered before I started teaching last fall." A more experienced teacher stated, "I have a greater understanding of how LDs affect students across the spectrum of their academic experience and their lives in general. This will surely impact how I view and work with LD students in the future."

The design called for a course challenge as well as a challenge in each module. All of the challenges that the students were presented with in the modules contributed to their addressing the course challenge, which was to come up with their own conception of the meaning of learning disabilities. The students wrote two drafts of their definitions and received feedback from both the instructor and their peers in the class. In the following quote, a student pointed out the value of the course challenge:

The greatest part of all was the class challenge. I did not realize how much I had learned until it was time to write my final definition of LD. This was when I truly realized that I had developed enough background to create something of my own thoughts and wouldn't be copying somebody else's article!

As stated previously, the *Multiple Perspectives* phase of the learning cycle exposes students to the many dimensions of the challenge. This phase appeared to motivate the students to continue learning. As one student commented, "I really enjoyed the way you had us dip into the research in so many directions, just getting a taste of all the many facets of LD and Special Ed. Issues. It whetted my appetite to learn more more more..." Another student remarked, "I found this online course to be stimulating and challenging intellectually and also personally. Every module was interesting and prompted me to search further on the WWW for more information..." A third student stated, "The modules offered awesome readings, ones that I have printed and will keep for future use..."

Peer Learning

One of the most obvious themes that appeared over and over again was the learning that took place among peers. Evidence of peer learning was found in interviews, discussion

posts, and student products. Peer learning correlates with the HPL components of learner-centered environment as well as community-centered environment. In the module on social and emotional issues of learning disabilities, one of the teachers described a program at her school called Peacekeepers that made a positive difference in her students year after year. The teacher's peers in the class were excited to learn about this program and wanted to learn more. There were several comments like the following: " I am still very interested in the Peacekeepers philosophy...you are going to have to sit down and write this stuff up so you can share it with others!!"

All of the assignments were posted on the discussion board and students were encouraged to be creative in their presentations. This led to a wide variety of presentations, appealing to every learning style. Examples of responses to assignments included the following: "I loved the diagram and printed a copy for future reference. You were very creative to use this representation to contrast the differences and compare the similarities. Great for a visual learner, you have added a lot to the class."

"I showed your diagram to my whole family because I thought it was so neat! But you didn't put your name on the diagram. If it was mine I would have had my name in 44 point font..."

Teaching Presence

The theme of teaching presence came out in course evaluations and interviews with students. Teaching presence can be correlated with the HPL component of assessment, especially formative assessment. There is research to show that teaching presence is highly connected to student satisfaction (Palloff & Pratt, 2003). A student commented, "Her remarks are outstanding for all assignments. She finds points to tell us good and bad about assignments...." Timely feedback is important to students' perceptions. One student replied,

"It says a lot when the instructor gives you almost immediate feedback. Many of us were first timers at this and if this course is used as a comparison or a model to the rest I would say you would have many informed and satisfied students." Another student said, "I really appreciated how organized you are and your prompt replies to all my ponderings and questions."

Collaboration

The value of collaboration to student learning permeates all data sources. Collaboration correlates with the HPL component of community-centered environment. At the beginning of the course and after the students posted their personal profiles on WebCT, students were assigned to support groups of three to four members. The collaborative teams worked on one long-term assignment, an annotated bibliography of online resources for teachers, parents, and/or students with learning disabilities. Each group brainstormed topics for the project that they could design in six weeks that would be of interest to their classmates. In addition to the long-term project, the teams worked on case studies within the modules. The fact that they worked on several group projects enabled the students to share leadership roles and learn group dynamics. However, the group process worked better with some groups than others. One student, even though he/she was in a well functioning group, remarked that self-selection of group members may be preferable:

The group I was assigned was great to work with. They were very responsible, ready to get the work done, understanding of other responsibilities, and insightful, dedicated students! However, knowing a few folks in the class roster, several

related dissatisfaction with their group members in terms of responsiveness, waiting to the last minute, etc. (always a biggie with group work). I would prefer to be able to CHOOSE my group members in the future.

On the other hand, another student had the opposite response about group selection,

My chat group was great!! Everyone participated well and worked to make our presentations a group effort. That was very gratifying to me. Others have suggested that we should be able to set up our own chat groups. In response to that I would like to say that in the class in which we were responsible for setting up our own groups, I found that extremely frustrating and problematic. Not knowing many of the folks in that class made it hard to find people to work with. I also felt that cliques of people who worked together elsewhere were formed. I was much happier with the group you put together, but as I said earlier, I had a great group!!

The above quotations are representative of the mixed reactions to the group work. Although the group process was sometimes frustrating as well as rewarding, the students realized its value in building community online. Said one student, "I really enjoyed the groups we were placed in. At the first of the semester I was questioning it, however it allowed us to work together throughout the semester."

Discussion

Online courses are sometimes criticized for focusing on knowledge acquisition rather than solving complex real-world problems. In this study, course design helped learners engage in higher level learning as well as experience the professional role of the teacher including collaboration, reflection, and problem solving. "A major goal for any professional program

is to help students begin to see themselves as developing professionals rather than simply as students whose primary goal is to get good grades. . . ." (Darling-Hammond & Bransford, 2005, p. 76). The HPL framework provides a powerful structure for creating and assessing environments conducive to the work of prospective professionals.

Implications

This case study provides evidence that course design can promote high levels of learning consistent with a professional view of teaching as well as promote professional collaboration and reflection. The HPL framework which research has established as conducive to adult learning can be effortlessly applied to online course design in teacher education. Specific recommendations include engaging learners in authentic challenges and promoting collaboration.

In this study, authentic challenges required learners to integrate past experience and current knowledge with new knowledge and experience to reflect on and create meaningful connections with course content. These problems or challenges engage prospective and inservice teachers that simulate a professional role rather than a technical role. Authentic challenges can easily be incorporated in teacher education courses. In addition to the course challenge of defining learning disabilities, module challenges involved case studies in which

students developed strategies on working with a child with Attention Deficit Hyperactivity Disorder (ADHD) and making recommendations for placement and parent involvement based on a multidisciplinary evaluation. In both of these case studies, students worked in their collaborative groups in chat rooms and private discussion areas to problem solve.

In addition to the challenge, the step of *Generating Ideas* causes learners to consider current knowledge and past experiences. *Research and Revise* leads learners to a constructive learning process of integrating knowledge and creating meaning. In this study collaboration resulted in the sharing of new ideas, considerations of varying perspectives, affirmation and/or constructive feedback for the learner. Structuring opportunities for collaboration, reflection, and support from fellow learners as well as the instructor relieves isolation of the learner, enhances the social aspects of learning. *Multiple Perspectives*, *Test Your Mettle*, and *Go Public* are steps in the HPL framework that structure and promote this type of collaboration between students and between the student and the instructor.

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