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## Of Student Teachers and Avatars: Working Towards an Effective Model for Geographically Distributed Learning Communities of Pre-Service Educators Using Virtual Worlds.

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# **Of Student Teachers and Avatars: Working Towards an Effective Model for Geographically Distributed Learning Communities of Pre-Service Educators Using Virtual World Technologies**

**Abstract:** With greater distribution of learning communities through the expanding use of online and distance learning, researchers emphasize focus on the effective use of specific technologies on student preference and achievement. One such technology drawing significant interest in scholarly and practical circles is the use of Multi-User Virtual Environments (MUVE), with the more common environment being Second Life, a product of Linden Labs. This research project, having gone through a pilot stage and under current implementation, addresses preference and effectiveness through a mixed-method research endeavor, examining forming communities using Second Life's environment for small group discussions and large group seminar presentations for pre-service student teachers in a teacher education program. Methods of data collection and analysis include survey comparative analysis (using Keller's Instructional Materials Motivation Survey and Rovai's Community Survey Instrument), observation, semi-structured interview and comparative analysis of achievement on a content-based assessment.

## **Introduction to the Literature and Problem**

Presently, higher education leaders are challenged to identify critical factors for developing and for maintaining effective, distinguished online programs. In alignment with common university's missions, this includes identifying factors that promote academic rigor, community, and experiences comparable to residential programs. Web-based technologies are reported to support effective education in the online environment; however, research establishing effectiveness of emerging technologies has been primarily anecdotal and exploratory (Burton, 2009; Kuznik, 2009; Garrison, et al., 2006), suggesting that MUVEs, like Second Life, can enhance students' sense of community, increase academic achievement, and potentially simulate the traditional face-to-face environment by enabling "role-playing scenarios" (Childress and Braswell 2006, p.190). Further, studies have been limited to more survey of perception rather than outcome of learning endeavors (Cargill-Kipar, 2009; Shen & Eder, 2009; Wagner and Ip, 2009). Thus, a call exists to investigate the implementation of MUVEs and other emerging technologies within online courses using a theoretical framework (Thompson & MacDonald, 2005). Accordingly, these researchers seek to conduct mixed methods research to answer the following questions: Do MUVEs allow for the formation of online learning communities? Do MUVEs simulate important aspects of residential classrooms? and Is there a difference in student academic achievement, perceived learning, and sense of community based on the type of online delivery system?

Recent technological advances have afforded great opportunities for educators to meet the increasing demands of distributed learning communities. The independent development of MUVEs such as Second Life, theoretically grant advanced tools for learning and communicating in synchronous approaches. Due to the relative newness of these virtual environments, empirical research on the use of these tools for fostering learning communities has yet to be fully developed and realized. This paper presents a current research endeavor employing both qualitative and quantitative methodologies examining these very technologies in several distance learning capacities. Pre-service educators examine the potential of learning communities in virtual worlds as a platform to discuss relevant topics in first-time teaching experiences. The on-going project sees investigators and participants meeting in Second Life to discuss issues related to student teaching. Further, the environment also is employed for more didactic approaches. Investigators employ the use of observation, interview methods, survey tools (using Keller's Instructional Materials Motivation Survey and Rovai's Community Survey Instrument), and reflective journaling to paint an understanding of the nature of this environment as a community-building tool.

The theoretical basis of this research on virtual communities lies on what many have identified as the basis for pursuing learning endeavors in Second Life, that is to say the notion that learning can be accomplished effectively in a naturally leaning collaborative virtual environment (Cargill-Kipar, 2009; Wagner & Ip, 2009; Wang, Song, Xia, & Yan, 2009). Thus, the foundation of this inquiry builds upon the tenets of social learning theory. The theoretical framework for examining professional communities established by Etienne Wenger, Communities of Practice (CoP) is consulted, a theory set exploring the concepts of learning and organizations and their convergence. In the organized community of practice, individuals engage in and share in the development of practice in collaborative means (Lesser & Storck, 2001). This theory set travelled from the business world to the world of education even under Wenger's guidance (Wenger, 1991), rooted deeply in the works and ideas of John Dewey's push for the social engagement in the learning process. Therefore these communities bring together multiple perspectives to form personally relevant practices that assist the whole community, belonging to this community (Wenger, McDermott, & Synder, 2002). The very practical aspects of communities as pertaining to learning environments (Rovai, 2002) is also a large consideration in this research project.

This project, currently under implementation with an anticipated completion of December 2010, contains two distinct parts, one focused on didactic comparisons of educational models and another examining dialectical models of educational practice. Both of these models rely on one course set in the teacher education program at Liberty University, the student teaching seminar. These two models and the current non-distance education (residential versions) are described below.

### **Didactical Element**

The didactic element, or the more transference oriented learning structure, is centered on guest speakers presenting in a general seminar setting. Discussions in this environment are primarily associated with question/Answer if the experts on such topics as job seeking skills, religion and schools, behavior management and child abuse prevention. The format is often an hour and a half with some eighty participants in a face-to-face environment. The students all are currently enrolled as student teachers and attend every other week through the course of the semester.

### **Dialectical Element**

The dialectical element, conversely centers on the small group sessions of these same student teachers. Groups can range from a few to a dozen or more student teachers, talking mostly about the current issues in the student teaching settings (cooperating teachers, specific behavior issues, curriculum, logistical issues) and also the content of an assigned text meant to inspire facilitated discussion among small group members.

### **The Problem**

Between Liberty University's growing residential undergraduate teacher education programs and the blossoming distance-oriented graduate teacher education programs, more and more student teachers are "teaching" their final semesters away from the residential campus. Discovering means of maintaining community and working through content among multiple participants arose as a serious concern, one needing a solution based in distance technologies.

## **Method**

This study seeks to answer the following basic questions:

- Do MUVE spaces (like Second Life) allow for the effective formation of online learning communities?
- How do these virtual experiences compare to currently existing offline learning communities when implementing pre-service student teaching community groups?

The study will look at three groups of participants:

- Undergraduate students participating in an off-line student teaching seminar
- Undergraduate and graduate students participating in online student teaching discussions in the form of online discussion forums (through Blackboard technology)
- Undergraduate and graduate students participating in online student teaching discussions through the use of a virtual world space (through Second Life)

This study seeks to fill in the gap in understanding of the use of virtual worlds in pedagogical endeavors by examining pre-service teachers participating in student teaching via distance means (called external student teachers by the Liberty University School of Education, groupings listed immediately above). Comparisons will be made between the off-line residential student teaching group and the distance-based student teaching group, to understand potential equivalency in experience and outcomes.

General procedures for this study include the use of surveys, observational field notes and interview data. Analysis of the qualitative measures seek to understand the nature of the discussion, the focus on content, and the evidence of comfort among participants. The actual development of “memo” level qualitative notes will be vital in this process. Comparisons in the survey administrations are drawn between the various groups tested. The investigators then examine the rich textual data provided by both the sessions themselves (observational notes and transcripts) and interviews (transcripts), using coding analysis techniques in analyzing the content and the nature of these interactions. The data from both qualitative and quantitative processes are then brought together for comparative analysis.

The didactic component of the study will see the use of survey, observation and outcomes comparisons whereas the dialectic will examine using the survey results (perception and motivation), observation and semi-structured interview. Survey results and achievement outcomes will be compared between the groups (face-to-face vs. distance students).

## **Design and Analysis**

Based on assumptions in the research community (Edwards, Domínguez, & Rico, 2008), it is hypothesized that the undergraduate students participating in an off-line student teaching seminar and the undergraduate and graduate students participating in online student teaching discussions through the use of a virtual world space

(Second Life) will report and demonstrate a much more connected experience as compared to the undergraduate and graduate students participating in online student teaching discussions in the form of online discussion forums (through Blackboard technology).

Accordingly, researchers will examine pre-service teachers' use of MUVES in an online course. Using qualitative methodologies, researchers will examine MUVES as a potential platform for pre-service teachers to build a learning community while meeting to discuss topics relevant to a student teaching experience. Using quantitative methods, researchers will investigate if differences exist in academic achievement, perceived learning, and community between online students who use MUVES for course discussions and online students who use Blackboard™ discussion forums for course discussion. This research endeavor is seen not only as filling a gap in the research literature on this very topic, but also as a foundational platform for further inquiries into MUVES in learning endeavors within different contexts.

Using a qualitative approach, the researchers will examine a MUVES as a potential platform for distributed pre-service teachers to build a learning community while meeting to discuss topics relevant to a student teaching experience. Using quantitative methods, researchers will investigate if differences exist in academic achievement, perceived learning, and community between online students who use MUVES and for those who use Blackboard™ discussion forums for course discussion. The participants for the present study will consist of a convenience sample of graduate students enrolled in a completely online course from August 2010 to December 2010. Each course section will be divided into two groups. The researchers will randomly assign half of the participants to a group who will use Blackboard™ discussion forums and assign the other half to use a MUVES, Second Life, for the purpose of course discussions. Regardless of the group, students will participate in the same instructional tasks and discussions. All discussions in the MUVES will be recorded using screen capturing software and transcribed for observation and textual analysis. Prior to the end of the course, all participants will be invited to complete a survey. Course points will be obtained from the instructor's grade book after all grades had been entered. A one-way multivariate analysis of variance (MANOVA) will be used to analyze the quantitative data.

## **Significance**

There should be no doubt that Second life and like virtual worlds hold great interest among educational scholars (and other areas of research as well). The research community has effectively selected virtual worlds as one of the facets of the future of education with little empirical foundation. Scholars must step in to fill this gap in understanding by empirically examining with the tools afforded us in the context of virtual worlds as connecting tools for building online learning communities. The results of empirical examinations of this potential could essentially change the way practitioners think of distance and hybrid education models.

Specifically, the researchers are seeking practical solutions to real problems associated with distributed communities of learners. These problems center on connectedness of individuals to each other as fellow learners, to the instructor/ facilitator, and to the content itself. Further, exploration of MUVES technologies as an effective tool in the distance learning set of choices is an appropriate research endeavor for a university with a large distance learning program. Expanding beyond the particular pragmatic value of this study, the understanding of the general effectiveness with regard to outcomes, motivation and learner-articulated preference will assist instructional designers and instructional technologists in making design decisions when developing instruction in online formats. Finally, understanding the interaction between the learner and technology format will further insight into this burgeoning area of interest.

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