2012

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EXPLORING GRADUATE STUDENTS' PERCEPTUAL DIFFERENCES OF FACE-TO-FACE AND ONLINE LEARNING

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More than one in four students now take at least one course online (Allen & Seaman, 2010). In addition, 32% of all 2-year and 4-year institutions reported offering college-level degree or certificate programs via distance. The most common factors cited as affecting distance education decisions are meeting student demand for flexible schedules (68%), providing access for students who would not have access (67%), and making more courses available (46%) (National Center for Education Statistics, 2008).

Distance education is in demand by a growing number of students. Sixty-six percent of institutions reported increased demand for new courses and programs, while 73% saw increased demand for existing online courses and programs (Allen & Seaman, 2010). From an instructional standpoint, online delivery of education provides a means to support alternative learning styles and experiences that are not possible in the traditional classroom, and link learners globally. However, researchers and practitioners point out that what works in effective traditional learning environments may not work as effectively in online environments (McCombs & Vakili, 2005).

Advocates of distance education argue that there is no reason to assume online learning is inferior in quality when compared to traditional courses (Maeroff, 2003; Russell, 1999). In Russell's (1999) work, classroom-based instruction was compared with distance education, and hundreds of studies were cited with analogous outcomes between the two mediums. However, critics argue that discrepancies exist between traditional and distance education in terms of specific variables.

For course design, Bennett and Green (2001) argue that instructors often adopt curriculum to fit the technology rather than choosing the technology to fit the curriculum. The authors note that it can be difficult to overcome the traditional pedagogy of lecture-style classrooms and adapt to contemporary ideas of an interaction-rich model using online technol-

Au: Add McCombs & Vakili 2005 to reference list.

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ogy. Another criticism of online learning includes lack of class interaction, both student-to-student and student-to-instructor (Renninger & Shumar, 2002). McMahon and Oliver (2001) argue that students learning via distance must take greater responsibility for their own learning since they may have limited access to instructors. Summers, Waigandt, and Whittaker (2005) found differences in students' perceptions of the method of delivery of a statistics course, with web students expressing less satisfaction as compared with traditional students. However, in this study, the online course design did not allow for any real-time interaction between the instructor and the students. Thus, measures of satisfaction must be interpreted with caution due to variables such as course design and effectiveness of instructor. McCombs (2004) notes that there is a need for design principles derived from research, and few studies have truly explored if student engagement is achieved in distance education (Rabe-Hemp, Woollen, & Humiston, 2009).

Cercone (2008) concluded that high-quality online learning is characterized by social interaction and collaboration with peers, connecting new knowledge to past experience, offering immediacy in application and a climate of self-reflection, and (e) self-regulated learning. Majeski and Stover (2007) related the mixture of these learning components to Fink's (2003) theory of significant learning, thus arguing that online learning offers components that allow for significant or deep learning, which is defined as highly collaborative, integrative (synthesizing ideas and facts), self-reflective, self-assessing, and application centered (Majeski & Stover, 2007; Ke & Xie, 2009).

Whether or not distance education can satisfactorily address the higher order thinking skills that underlie the principles of deep learning is increasingly being explored in the research. This line of inquiry is necessary as educators are looking for proven methods used to develop students' critical thinking skills online (Kolloff, Kolloff, & Jones, 2009).

According to Wickersham and McGee (2008), over the past decade there has been a growing focus on deeper learning principles. Deeper learning could be described as comparable to the higher levels of knowledge that Bloom identified in his *Taxonomy of Educational Objectives* (1956) particularly the integrative (synthesizing ideas and facts) and application components of deeper learning principles. Bloom's taxonomy (1956) is a classification of learning objectives that divides educational objectives into three domains: affective, psychomotor, and cognitive. Skills in the cognitive domain (or higher order thinking domain) revolve around knowledge of facts, comprehension of material/concepts, and critical thinking of a particular topic. There are essentially six levels in the cognitive domain that progress from lower to higher order thinking processes: (1) knowledge, (2) comprehension (3) application (4) analysis (5) synthesis and (6) evaluation. Bloom's Taxonomy is required application in all teacher personnel preparation programs, and the cognitive domain provides a solid framework through which to evaluate students' use of higher order thinking. Deeper learning engages the learner who actively explores, reflects, and produces knowledge rather than recalls and regurgitates information (Majeski & Stover, 2007; Wickersham & McGee, 2008). In line with Bloom's work, Bonk and Cunningham (1998) stressed the importance of reviewing learner-centered principles, constructivism, and sociocultural theories and applying them to online learning.

As indicated by the research, a general area of concern when teaching via online is: How are we doing? One way to address this question is by evaluating student achievement. The second approach is to evaluate student perception and satisfaction, an area in which less research has been done (Kirtley, 2002). Warren and Holloman (2005) found no significant differences in students' outcomes between a traditional and online section of the same course, but questioned whether it is enough to evaluate student achievement via grades alone. Allen et al. (2002) note that even though stu-

dents may be equally satisfied with participation in distance education, it is possible they may not be learning as much in that environment. Satisfaction with the educational process must be compared to evaluations of the effectiveness of the pedagogy.

This study addressed the following questions: (a) did students perceive differences in course design as a result of course implementation; (b) did students perceive that coursework addressed higher order thinking skills; and (c) were there differences in student achievement?

METHOD

Subjects

Participants were a total of 48 (22 distance education and 26 traditional) students pursuing either or both a postbaccalaureate certification or an advanced degree (MEd). Demographics of the students for both the face-to-face and distance education classes were similar: 86-95% female, 4-13% male, and 8% from diverse ethnic backgrounds. Students self-selected into two sections of the same graduate course, Contemporary Issues in Special Education. The online class had synchronous and asynchronous components.

Design

Students from both sections were taught via the same course syllabus, which included objectives, assignments, and assessments. Students were evaluated based on their performance and participation in discussion, debate, group research and presentation, participation in an online teaching module, and an annotated webliography. The basis of comparison came from two sources: a class survey and students' grades. The survey was approved by the Human Subjects Review Committee and was first administered as a pilot to students in three graduate level courses offered via distance, blended, or traditionally. Students' response to the survey was clear; there did not appear to be any ambiguity. All administration of the survey was voluntary and responses were anonymous.

In addition to addressing satisfaction with course implementation and design (13 Likert scale and 6 open-ended questions), the survey addressed students' perceptions of their level of cognitive development (3 Likert scale and 1 open-ended question) as it related to higher order thinking skills.

RESULTS

The research analysis focused on three main questions: (1) were there any differences in students' satisfaction with course design as a result of course implementation, (2) were there any differences in students' perceptions of higher order cognitive thinking, and (3) were there differences in student achievement?

To assess differences in course design and implementation, 13 quantitative questions were evaluated. Students rated each question on a scale of 1-4 (with 1 being *always* and 4 being *rarely*). Each question was treated as a dependent variable. To determine if there were differences between the face-to-face and online formats, independent sample *t* tests were conducted on all 13 items related to course design and implementation.

Q16, which asked whether or not students felt this course required the use of more analytical skills than other courses taken at the graduate level, was significant revealing that the distance students perceived the course required more analytical skills than the traditional students did. To assess whether or not there were differences in student achievement, students' final grades were compared. No differences were found.

All open-ended questions were subjected to a qualitative analysis. A graduate student and the researchers independently read responses and listed themes. Afterwards, items for which they agreed were considered as part of the

study. Comments not classified were discussed in conference and classified if only by consent.

For the open-ended question, which assignments, if any, do you believe required analytical, reasoning, critical thinking, synthesis and/or evaluative skills, students in the traditional section identified the research paper (31%) and the debates/discussions (30%) most frequently. In the distance section, students identified two essays (32%) and webliographies (32%) more frequently than the other assignments.

When students were asked to comment on class discussion in the course and more specifically what format they found most beneficial, 35% of the responses from students in the traditional section indicated that class discussions were informative, in-depth, and positive. Additionally, 23% of the responses from students attributed a high level of pedagogical value to being exposed to multiple viewpoints on an issue/debate. In the distance section, 59% of responses reported the asynchronous chats as being the most constructive format. Only 3% of responses from the same students reported the synchronous format as being the most beneficial.

In exploring students' general impressions of the format of the course, 42% of students in the traditional section reported having a positive impression of the course, while 73% of students in the distance section reported having a similar experience. As mentioned earlier, a number of students (23%) indicated initial fear of enrolling in a distance course. Thus, despite early reservations, these students went on to report positive perceptions.

When students were asked what they liked best about the course, 46% of the responses from the traditional section indicated the group debates and discussion were the best part of the course. Likewise, 32% of responses from the distance section indicated that the online discussions/debates and topics covered were the best part. In the same section, 27% of responses pointed to the convenience of taking a course from a distance and the ability to work at one's own pace as being positive features.

When students were asked what they liked least about the course, 69% of students in the traditional section left the question blank. Of those responding, each had a unique response ranging from the textbook to the time of class. In the distance section, with only two having been left blank, 45% of students indicated technological difficulties as the least favorite part of the course. When students were asked about what should be changed in this course, 42% of students in the traditional course left the question blank compared to only one student in the distance course. For both sections, the largest proportion of the responses indicated that there was little room for improvement. In both the traditional and distance sections the remaining responses were largely the outcome of individual student experiences and did not reflect an emerging trend or shared experience. However in the distance section, 14% indicated more technological training and the elimination of group work appeared as suggestions.

DISCUSSION

Overall, as in Warren and Holloman's (2005) study, students' perceptions differed between the same course offered to students via traditional and distance formats. Specifically, difference was noted in course design and higher order thinking skills. Traditional students more readily reported feeling that they had all necessary tools to achieve in the course, and distance students reported the use of more high-level thinking skills, specifically analytic skills. For the distance students, further exploration would be needed to determine learner characteristics in relation to technology competence to address course design issues. It is hypothesized that the independence required to complete various assignments in the distance course may lend itself to a more constructivist and analytic approach to learning; however, further exploration would also be needed in this area.

In terms of class objectives, it appears that students in both sections were able to identify particular assignments that required analytical reasoning and metacognition skills. In this way, neither traditional or distance classes were perceived as inherently different from one another as a medium for achieving these specific learning outcomes. Thus, the evidence suggesting trepidation around the ability of distance courses to be intellectually stimulating is misplaced. The striking finding here is that positive student perceptions around class discussion were greater in the online course. Moreover, these positive feelings were related to the asynchronous class discussion and not the synchronous portion, which is the mode most like the traditional course delivery. Students reported that the asynchronous discussion allowed for time to prepare responses utilizing class material and to reflect critically on others' posts. Students also reported that on average the asynchronous chats were more informative because their classmates' responses had significantly more depth than the synchronous discussions. Furthermore, of those students who reported having initial concerns in taking an online course, most reported the asynchronous discussions as being one of the better parts of their experience.

A number of students' comments indicated that having a medium between themselves and the rest of the class allowed for the free expression of ideas that would not have occurred in the traditional classroom. In this way, asynchronous chats do offer a level of autonomy that the reserved student would not describe in a traditional course. Given this feature of distance education, we find that the asynchronous type of class discussion has the ability to encourage new voices. These initial findings begin to offer evidence that despite not having a dialogue in real time, students are finding these discussions to be of significant value. Thus, distance courses, if structured appropriately, can overcome the challenge of time and space.

According to Gillespie (1998), the tasks of online learning should be designed to help learners develop higher level thinking skills and evaluate their own understanding, mediated by sharing ideas and problems with the content using interactive or collaborative online formats. Exploration of what the distance students from this study meant by the use of "more higher level thinking skills," particularly analytical skills, would need to be explored. Rabe-Hemp, Woollen, and Humiston (2009) conducted a study that compared student engagement, learning, and satisfaction in lecture hall and online settings. They found that traditional students reported slightly higher gains in higher order thinking than the online respondents—the opposite finding of this study. Clearly, further studies need to be done exploring higher order, deeper learning skills in online education.

Students who report satisfaction with college level courses are those who are usually more likely to be successful in academic achievement (Noel-Levitz, 2004). In this study, no differences were reported in student achievement for the traditional and distance learners, which also is the final positive outcome.

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