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Using Technology to Enhance Adult Learning in the Counselor Education Classroom

Keywords

technology, adult learning, counselor education

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and Megan E. Delaney

The authors present a study that used a conceptual framework of adult learning and differentiated learning styles with graduate students in a counselor education classroom. Students in a hybrid course had higher midterm, group proposal, and posttest scores than did students in a face-to-face course taught by the same professor.

Graduate students are often nontraditional adult learners who may work full-time while completing their degree. Many graduate programs cater to nontraditional students by offering night, weekend, hybrid, and online courses; however, there is some controversy regarding the use of technology with nontraditional learners (El Mansour & Mupinga, 2007), and there is a paucity of research regarding the effective use of specific technologies with nontraditional students. There is some evidence that adult learners in hybrid courses (i.e., a combination of online and face-to-face classes) prefer educational options, variety, and self-directedness (Ausburn, 2004), but there is little research regarding the effectiveness of using technology as a learning tool with nontraditional students.

This study used a conceptual framework of adult learning and differentiated learning styles as a means to both understand and meet the needs of adult graduate students in the counselor education classroom. The field of study and theory of learning styles is broad and expansive, yet it is important to understand the basic concepts and principles of learning styles to conceptualize the adult learner. According to Sarasin (1999), *learning style* is “a certain specified pattern of behavior and/or performance according to which the individual approaches a learning experience, a way in which the individual takes in new information and develops new skills and the process by which the individual retains new information or new skills” (p. 1). Developmental and biological influences help create a person’s characteristics and preference for learning. This influences a student’s concentration, retention, processing, and internalizing of information presented in class (Honingsfeld & Dunn, 2006). Therefore, curriculum presented in one way (e.g., in a lecture format) may be effective for one student but completely ineffective for another.

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Honingsfeld and Dunn (2006) presented interesting observations regarding the learning style of adult students. For example, the researchers stated that adult male and female students have different learning styles. Women, they argued, were more verbal and tended to be more diligent and responsible about schoolwork. Women also thrived when the learning environment was varied and the material was presented in multiple ways. Research showed that students who had been introduced to and given strategies on how to work within their own learning style made significant improvements in their class work (Sarasin, 1999). Sarasin believed that with greater understanding of the different learning styles comes a change in the climate of higher education, both for the instructor and the institution. Instructors may need to modify or explore alternative teaching styles to meet individual students' needs. Additionally, higher education has become more accessible to students from a wide range of backgrounds, experiences, cultures, religions, and learning experiences (D'Andrea & Gosling, 2005). Institutions of higher education may also need to be flexible and accommodating to alternative and nontraditional methods of instruction.

Examples of distinction in learning style include processing information through a student's primary senses: visual, auditory, tactile, and kinesthetic (Sarasin, 1999; Stage, Muller, Kinzie, & Simmons, 1998). Auditory students learn by being presented material orally, and visual students need visual prompts to understand material (e.g., charts, drawings, diagrams), whereas tactile and kinesthetic students learn by active participation. Overall, people learn in different ways and, therefore, material should be presented to accommodate all types of learners.

ADULT LEARNERS

Higher education is experiencing an increase in the enrollment of adult students. Age, accessibility, cost, location, and time were once obstacles to adults seeking further education. Returning to school, changing careers, and/or obtaining an advanced degree can be anxiety provoking in some adult students (Cranton, 2006). Now, however, institutions are modifying policies to encourage the enrollment of adult students (Owen, 1996). Institutions of higher education are adding programs, providing funding, offering alternative meeting times, offering distance learning, and modifying instructional methods to accommodate and attract adult students to their programs.

Adult students are seen as having different learning needs than the traditional college student. Knowles (1986) explored "assumptions" of adult learners:

1. Adults need to know,
2. Adults need to be self-directing,
3. Adults need to have their unique experiences taken into account,
4. Adults need to have their learning geared to their readiness to learn,
5. Adults need to have their learning organized around life tasks or problems, and
6. Adults need to have their intrinsic motivation tapped. (pp. 41–42)

According to Cranton (2006), adult learning is often depicted as voluntary, and it is assumed that because these students have chosen to be in a class, they are highly motivated. The adult student may choose to enroll in a particular course, program, or university to develop personally or professionally. Byer (2002), Cranton (2006), and Knowles (1986) stated that adult students are self-motivated and have the intrinsic ability to be self-directed.

Adults bring diverse and unique experiences to the classroom. Older students who share their experiences and knowledge with other students help to reinforce what is being taught in the classroom (Cranton, 2006). Adults are also reported to prefer participation and collaboration in class, such as working in groups, interacting with their classmates, and collaborating on their education with their instructors, peers, or both. Working effectively with adult students in the classroom involves accommodating multiple learning styles through a variety in activities and structure. Combining teaching techniques such as lectures and discussions, group activities, presentations, role playing, as well as assignments that take adults outside the classroom can satisfy the different learning needs of the students (Sarasin, 1999).

One instructional method that may be used to incorporate interactive and experiential learning is the use of online teaching tools. Online courses are becoming more common, and enrollment in such courses is outpacing total student enrollment at U.S. colleges and universities (Allen & Seaman, 2008). Online and hybrid courses are being offered at all levels of study—bachelor’s, master’s, and doctoral. For adult graduate students in particular, online and hybrid courses offer an opportunity to meet the needs of students who might not be able to take courses in a traditional format because of their professional and personal schedules (Kilgore, 2004). These courses also allow instructors to incorporate multiple teaching techniques that are experiential and collaborative and that work well for different types of adult learning styles.

In 2003, Wantz et al. conducted a study of counselor education programs accredited by the Council for Accreditation of Counseling and Related Educational Programs to determine the extent to which these programs were using online learning. Forty-two percent of respondents indicated that they were incorporating online learning into their programs. Of these respondents, half indicated that they were offering primarily blended or hybrid courses, where instruction took place both online and in a face-to-face environment; one quarter of the respondents were offering all courses online; and the remaining one quarter offered both hybrid and online courses in their program. Nearly 50% of the respondents reported that there was no change in the quality of instruction when online learning was introduced, whereas 38% reported that the quality of instruction improved.

To investigate the effectiveness of hybrid instruction on adult learners, we focused on two sections of the course Group Counseling: Theory and Practice, which was taught during the same semester by the same professor. One class was a traditional face-to-face format, and the other class was a hybrid format that met online for half of the scheduled class sessions. Specifically, we investigated the

possibility of differences in adult learning when using video podcasts and Second Life (SL) experiences of group counseling concepts and theory development.

The purpose of this study was to understand the degree to which participation in a hybrid counseling course that featured a variety of online learning tools had a positive impact on adult student learning. We investigated the following questions: (a) Are there statistically significant differences between students who chose the traditional and those who chose the hybrid course? (b) Are there statistically significant differences between pre- and posttest scores for students who chose the traditional course and those who chose the hybrid course? and (c) Are there statistically significant differences in the midterm, group proposal, and final course grades of the traditional and the hybrid students?

PEDAGOGICAL TOOLS

Video Podcasts

Video podcasts were used as an instructional method to cover material during online sessions of the hybrid class or when lectures were not used with either class section. The video podcasts consisted of the recording of the PowerPoint presentation combined with the audio of a lecture. These podcasts became short (15–25 minute) movies that students could download onto their computer or iPod. Video podcasts were used with both the hybrid and face-to-face sections but were used more often with the hybrid students.

SL

SL, a virtual reality world, was used in this study as an educational tool. When students joined SL they created an avatar, or a computer-generated representation of themselves. The avatars were then used to move about the environment as well as interact with and create objects. SL is considered an emerging technology, and the pedagogical uses of SL are currently being explored (Jarmon, Traphagan, Mayrath, & Trivedi, 2009; Warburton, 2009). Because the students are able to directly affect the world with which they interact, SL combines visual, auditory, tactile, and kinesthetic learning styles. Thus, students interact directly with objects, seeing, hearing, and manipulating these objects to increase their overall exposure to the course material. For example, students were able to walk through a representation of Freud's (1963) model of the mind. We chose to depict this model as an iceberg, where avatars began at the bottom (under water) and moved throughout the iceberg up toward the consciousness, ending at the tip of the iceberg. As a representation of Freud's (1962) id, the avatars walk through a group of large, jumping teddy bears. The bears make text statements representative of the id (e.g., "Give me that now!"). Thus, students use visual (the bears jumping and texting), and tactile/kinesthetic (walking the avatar through the bears) learning styles. An abstract concept such as the id becomes a concrete learning experience. In SL, students are immersed in a learning environment with social interaction and active learning (de Freitas, 2006). For this study, only the hybrid section of the class used SL. Students were given one face-to-face tutorial session in SL as

a preparation for beginning their projects. The students chose to join either a group that added group counseling-specific objects to the iceberg, or a group that built a psychoanalytic group room. Most of the building was conducted asynchronously, with students meeting and building as their schedules allowed. Additionally, one of the group leadership experiences for each pair of leaders was conducted synchronously in SL. All other requirements for the leadership were the same as they were for the face-to-face section.

METHOD

The purpose of this study was to compare the learning outcomes of adult students who were enrolled in traditional and hybrid sections of a group counseling course. Students self-enrolled in their chosen section of a group counseling course taught by the same professor. Students in both sections were required to complete the following: an online plagiarism tutorial, a “test run” that consisted of contact information uploaded to Blackboard (a course management system providing opportunities for e-learning), eight sessions as a member in a group, eight personal reflections on group membership, three sessions as coleaders of a stress management group, three coleadership plans that infused group counseling theory into the work, three coleadership critique papers, an essay/short-answer midterm exam administered online via Blackboard, and a group proposal. All papers, reflections, and proposals were turned in electronically on Blackboard rather than as hard copies.

SL, a virtual reality world, was used in the hybrid class as an interactive pedagogical tool. The hybrid class completed one of the coleadership group sessions in SL, and worked in self-selected theory groups to place objects and electronic note cards into either a psychoanalytic group room or an iceberg representative of Freud’s levels of consciousness. Additionally, students in the hybrid class were required to watch podcasts of lectures when not meeting face-to-face. The hybrid students were also required to buy a group counseling DVD, whereas the traditional students watched (and discussed) the DVD in class.

Although the majority of the traditional class was taught face-to-face using PowerPoint lectures and hands-on activities, the traditional class did have access to eight group counseling video podcasts of lectures with PowerPoint presentations. The hybrid students had access to 16 video podcasts. Both classes had equal access to group theory and counseling theory podcasts. Both classes had access to all PowerPoint presentations before class sessions, used the same textbooks, and videotaped their face-to-face coleadership group sessions in the department laboratory. Additionally, students in both classes received a tutorial session on writing a literature review and group proposal; the hybrid tutorial, however, was conducted in SL.

Participants

The graduate-level counseling courses were offered at a mid-sized university in the northeastern portion of the United States. Students were requested to voluntarily participate in the study, and a graduate assistant administered the

instruments. The study followed institutional review board procedures for the university, and the data were sealed until the end of the semester. Data were collected during the first and last nights of class.

Of the 14 female participants in the face-to-face class, 3 self-identified as African American, 10 self-identified as Caucasian, one self-identified as Latino, and one student self-identified as multiracial. The mean age of the face-to-face students was 33.36 years; they had a mean of 5.69 semesters in the counseling program and began using computers at a mean age of 16.29 years. The majority of the students (11) were in the school counseling concentration, 2 were in the addictions concentration, and 1 was in higher education. Three students identified themselves as full time, and 11 stated that they were part-time students. When asked to rate their use of computer technology, 1 identified as advanced, 5 were somewhat advanced, and 8 were capable. No students identified themselves as somewhat beginner or beginner in terms of their computer ability. Students were also asked how many hybrid classes they have taken in the Master's program. Of the 14 students, 8 had never taken a hybrid course, 3 had completed one course, and 3 students completed two courses. Although the majority of the students had not enrolled in a hybrid course, they had all had taken at least one course that used computers to complete online readings or tests (3 participants each completed one, two, and three courses; 5 students completed four courses). At the beginning of the semester, when asked if they would choose to take completely online, hybrid, or face-to-face courses, 7 students indicated that they preferred face-to-face classes, and 7 preferred hybrid classes.

Of the 10 participants in the hybrid class, 8 were women; 9 participants self-identified as Caucasian, and one as Latino. The mean age of the face-to-face students was 26.6; they had a mean of 3.6 semesters in the counseling program and began using computers at a mean age of 12.3 years. The majority of the students in the hybrid section (6) were in the school counseling concentration, whereas 2 were in the community counseling, 1 was in the higher education, and 1 was in the addictions program. Eight identified themselves as full-time students, and 2 stated that they were part-time students. When asked to rate their use of computer technology, 2 identified as advanced, 3 were somewhat advanced, and 5 were capable. No students identified themselves as somewhat beginner or beginner in terms of their computer ability. Students were also asked how many hybrid classes they had taken in the master's program. Of the 10 students, 7 had never taken a hybrid course, 2 had completed one course, and 1 student completed two hybrid courses. Although the majority of students had not enrolled in a hybrid course, all but one of the students had taken at least one course that used computers to complete online readings or tests (1 completed zero, 3 participants completed one, 2 participants completed two such courses, 1 participant completed three courses, and 3 participants completed four courses). At the beginning of the semester, when asked if they would choose to take completely online, hybrid, or face-to-face courses, 5 students indicated that they would rather take face-to-face classes, and 5 stated they would prefer hybrid classes.

Instruments

Students who agreed to participate in the study were asked to complete a pretest packet and consent form on the night of the first class. The pretest was a 34-item multiple-choice quiz covering the course material and was developed from the test bank of the textbook. There were four questions specific to group psychoanalytic theory, because the hybrid students were using that theory in their SL experience. In addition to the pretest, participants completed a 16-item demographics survey that included information on their use of technology. Items included a self-assessment of their level of technological ability, the age at which they began using computers, and their exposure to hybrid and online courses. The students completed the packet in 15–20 minutes. The posttest was identical to the pretest and was administered during the last class meeting.

RESULTS

Before the data were analyzed, they were screened to eliminate cases that would impair the analysis. One student was determined to be an outlier on the proposal assignment scores and was excluded from analyses using that particular assessment.

The two sections were compared in several areas to determine differences in technology exposure. Independent sample *t* tests were run to determine statistically significant differences in (a) the age at which students began using computers, (b) the number of hybrid courses completed, and (c) the number of courses taken that used computers for online assignments and tests. There were no statistically significant differences between the two sets of students. This result was important because it allowed us to examine the results with the understanding that the two section groups were not significantly different from one another and, therefore, the results of subsequent tests would not be due to between-group differences in these areas.

In comparing students' average scores on the midterm, proposal, and final grade in the two courses, the mean scores for students in the hybrid section were higher than those for students in the traditional section. For the midterm, students in the traditional section earned a mean of 89.68, whereas students in the hybrid section earned a mean of 94.25. For the proposal, students in the traditional section earned a mean of 173.43, and students in the hybrid section earned a mean of 192.30. For the final grade, students in the traditional section earned a mean of 88.43, and students in the hybrid section earned a mean of 96.76.

Independent sample *t* tests were conducted to further compare the scores on course assignments for students in the traditional and hybrid sections to determine if these differences were statistically significant.

- On the final grade, there was a significant difference in scores for students in the traditional section of the class ($M = 88.43$, $SD = 6.01$) and those in the hybrid section, $M = 96.76$, $SD = 4.22$; $t(22) = -3.762$, $p = .001$. The magnitude of the differences in the means was large ($\eta^2 = .255$).

- On the proposal, there was a significant difference in scores for students in the traditional section of the class ($M = 173.43$, $SD = 23.61$) and those in the hybrid section, $M = 192.30$, $SD = 10.72$; $t(19) = -2.635$, $p = .016$. The magnitude of the differences in the means was large ($\eta^2 = .193$).
- On the midterm exam, there was no significant difference in scores for students in the traditional section of the class ($M = 89.68$, $SD = 14.40$) and those in the hybrid section, $M = 94.25$, $SD = 9.84$; $t(22) = -.867$, $p = .395$. The magnitude of the differences in the means was moderate ($\eta^2 = .07$).

In addition to the course assignment scores, it was important to compare the scores of students on the group counseling pre- and posttests. In comparing students' average scores on the total test and psychoanalytic sections of the pre- and posttest on group counseling, average scores for students in the traditional section declined from the pretest to the posttest, whereas average scores for students in the hybrid section improved. Specifically, students in the traditional section earned a mean score of 17.07 on the total pretest and 16.43 on the total posttest. These students earned a mean score of 2.21 on the psychoanalytic section of the pretest and 1.71 on the psychoanalytic section of the posttest. Conversely, students in the hybrid section earned a mean score of 17.00 on the total pretest and 20.00 on the total posttest. These students earned a mean score of 1.80 on the psychoanalytic section of the pretest and 2.00 on the psychoanalytic section of the posttest.

Independent sample t tests were conducted to further compare the scores on the pretest and posttest for students in the traditional and hybrid sections to determine if these differences were statistically significant.

- On the total pretest, there was no significant difference in scores for students in the traditional section of the class ($M = 17.07$, $SD = 3.29$) and those in the hybrid section, $M = 17.00$, $SD = 2.63$; $t(22) = .057$, $p = .955$. The magnitude of the differences in the means was small ($\eta^2 = .005$).
- On the total posttest, there was a significant difference in scores for students in the traditional section of the class ($M = 16.43$, $SD = 3.18$) and those in the hybrid section, $M = 20.00$, $SD = 3.57$; $t(21) = -2.507$, $p = .020$. The magnitude of the differences in the means was large ($\eta^2 = .193$).
- On the psychoanalytic pretest, there was no significant difference in scores for students in the traditional section of the class ($M = 2.21$, $SD = 1.19$) and those in the hybrid section, $M = 1.80$, $SD = 1.03$; $t(22) = .888$, $p = .384$. The magnitude of the differences in the means was moderate ($\eta^2 = .075$).
- On the psychoanalytic posttest, there was no significant difference in scores for students in the traditional section of the class ($M = 1.71$, $SD = 1.07$) and those in the hybrid section, $M = 2.00$, $SD = .87$; $t(21) = -.671$, $p = .510$. The magnitude of the differences in the means was moderate ($\eta^2 = .060$).

Further analysis was conducted to test the aforementioned results. A one-way between-groups multivariate analysis of variance was performed to

investigate differences in assignment scores for students in the traditional and hybrid sections of the course. Three dependent variables were used: midterm, proposal, and final grade. The independent variable was the course section in which the students were enrolled. Preliminary assumption testing was conducted to check for normality, linearity, and homogeneity of variance–covariance matrices, with no serious violations noted. There was a statistically significant difference between students in the traditional and hybrid sections on the combined dependent variables: $F(3, 20) = 14.02$, $p = .000$; Wilks's lambda = .32; partial $\eta^2 = .68$. When the results for the dependent variables were considered separately, the only difference to reach statistical significance using a Bonferroni adjusted alpha level of .017 was on the final grade: $F(1, 22) = 14.15$, $p = .004$; partial $\eta^2 = .39$. An inspection of the mean scores indicated that students in the hybrid course performed better, on average, on the final grade ($M = 96.76$, $SD = 4.22$) than did students in the traditional course ($M = 88.43$, $SD = 6.01$).

A mixed between-/within-subjects analysis of variance was performed to investigate differences in pretest and posttest total scores for students in the traditional and hybrid sections of the course. This test took into consideration the two course sections (categorical independent between-subjects variable), two distinct times at which the pretest and posttest were administered (categorical independent within-subjects variable), and scores on the counseling theories test measured at each time period (continuous dependent variable). There was no statistically significant change in the test scores across time overall: Wilks's lambda = .871, $p = .093$, partial $\eta^2 = .239$. However, when the data were examined for changes in scores across time by group, there was a statistically significant interaction effect showing a large magnitude of differences in the means of the two groups: Wilks's lambda = .761, $p = .018$; partial $\eta^2 = .239$. Thus, there was a significant positive change from the total pretest ($M = 17.00$, $SD = 2.63$) to the total posttest ($M = 20.00$, $SD = 3.57$) for the students in the hybrid course.

In summary, the results indicated a significant positive difference on the final grade and total posttest scores for the students in the hybrid section of the course as compared to those in the traditional section. The hybrid section students had higher scores on average and demonstrated greater improvement. As adult learners, students in this hybrid section used technological tools that allowed them to learn in a variety of ways, to be self-directed, and to engage in learning that was both interactive and collaborative. Research on adult learning has shown that using teaching strategies that allow adult students to learn in this manner may positively affect comprehension, retention, processing, and internalization of knowledge (Ausburn, 2004). These results indicate that there is at least a correlation between the presence of these teaching strategies in the hybrid section of the course and improved student learning over the length of the course, as indicated by students' higher final grade scores, and increased comprehension of counseling theories overall, as indicated by students' higher total posttest scores.

DISCUSSION

Although we expected that students who chose the face-to-face class would have less technological exposure and have more difficulties completing an online exam than would the hybrid students, this was not the case. Additionally, both groups were equally willing to take a face-to-face class and a hybrid course. Because there were no differences between the two groups, and the pretest results were not statistically significantly different, we expected the students to perform similarly on assignments. We were surprised when there were statistically significant differences in the final grades of the classes. It is also interesting that students in the hybrid class scored statistically significantly better on the posttest and group proposal paper because neither of these required technology use to complete.

Students in the hybrid class may have had more effective learning tools to integrate theoretical concepts into concrete learning. The use of both the video podcasts and the interactive virtual environment in SL may have contributed to deeper learning. The video podcasts allowed the students to revisit material in lecture format, in addition to being able to reread their notes or textbook. This repeated exposure in a variety of learning styles may have increased student learning. SL may have created an opportunity for students to revisit course content in a new way, use more learning styles than traditional lecture or in-class group discussions, and allow students to work collaboratively. The students using SL had to think about course material very differently. How do you conduct a stress management group when you are unable to pass out information in paper format? What types of questions will help the group become cohesive, and keep everyone's attention in an online environment? Thinking about the theoretical concepts in new ways may have created deeper learning experiences. Similarly, Salajan et al. (2009) used virtual and interactive applications with graduate dentistry students and determined that a combination of these tools was effective for learning difficult theoretical concepts.

Conversely, the face-to-face students may not have had the opportunity to step out of their comfort zone and were less challenged to find new ways to use the material being learned. The posttest mean score for the face-to-face students was lower than the pretest mean, suggesting that the students were more confused regarding the material than they were before being exposed to the group concepts. The face-to-face students may not have had enough opportunity to integrate the material into their learning. Additionally, because the hybrid students were expected to be more independent in their learning, there might have been more dependency on the professor in the face-to-face class.

It is also surprising that there was no statistical difference between the scores on the psychoanalytic section of the posttest for the two classes. Given the fact that one of the SL assignments was based on psychoanalytic group theory, it was expected that that portion of the posttest would be statistically significantly higher for the hybrid group class than it was for the face-to-face class. Thus, hybrid students did not benefit from the psychoanalytic aspect of the assign-

ment and may have benefited more from the collaborative project and the use of different learning styles in the group leadership.

There needs to be more research comparing hybrid and face-to-face classes in counselor education. Because this was a small sample at one university, future research should include a larger sample size and several universities. Another limitation was that we used two different technological tools with the hybrid class. We were unable to determine if the combination of the tools was most effective or if one tool was responsible for the results. Therefore, future research should be completed using one different technological tool at a time.

IMPLICATIONS FOR COUNSELOR EDUCATION

The use of hybrid and online courses has been debated among counselor educators. However, there is some indication from the results of this study that adult learners may thrive in hybrid classes infused with technology. The video podcasts and SL provided students with the ability to be independent learners, controlling their learning and using individual learning styles. Because both groups began the semester with similar technological exposure, it is apparent that adult learners who do not have high technological ability can use technology to increase their learning. Although more research needs to be completed regarding the effectiveness of hybrid courses, it is important not to disregard adult learners as nontechnological and unable to adjust to high technology. Using more technology in counselor education classrooms can help adults understand difficult theoretical concepts and may be more effective than traditional face-to-face courses.

CONCLUSION

Using a hybrid group counseling course with adult learners was more effective in promoting learning than a traditional face-to-face class. Although this is a pilot study with two courses sampled, the empirical evidence is promising. When counselor educators use technology with adult learners, deeper learning might take place. Similar to Salajan et al. (2009), using a combination of virtual and interactive activities in the course helps to improve students' understanding of difficult theoretical concepts. This study indicates that using technology with adult learners is an effective teaching modality, especially if that technology gives students more control over their learning and helps them use a variety of learning styles.

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