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SUMMARY. This article addresses the dearth of research utilizing a quasi-experimental design and student performance measures in assessing web-assisted instruction in social work undergraduate practice courses. Social work students were randomly placed into two sections of a practice course. The experimental section (n = 18) students received 50% of course lectures with web-assisted instruction while the compari-

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son class ($n = 18$) received identical lectures delivered in traditional face-to-face format. There were no statistically significant differences on assignments, the midterm exam and a final videotaped exam project between the two sections. These results suggest students in an undergraduate social work practice course learn similarly regardless of course format. [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <<http://www.HaworthPress.com>> © 2005 by The Haworth Press, Inc. All rights reserved.]

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LITERATURE REVIEW

Distance education has become an increasingly acceptable mode of delivering social work instruction (Siegel, Jennings, Conklin, & Flynn, 1998). Benefits to students include the provision of increased technological competence and access to educational opportunities otherwise unavailable to those students unable to attend traditional social work programs (Petracchi & Patchner, 2000). The most frequently offered courses via distance education are human behavior in the social environment, social welfare policy, and social work research (Siegel et al., 1998). Many recent studies have assessed and are supportive of the use of web-assisted course delivery in the aforementioned courses (Patterson & Yaffe, 1994; Stocks & Freddolino, 2000; Van Soest, Canon, & Grant, 2000; Wernet, Olliges, & Delicath, 2000).

Social work educators have historically had reservations about providing social work practice content in a web-assisted format. The development of communication skills, the mentoring relationship between professor and student, and the expansion of critical thinking ability are believed to be among the essential aspects of the social work student's professional socialization, a key goal of introductory practice classes (Kemp, 1998; Siegel et al., 1998). Traditionally, social work educators have believed fostering interaction between the professor and student and among peers could be accomplished solely through the conventional classroom formats, with face-to-face interactions. Critics of web-assisted social work education express concern about isolating students and faculty from one another. They forecast increased contact by e-mail (an often used communication tool in distance education) will result in the promotion of social distance, fundamentally eliminating the essence

of personal communication which is necessary for professional social work practice (Kreuger & Stretch, 2000).

However, recent studies suggest web-assisted delivery actually provides increased interface with peers and faculty (Patterson & Yaffe, 1994; Stocks & Freddolino, 2000; Van Soest, Canon, & Grant, 2000). Computer-mediated interaction has enhanced student satisfaction by creating enthusiasm for assignments, increasing participation, and facilitating relationships (Frey, Yankelov, & Faul, 2003; McCombs, 1994; Mowrer, 1996). Communication tools available in web-assisted course management systems can actually serve to promote relationships between student and instructor (Wernet et al., 2000) with students perceiving e-mail interactions with faculty as highly valuable (Frey et al., 2003). In fact, Van Soest and colleagues (2000) reported web-assisted instruction offered a useful device for students to discuss sensitive issues they might otherwise have been reluctant to discuss in class.

Independent learning is a quality of distance education that may be especially adaptable to social work undergraduate students. Effective systems for independent learning are characterized by student responsibility, student choice, widely available instruction, and a variety of methods and media (Wedemeyer 1977, 1981). Control is an important concept associated with independent learning. Learner control over the time and place to receive instruction is often perceived as a primary advantage. In fact, Garrison and Baynton (1987) have extended this concept to a model where effective control of the learning process results from a balance of three optimal conditions: the learner's opportunity to make choices, the learner's skills, and the support available to the learner. But much of the recent literature addressing distance learning in social work education has focused on student satisfaction (Frey et al., 2003; Petracchi & Patchner, 2000; Rudolph & Krause, 2002; Stocks & Freddolino, 2000; Van Soest et al., 2000) though many have expressed concern about the *effectiveness* of distance learning (Thyer, Artelt, Markward, & Dozier, 1998). Research on the efficacy of this method of instruction, specifically web-based technology, is equivocal. Faux and Black-Hughes (2000) found that students participating in a traditional face-to-face classroom did better on a post-test measure examining mastery of course material than did those taught through the Internet. However, Thurston and Cauble (1999) examined the efficacy of a multimedia approach to teaching child welfare content to undergraduates and found a significant, positive difference on pre- and post-test measures of general knowledge for the viewed modules, supporting the use of multimedia.

The current study extends Thurston and Cauble's (1999) research by assessing the efficacy of web-assisted learning with undergraduate social work students enrolled in a beginning social work practice class. This practice course introduces students to social work generalist practice, defined as the application of knowledge, values, and skills of the general method of problem solving. Students in the course develop beginning skills in utilizing effective techniques of client worker communication, structuring helping interviews, and establishing, maintaining and terminating relationships. Focus in the course is given to the application of these skills to client/consumer groups of various sizes and in various multi-cultural contexts. This paper describes an evaluation of the course when one section was offered with web-assistance. An experimental design was utilized to evaluate the following hypotheses:

1. Students receiving web-assisted instruction in an undergraduate social work practice course would not differ significantly from their peers receiving traditionally delivered instruction as measured by performance on exams and assignments.
2. Students enrolled in the web-assisted class section would significantly improve their technological expertise compared to those in the comparison class receiving traditional instruction.

METHOD

Design. This study used a comparison group design to evaluate the two hypotheses. In the experimental class section, students received their instruction with a combination of web-assistance and face-to-face instruction while students in the comparison class section received exclusively face-to-face instruction.

Students were placed into one of the two class sections during registration. During the summer prior to their junior year, students registered for their fall social work courses with the Student Services Specialist who was unaware that an experimental teaching method was going to be used in the first practice course, *Interventive Methods I: Generalist Practice*. Since both sections of the course met at the same time, the Student Services Specialist put the first student to register into section one, the next student into section two, etc. Therefore, there was no systematic bias to student assignment to either the experimental web-assisted section or the comparison group face-to-face section of the course. On the first day of classes, the experimental web-assisted class met in an as-

signed room with their instructor. At this meeting, students were told the class would be offered with web-assistance. Any student who wished to change sections of the class was given the opportunity to do so. None chose to switch from the class to which they were assigned.

Sample. The study sample consisted of first semester social work majors at a large, urban university in the Midwest. In this program, BSW students matriculate as social work majors in their first semester, junior year. There were 36 students in the sample, with 18 assigned to each section of the class. The median age of the sample was 21 years. Fifty-three percent were traditional-aged students (21 years or younger); 88 percent ($n = 32$) were female. Only 39 percent of the sample students had any paid work experience while 50 percent had some volunteer experience.

Intervention. The instructors for each section of this undergraduate social work practice course were matched for years of professional social work practice experience and a shared learner-centered approach and constructivist perspective to education. The instructors prepared their weekly lesson plans and lectures together with each of the classes utilizing the same texts, syllabus, midterm exam, written assignments, and final evaluation project. The instructors also developed and used common role plays, simulations, and group exercises.

Both the experimental web-assisted class and the comparison class of students received their weekly instruction for two hours and fifty minutes, covering the same lecture material and participating in the same role plays and group exercises (see Table 1). However, the experimental web-assisted class received 100 percent of their weekly lecture material online using Blackboard technology. These web-based lectures were designed utilizing discussion boards, e-mail features, and links to additional websites. The experimental web-based students then met for the other half of their allotted weekly class time face-to-face with their experimental course instructor and peers. During these face-to-face meetings, students in the web-based class participated in role plays and group exercises led by the instructor.

Unlike the experimental web-assisted class, the comparison class met face-to-face with their instructor and peers for the entire weekly class period. The instructor did not use e-mail to communicate with the comparison class of students and there were no web-assigned readings.

Three guest speakers met with both the experimental and comparison sections of this course combined into one large lecture room. The experimental web-assisted section discussed the lecturer's content using the course-management system's online discussion board during the subse-

TABLE 1. Course Delivery Differences Between the Experimental and Comparison Classes

Classroom Activity	Experimental Classroom (Web-Assisted Section) (N = 18)	Comparison Classroom (Traditional Face-to-Face Instruction) (N = 18)
Class Lecture (approximately 50% of course content)	100% online	100% face-to-face
Discussion of Lecture Content (approximately 10% of course content)	100% online	100% face-to-face
Role Play, Group Exercises, & Guest Speakers (approximately 40% of course content)	100% face-to-face	100% face-to-face

quent week; the comparison section discussed the content of the guest's lecture in person.

Measures. In both sections of this course, assignments were individually completed by students (there were no group assignments or projects), with the exception of the class participation requirement which was partially based on classroom group activities. A subjective paper required students to apply the general method learned in the course to an assessment of a family characterized in a popular movie. Rubrics (a set of evaluative criteria) were developed and used to grade subjective assignments with each student submitting an assignment identified only their social security number. No other identifying information was included in assignments that could have influenced grading. The midterm examination for both classes was an objective, multiple choice exam scored by the University's Office of Measurement and Evaluation.

The final assignment in this course involved a videotaped role play exam. Both the experimental web-assisted students and the comparison students were required to implement the same role play simulation and were given identical written assessment outlines. Because the instructors would be unable to evaluate the videotaped role play simulations anonymously, a third instructor who had taught a similar foundation social work practice course in the graduate program was employed to

evaluate the final videotaped assignments. This instructor possessed no information regarding whether a student she was evaluating on the videotaped role play was a member of the web-assisted experimental class or the comparison class.

In addition, both groups of students completed a questionnaire adapted from the Technology Assessment Survey Student Competency Inventory developed by the University of Indiana School of Social Work (May 2003). This survey queried students about their comfort with Blackboard technology, library and computer access, and their ability to utilize the web. Students were asked to respond to survey questions on a five-point Likert scale ranging from one (1) "I do not know how to do this task" to five (5) "I can perform this task without any help." Eleven items assessed students' perceived competence using Blackboard course management technology to access course syllabus, retrieve e-mail, and access assignments. Nine items assessed students' perceived computer availability and ability to access and use library resources online. In this section, questions included such things as "I can access *Social Work Abstracts* online" and "I can use a browser to access PittCat (the University's online catalog system)." Five questions addressed the student's perceived ability to utilize internet browsers. An example of an item examining perceived expertise in this area would include, I can use a search engine (such as Google or Yahoo) to find specific information. Variables were created from the average score in each of the three categories of questions, by summing the responses and dividing by the number of questions with responses, thereby controlling for missing responses. Three variables reflect these measures: one for comfort with Blackboard technology, one for library and computer access, and one for ability to utilize the web.

Data Collection. The Technology Assessment Survey Student Competency Inventory was administered to both course sections at the beginning and end of the semester. The objective midterm was completed in the seventh week of the semester, the subjective assessment assignment was due in the eleventh week of the term, and the final videotaped examination was submitted at the last class period.

RESULTS

Group Differences. There were no statistically significant differences in the composition of the two class sections in work experience, volunteer experience, traditional versus nontraditional student status or

age. The comparison class section included all four males in the study but given the small number of males, there was no reason to believe gender differences impacted hypothesis tests.

Hypotheses. Independent sample t-tests were used to test the first hypothesis that students receiving web-assisted instruction would demonstrate the same mastery of course content as comparison students receiving traditionally delivered instruction. As displayed in Table 2, each class had 18 students. As hypothesized, there were no statistically significant differences in scores between the two classes on the written assignment, midterm examination, or final videotaped assignment. The mean scores for the two groups on each assignment are nearly identical.

Since significance is difficult to obtain with small samples, the effect size, or the impact of the experimental web-assisted instruction on the scores of each of the assignments was calculated. The reported effect size for each assignment was quite low: the effect size on the midterm was .09, while the effect size on the written assignment was .17 and the effect size on the final video assignment was $-.09$. These findings suggest the method of teaching had little impact on the class assignments' scores.

The second hypothesis predicted that given greater exposure to various forms of technology, the experimental web-assisted class would significantly improve their technological expertise when compared with those students in the traditional face-to-face class. All students were asked to rate their ability to perform a variety of technological tasks associated with using Blackboard, library resources, and web browsing at the start of the semester and again at the end of the semester. As seen in Table 3, the students in both classes began the semester with

TABLE 2. Group Differences on Class Assignments

Assignment	N	Mean	Standard Deviation	t-value	Effect Size
Midterm:					
Web-Assisted	18	9.72	1.87	.291	.09
Traditional	18	9.55	1.54		
Written Paper:					
Web-Assisted	18	9.94	1.83	.521	.17
Traditional	18	9.67	1.32		
Final Video:					
Web-Assisted	18	9.33	1.37	-.272	-.09
Traditional	18	9.50	2.20		

TABLE 3. Average Pretest and Posttest Scores on the Technology Assessment Survey Student Competency Inventory

Class:	Blackboard			Library Related			Browser		
	Pretest	Post-test	Mean Difference	Pretest	Post-test	Mean Difference	Pretest	Post-test	Mean Difference
Web-Assisted	3.39	3.69	.30	2.99	3.41	.42	3.66	3.67	.01
Traditional	3.38	3.67	.29	3.38	3.56	.18	3.81	3.89	.08

high self-ratings with different technological applications. Regardless of class, their ratings were even higher at the end of the semester.

Analysis of covariance was used to test the hypothesis that the web-assisted class would report greater technological comfort. The results of these analyses, however, indicated there were no statistically significant differences between the experimental web-assisted class and comparison class in each of the three competency areas.

DISCUSSION

The purpose of this study was to evaluate the effectiveness of web-assisted instruction as compared to a traditional face-to-face classroom format in an undergraduate social work introductory practice course. It was expected that students in the experimental web-assisted course section would not significantly differ from students in the comparison group receiving traditional face-to-face instruction as measured by performance on assignments and exams. It was also expected that students in the web-assisted course section would demonstrate significantly greater improvement in their technological expertise than students receiving traditional instruction.

The results of this study support the first hypothesis but not the second. Students in the experimental web-assisted course section demonstrated a similar degree of learning when compared with students in the traditional section of the course. However, students in the experimental web-assisted section of the course did not demonstrate greater improvement in their technological expertise when compared with the students in the class receiving traditional face-to-face instruction.

While the prevalence of web-assisted course delivery has increased in social work education over recent years (Siegel et al., 1998), research

focusing on the efficacy of web-assisted instruction has had mixed results. On the one hand, Faux and Black-Hughes (2000) found that students in a traditional face-to-face classroom demonstrated mastery of course material better than those taught via the Internet. On the other hand, some work suggests web-assisted instruction benefits students by promoting relationships between students and instructor, increasing participation and enthusiasm for assignments, and providing a medium to discuss sensitive issues (Frey et al., 2003; McCombs, 1994; Mowrer, 1996; Van Soest et al., 2000; Wernet et al., 2000). And, Thurston and Cauble (1999) found that students in a multimedia enhanced undergraduate social work practice course mastered content better than their traditionally taught peers. The current study supports the results reported by Thurston and Cauble (1999) in that students in the web-assisted class section scored at similar or higher levels on all three course assignments when compared with their peers in the traditional classroom. But the current study results extends that which preceded it by utilizing random assignment, multiple methods of evaluation, and blind raters to produce a more rigorous design.

From a practical standpoint, the current study should also provide reassurance to social work educators interested in utilizing web assistance in their practice course delivery. The effective teaching of important social work knowledge and skills was not lost when the students in the current study were taught with web-assistance.

The results of the current study relative to the second hypothesis were disappointing but there may be several reasons that explain the lack of significant improvement in the technological expertise of students in the experimental web-assisted course when they were compared with their peers in the traditionally delivered classroom. The University where this study was conducted has made a tremendous financial commitment to technology development and utilization over the past few years. Since social work students at this University do not matriculate until their junior year, it is possible the University's efforts to train technologically-proficient students is reflected in the high level of comfort students report in the pretest survey relative to the Blackboard technology used in the course, library access, and their ability to utilize the web. This possibility is also supported by the fact that, when given an opportunity to change from the experimental web-assisted course section to the other traditional comparison section of the course, no students availed themselves of this opportunity (perhaps because they felt a high degree of comfort with the web). Moreover, with pretest scores as high as they were, it was not surprising that no statistically significant im-

provements were found, though it is possible the instrument used to assess technological competence was not sensitive enough to detect differences in improvement between the two groups. Obviously these findings are not generalizable to other universities and colleges. The results of the current study call for replication in other social work programs. Again, these results should be comforting to social work educators interested in utilizing web-assistance in their classrooms given the matriculating students' level of technological competence. Since this course was web-assisted with approximately 50% of the content delivered using the web, future research is needed to determine whether similar courses that are 100% web delivered would achieve similar results.

CONCLUSION

As much of the contemporary research in social work distance learning has focused on student satisfaction, most of these studies conclude with calls for research to address effectiveness of distance education (Frey et al., 2003; Petracchi & Patchner, 2000; Rudolph & Krause, 2002; Stocks & Freddolino, 2000; Thyer, Artelt, Markward, & Dozier, 1998; Van Soest et al., 2000). Results of the current study found the web-assisted course was just as effective as the traditional course in transferring knowledge and beginning social work practice skills to students. Therefore, we, as social work educators, should not fear utilizing the web in assisting, and delivering a social work practice course to undergraduates as this does not appear to compromise their learning. Moreover, given the comfort level with technology suggested by the students in this study, we should feel free to incorporate technology into our traditional courses, as well as into our curriculum in general, developing program outcome measures reflecting our expectation that social work students will leave their academic careers able to participate in the global technological community.

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