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Advanced Degree Seeking Students' Satisfaction with Online Courses at UMKC - An Early Investigation

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The use of online instruction is becoming more prevalent and transcends many disciplines. Nursing has been at the forefront of health professions utilizing distance education. Nearly half of all predoctoral dental programs report use of web-based or distance delivery. Comparatively, 22% of dental hygiene programs report use of this somewhat new approach to teaching. Distance learning provides a means for increasing access to and enrollment in dental hygiene programs. Individuals who cannot physically attend courses in dental hygiene benefit from the institutions that offer web-based classes. In today's environment, more individuals seek to advance their educational needs. Advanced dental hygiene degree programs may benefit by providing distance learning. Since 2000, the University of Missouri - Kansas City (UMKC), Division of Dental Hygiene has offered its degree completion program online. Its master's degree online program has been offered since 2001.

Purpose. The purpose of this study is to describe the pre- and post-course graduate and degree completion students' perceptions of web-based courses offered at UMKC.

Method. Over the course of 3 years, all students enrolled in required fall semester online classes were selected and agreed to participate in the study. Students were asked to fill out questionnaires prior to and at the completion of required online courses. There were no identifiers on the questionnaires. The surveys used in the study were derived from an instrument used by Wills and Stommel who examined graduate nursing students' perceptions of web-based courses.

Results. Results indicate that students enjoy this method of learning. All students reported they would enroll in another online course if given the opportunity.

Conclusion. Based on favorable student perceptions, UMKC will continue to provide this method of learning to students seeking advanced degrees in dental hygiene.

Keywords: Dental Hygiene, distance education, student perceptions

Introduction

Distance learning is a method of utilizing technology to teach adult learners.¹ Moore and Kearsley define distance education as learning that takes place in a different location from teaching.² Since many educational institutions attract busy, working adult students with families who live at a distance from the classroom, more and more educators are rethinking the traditional delivery of courses.³ Therefore, online courses are becoming a commonality for reaching students at greater distances.⁴ Since 2000, the University of Missouri - Kansas City (UMKC), Division of Dental Hygiene has offered its degree completion program online. Its master's degree online program has been offered since 2001. This study describes the pre- and post-course graduate and degree completion students' perceptions of web-based courses offered at UMKC. The students' experiences with online courses at UMKC are positive, leading dental hygiene programs to consider whether this method of course delivery is advantageous to their institutions.

Review of the Literature

Distance learning applies to teaching and educational conditions in which the instructor and learners are geographically separated and can rely solely on other means of delivery for course content.¹ Distance education or distance learning can be defined in a variety of ways.⁵ The methods of delivery for courses may include a mixture of computer or web-based technologies, stand-alone instructional programs via television or online, correspondence courses, or a set of videotapes that supplement or extend classroom learning.^{1,5} Although distance learning may be diverse in its form of delivery, all distance education is distinguished by the division of place or time between the learner and teacher, or by the student and learning resources.¹

Many disciplines have taken on distance education in their curriculums. Some, and certainly not all, of those offering courses via the Internet are Business, Education, Pharmacy, Law, English, and Computer Programming. However, nursing has been a leader in offering courses via distance education.⁶ A 1997 study by Reinert and Fryback⁷ surveyed members of the American Association of College of Nursing examining the use of distance education courses. Forty-one percent reported plans for offering distance education courses in the future. In 2001, a report by the American Association of University Women (AAUW) Educational Foundation found that women constitute the majority of distance learning students. This same report found that women enjoy distance education for its flexibility, minimizing costs, and fulfillment. Women reported being able to learn at their own pace, while making time for family commitments. They are able to save money in childcare while fulfilling personal goals.⁸

The American Dental Education Association (ADEA) has encouraged the review of distance learning in the dental school curriculum.⁹ Andrews and Demps⁹ surveyed the associate deans for academic affairs of 64 North American dental schools to assess to what extent distance education was being used in the dental curriculum. Fifty-one percent reported that web-based and distance learning methods were being utilized in predoctoral education. Twenty percent were considering implementing or planning its use, and 27% had no plans for implementation. However, 33.3% reported current usage in graduate dental education, 20.8% were planning or considering implementation, and 45.8% had no plans for implementation. Andrews and Demps concluded in their study that the use of online delivery of content and information in the dental school curriculum has potential.

Distance education is a somewhat innovative approach in dental hygiene education as well.⁶ Grimes surveyed dental hygiene directors of all associate degree and baccalaureate degree dental hygiene programs in the United States to examine their use of distance education. Twenty-two percent (N=255) of those responding to the survey were using distance education in their dental hygiene programs. Thirteen percent reported plans to utilize distance education in the future. Computer-based distance education (or online courses) was the most popular delivery method used by these programs. Six programs reported using only CD-ROM for delivering courses. The 5 most popular courses offered using distance education were Periodontology, Oral Pathology, Dental Anatomy, Nutrition, and Radiography.⁶ Four dental hygiene programs reported offering 76% to 100% of their curriculum via distance education. However, this type of education is

also being offered for those seeking to complete their baccalaureate degree or master's degree in dental hygiene education. This same study found 5 programs that offered distance education in the baccalaureate degree completion program and 2 of the respondents offered master's degrees. These respondents reported their primary reason for offering distance education was to serve special populations. Six percent reported student recruitment and 10% reported dental hygiene manpower as reasons for providing distance education.

Research has been conducted to demonstrate that distance learning can be as effective as classroom teaching.¹ Distance learners have a uniqueness that influence their success in the learning experience. Most distance learners are highly motivated, know when to call upon instructors for assistance, and have a willingness to learn and follow through.¹ There has been some research in outcome assessment with distance education in dental hygiene. Olmsted⁵ examined both onsite and distance learners to determine if those who received onsite instruction performed statistically better on established benchmark assessments (GPA, course averages, and National Board Dental Hygiene Examination) than learners at a distance. She analyzed 5 classes with a total of 221 learners. Results indicated there was no significant difference between the onsite and distance learner performances. Both sets of learners performed uniformly well. Bearden, Robinson, and Deis examined the differences in academic performances (calculated by grades and performance of national exams) of 54 dental hygiene students enrolled in an online and an on-campus nutrition course. They concluded there was no difference in course average and performance on the National Board Dental Hygiene Examination (NDBHE) tests between online and on-campus students.¹⁰ Grimes looked at the success of 13 students in an online and a traditional in-class dental terminology course by comparing final examination results. Students in the online course scored higher on the final examination than students in the traditional in-class setting. Additionally, data confirmed that online students had an equal amount of course instruction of that experience by the traditional in-class students based on the number of times the online students visited the material's website.¹¹

There have been few studies in dental hygiene looking at student perceptions and satisfaction with distance education. In the Grimes study previously mentioned, the perceptions of students in an online dental terminology course were examined. Overall positive perceptions of online learning were found. However, 69% of students reported missing the interaction of a regular classroom setting and had a feeling of being "detached" from faculty and other students.¹²

Distance learning has many potential benefits in a dental hygiene curriculum. Distance learning could be a means for increasing enrollment in dental hygiene programs. Individuals who cannot physically attend courses in dental hygiene benefit from the institutions that do offer web-based classes. Distance technology allows for innovative approaches to teaching where faculty can utilize a hybrid approach to teaching with content available online combined with in class exercises. In today's technology savvy society and more individuals seeking to advance their educational needs, providing distance learning may be beneficial as well for dental hygiene programs.¹¹ Since 2000, the University of Missouri - Kansas City (UMKC), Division of Dental Hygiene has offered its degree completion program online. Its master's degree online program has been offered since 2001. The purpose of this study is to describe the pre- and post-course graduate and degree completion students' perceptions of web-based courses offered at UMKC.

Materials and Methods

Subjects

All students enrolled in required fall online courses were invited to participate in the study. Due to the small number of students enrolled in online courses, it was determined that data would be collected over a 3-year period to increase the number of participants for this study. A total of 27 students participated in the study.

Instrumentation/Measurement

In 2000, Billings published an outcomes evaluation framework for web-based courses in nursing.¹³ From this framework, Wills and Stommel developed an instrument that examined graduate nursing students' perceptions of web-based courses.¹⁴

The instrument from Wills and Stommel was used for this study. The instrument for this study was utilized because it was the best fit for the purpose of the investigation. Both the original research and this study had small numbers of participants. Wills and Stommel analyzed the internal consistency reliability of statistically derived scales. Alpha coefficients met the standard of adequate internal consistency, therefore, providing a good basis for continued use of the instrument.¹⁴ Although the number of participants for this study was not big enough to warrant ideal alpha coefficients for reliability testing (n=27), the instrument was used since it was previously tested and published in a similar study within allied medicine. The questionnaires consisted of rank-scaled items and 2 open-ended questions where respondents were asked to write in explanations or comments (Appendix). This study was reviewed and approved by the Institutional Review Board at the University of Missouri - Kansas City (UMKC) to ensure the safety and rights of human study participants. Participants in survey research give consent to participate when they fill out and return the survey. Therefore, no consent form was required.

Data Collection Procedures

Students were asked to fill out questionnaires prior to and at the completion of required online courses. There were no identifiers on the questionnaires. Anonymity was ensured to the study participants. Participants were asked to not place their name or identify themselves anywhere on the questionnaire. The primary investigator distributed the questionnaires to designated study personnel who in turn, distributed the questionnaires to the study participants. The designated study personnel did not change over the course of the 3 year study. Students were asked to complete the pretest at the conclusion of their orientation session where details on how to utilize Blackboard (a web course platform) and Centra (an electronic conference program) were given. At the conclusion of the courses when all material had been covered, students were asked to complete the posttest. Students returned the completed surveys to designated study personnel. The primary investigator kept the questionnaires in a locked area over the course of data collection.

Statistical Analysis

Data was entered into the SPSS statistical program for analysis. Statistics generated included frequency distributions and measures of central tendency. All narrative data were recorded by a stenographer. The following outcomes were sought: student perceptions of learning, connectedness, preparation for real-world work, and satisfaction.

Results

Over the course of 3 years, 27 students were enrolled in master's or baccalaureate degree completion online courses at the University of Missouri-Kansas City (UMKC). All 27 students filled out the precourse questionnaire as well as the postcourse questionnaire. Therefore, 100% participation was obtained. This can be attributed to the surveys being distributed in person to each student. One condition for each student in both programs is that he/she personally visits the UMKC campus one time per semester in fulfillment of course requirements. Table 1 shows pre and post student responses to Likert scale questions on the questionnaires.

Table I Pre- and Post-course Student Perceptions

Survey Questions	PRE (Mean responses) n=27	POST (Mean Responses) n=27
1. I believe that active learning will take place in the web-based course comparable to the active learning that takes place in a traditional classroom setting.	(3.62) Undecided <i>Likert scale: 1=strongly disagree; 5=strongly agree</i>	(4.59) Agree <i>Likert scale: 1=strongly disagree; 5=strongly agree</i>
2. I expect to learn the same amount of course content in the web-based class that I would if the course were offered in the traditional classroom setting.	(4.03) Agree <i>Likert scale: 1=strongly disagree; 5=strongly agree</i>	(4.44) Agree <i>Likert scale: 1=strongly disagree; 5=strongly agree</i>
3. I expect faculty instruction in the web-based course to be _____ it would be in a traditional classroom setting.	(2.03) The same as <i>Likert scale: 1=worse than; 3=better than</i>	(2.76) The same as <i>Likert scale: 1=worse than; 3=better than</i>
4. I anticipate there being _____ technical difficulties accessing course materials in the web-based class.	(2.11) Some <i>Likert scale: 1=many; 4=no</i>	(2.81) Some <i>Likert scale: 1=many; 4=no</i>
5. I believe there will be _____ issues logging on to the Web for course materials.	(2.29) Some <i>Likert scale: 1=many; 4=no</i>	(3.11) Few <i>Likert scale: 1=many; 4=no</i>
6. I am excited about learning in an online format.	(3.48) To some degree, yes <i>Likert scale: 1=definitely not; 4=definitely yes</i>	(4.74) Positively <i>Likert scale: 1=more negatively; 5=more positively</i>
7. After today's orientation and description of the course, what is your understanding of the course content?	(2.18) Some level <i>Likert scale: 1=none to minimal; 3=very good level</i>	(3.0) Very good level <i>Likert scale: 1=none to minimal; 3=very good level</i>
8. I think the web-based course will be _____ challenging compared to a traditional classroom setting.	(2.37) Somewhat <i>Likert scale: 1=not very; 3=very</i>	(2.55) Somewhat <i>Likert scale: 1=not very; 3=very</i>
9. I expect the amount of interaction between students and faculty to be _____ it would be in a traditional classroom setting.	(1.85) Less than <i>Likert scale: 1=less than; 3=more than</i>	(2.70) As much as <i>Likert scale: 1=less than; 3=more than</i>
10. I believe the course will prepare me for real life experiences.	(4.14) Agree <i>Likert scale: 1=strongly disagree; 5=strongly agree</i>	(4.74) Agree <i>Likert scale: 1=strongly disagree; 5=strongly agree</i>
11. I think I will find this web-based course to be _____ enjoyable.	(2.51) Somewhat <i>Likert scale: 1=not very; 3= very</i>	(2.96) Somewhat <i>Likert scale: 1=not very; 3=very</i>
12. I _____ that academically I will perform well in the web-based course.	(3.96) Undecided <i>Likert scale: 1=strongly disagree; 5=strongly agree</i>	(4.69) Agree <i>Likert scale: 1=strongly disagree; 5=strongly agree</i>
13. I expect to achieve a grade in the web based course similar to grades I have received in the past in traditional classroom settings.	(4.0) Agree <i>Likert scale: 1=strongly disagree; 5=strongly agree</i>	(4.46) Agree <i>Likert scale: 1=strongly disagree; 5=strongly agree</i>
14. I prefer traditional classroom settings over web-based courses.	(3.22) Undecided <i>Likert scale: 1=strongly disagree; 5=strongly agree</i>	(2.11) Disagree <i>Likert scale: 1=strongly disagree; 5=strongly agree</i>
15. I consider myself to be a self-directed learner.	(4.14) Agree <i>Likert scale: 1=strongly disagree; 5=strongly agree</i>	(4.25) Agree <i>Likert scale: 1=strongly disagree; 5=strongly agree</i>
16. It is important for me to feel like I "belong" in a course.	(3.96) Undecided <i>Likert scale: 1=strongly disagree; 5=strongly agree</i>	(4.62) Agree <i>Likert scale: 1=strongly disagree; 5=strongly agree</i>
17. I feel prepared to begin the web-based course.	(3.66) Undecided <i>Likert scale: 1=strongly disagree; 5=strongly agree</i>	(4.51) Agree <i>Likert scale: 1=strongly disagree; 5=strongly agree</i>

In regards to the outcome of learning, at the posttest, students perceived that active learning had taken place in the online courses comparable to a traditional classroom setting and that the same amount of course content was learned in the online courses that would have been in a classroom situation. Feelings towards faculty instruction did not change from pretest and posttest. There were some to almost few technical difficulties in accessing course materials at posttest. Students anticipated issues logging on to the web for course content, but at posttest, there were few problems with this. At the conclusion of the courses, students' attitudes towards learning in an online environment had changed direction in a more

positive way. Students had a very good level of understanding of course content at the end of the classes and found the courses to be somewhat challenging compared to a traditional classroom setting.

Regarding connectedness, preparation for real-world work, and overall satisfaction, students did not expect to have much interaction with their peers, but found at the courses' end to be similar to a regular classroom setting. They found the classes to be enjoyable and felt they served in preparation for real life experiences. Academically, they were happy with their grades. Students were undecided in their preference of online versus traditional classroom settings at the pretest, but preferred the online setting at the completion of the courses. Participants felt they "belonged" in the courses and the feelings of not being prepared for the courses at the pretest changed in a positive way at course end. One question asked the student to rate their computer skills on a scale of 1-10 with 10 being the highest (Table II). At the pretest, the mean was 6 and at posttest 8. Seventy percent of students had not taken online courses prior to enrolling at UMKC. At posttest, 100% of participants responded that given the opportunity, they would take another online course.

Table II
Non Likert Scale Items

Question	Precourse	Postcourse
On a scale of 1-10, with 10 being the highest, how do you rate your computer skills?	6	8
Have you taken other web-based courses in the past? (PRECOURSE ONLY)	70% No 30% Yes	NA
Given the opportunity, would you enroll in another web-based course again? (POSTCOURSE ONLY)	NA	100% Yes

Discussion

Most students report that the convenience of an online program in dental hygiene is advantageous because of the flexibility of the class while fulfilling goals and aspirations in obtaining an advanced degree. The overall perceptions of students in this study were satisfied with the delivery of online courses at UMKC. These findings parallel the students' responses to the original study where nursing students were satisfied with online courses. In order to obtain a meaningful number of participants, data was collected over a 3-year period.

A growing concern in distance education has been that online courses are taught by adjunct faculty.¹⁵ All online courses at UMKC are taught by full-time tenured faculty. The graduate and degree completion programs at UMKC Division of Dental Hygiene have prepared dental hygiene educators for more than 30 years. Preparing the student for advanced degrees in dental hygiene takes place utilizing a variety of asynchronous and synchronous learning including: mixed media, print based, CD-ROM, web-based courses via Blackboard, and internet-based formats such as electronic conferencing, chat rooms, bulletin boards, and email. Prior to being accepted into either program (graduate or degree completion), the student is made aware that one campus visit is required per semester. This is different from other programs where students never meet peers or faculty in person. Students are also required to attend a one-time orientation session in the fall to initially meet other classmates and faculty. This orientation provides the student with a hands-on approach to the web as well as detailed instructions for logging on to the course site.

In a study by Seiler and Billings in 2004, nursing students suggested the use of web cams for their online coursework.¹⁶ The online courses offered through the graduate and degree completion programs at UMKC do just that. UMKC Division of Dental Hygiene courses utilize Centra - a platform that gives the students the opportunity to "see" their faculty and peers during synchronous learning times. At the beginning of the semester, a meeting time is established with all students enrolled in the course as to the time of day the class will "meet" online. All faculty at UMKC that teach graduate courses online also have responsibilities of teaching at the undergraduate level. Therefore, these meeting times are usually at night where the course director may teach from their home after traditional school hours are over. Students who have sought advanced degrees through UMKC include students from California, Iowa, Wisconsin, and Florida, to name a few. This

means that the class may meet at 5 PM California time and 8 PM Florida time. Although there is flexibility in taking an online course, the student is aware that synchronous learning and meeting is a course requirement. This set meeting time is similar to gathering in a traditional classroom setting for a weekly class. It also provides the students "face time" with peers as well as faculty. If a student has a question for faculty, they may choose to ask during the weekly Centra meeting time. More than likely, this plays a role in the students' positive perceptions at post-course in relation to faculty instruction and overall excitement about learning in an online format. Students are able to build relationships with their peers similar to a traditional classroom setting.

Students responded at post-course that the courses were somewhat challenging. This finding is similar to a study by Britt (2006) where the majority of students reported that online courses were more difficult than traditional instruction.¹⁷ Some programs with online courses (not limited to dental hygiene) never require the students to meet or make a campus visit. Students in the UMKC setting are expected to go to class online prepared for the synchronous learning times. Faculty directing the course has the ability to "flash" the camera on an individual student and ask them to share their thoughts on that night's discussion. This, along with the course assignments, could be the determining cause for the online course to be challenging. In a program that does not have synchronous learning requirements, the student may feel less challenged in being prepared for course content.

Respondents had an opportunity to write in comments about the courses. There were no negative comments reported. One student commented "this style of education fills a void most educators or students are unaware exists. Overall, I think distance education is brilliant. It has provided me with an opportunity that otherwise would be unavailable." Another student felt "it was the best instruction I have had in a long time."

The results of this study should be interpreted in light of several limitations. First, the study had a very small number of participants. The 100% participation achieved with the survey responses can be attributed to the questionnaires being distributed in person to each student. This was done when the students visited the campus for their required "on-site" visit within the semester. The designated study personnel who distributed the questionnaires to the study participants was involved in overall course grading, but is not the sole director for online courses at UMKC. More sophisticated data analysis including factor analysis was unable to be performed on the questionnaires. Future research needs to be conducted that looks at outcomes over several years time. These results, although early, are valuable and call for further research. The perceptions of those faculty teaching the advanced education online courses would also be of value.

Conclusion

This is the first study to examine advanced degree seeking students' satisfaction with online courses at UMKC Division of Dental Hygiene. Perceptions wanted to be investigated to have an overall sense of what students' thoughts were to this method of delivery of courses. Students' overall perceptions to online courses were positive. The UMKC Division of Dental Hygiene will continue to provide students seeking advanced degrees the opportunity of learning at a distance. Since this is one of the first studies to report students' perceptions to this method of learning at the UMKC Division of Dental Hygiene, future studies are anticipated to explore outcomes of distance learning.

Acknowledgements

Notes

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