GRADUATE NURSING STUDENTS' EXPERIENCE WITH SYNCHRONOUS, INTERACTIVE VIDEOCONFERENCING WITHIN ONLINE COURSES

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The purpose of this study was to explore the experience of nurse education certificate students who used interactive, synchronous videoconferencing via Collaborate within online courses. Videoconferencing has grown to include various solutions. Current research regarding use of videoconferencing in master's level nurse education is limited. A qualitative, narrative approach was used with 43 master's level nursing students to explore their experience with videoconferencing. Focus group sessions were administered over the Collaborate platform. Categorical-content data analysis revealed the following five categories: enjoyment, flexibility/convenient, interaction, comparable or better than face-to-face, and technological problems. More research is needed to support decision making in higher education regarding best practices of teaching online.

BACKGROUND

The landmark report by Allen and Seaman (2013), *Changing Course: Ten Years of Tracking Online Education in the United States*, has generated invaluable data to guide the country in assessing trends in online learning. The report indicated that in 2012 as many as 6.7 million American students were taking at least one online course. An online course was defined as a "course where most or all of the content is delivered online" with "typically no face-to-face meetings" (Allen & Seaman, p. 7). The instruction of these online courses, asynchronous versus synchronous, was not distinguished. Asynchronous and synchronous courses are vastly different and data in this area are warranted, but lacking. This information is needed to guide faculty, students, and administrators regarding online practices.

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According to Chipps (2010), 81 articles on distance education courses using videoconferencing in nursing education were published from 1999 to 2009. Most of the articles (44) were descriptions of using videoconferencing, and only 27 articles focused on evaluation (Chipps, 2010). The ease of use of technology, number of videoconferencing platforms offered, and quality of features since then have changed for the better. Given the rapid evolution of technology, viewing the most current student experiences with the latest videoconferencing products is prudent. Current research regarding use of videoconferencing in master's level nurse education is limited.

Videoconferencing started in the late 1990s and has grown to include various solutions such as Blackboard's Collaborate, Cisco's Webex, Citrix's GoToMeeting, and Adobe Connect (O'Neil, Fisher, & Rietschel, 2014). The solutions have become increasingly sophisticated, allowing for synchronous audio chat, text chat, sharing of a whiteboard, sharing of a desktop, polling features, breakout sessions, and more. Arguably, the level of interaction resulting from use of these features parallels, if not exceeds, the interaction resulting from traditional lecture. Additionally, many of these products record sessions, allowing students who cannot attend virtual classes the opportunity to view or review the class at their convenience.

One concept that remains critical in the success of an online course is the importance of interactivity (Moore, 1989; O'Neil et al., 2014; Simonson, Smaldino, Albright, & Zvacek, 2012). Faculty should strive to build a sense of community in web-based courses (O'Neil et al., 2014; Simonson et al., 2012). Communication is the cornerstone of relationships among student-to-student and faculty member-to-student in distance education (Bonnel & Vogel Smith, 2010; Simonson, 2012). Synchronous, interactive videoconferencing sessions allow for fluid communication, exchange of ideas, question and answer sessions, gaming, humor, debates, and video and document sharing. Faculty and students are allowed to establish rapport and a sense of being part of a cohort within this setting to maximize interest and learning. "While these technologies provide teaching and learning opportunities, best practices need to be considered" (Bonnel & Vogel Smith, 2010, p. 111). Research regarding use and effectiveness of web-based conferencing tools as a means to teach nursing students is scarce.

Hsiao (2012) explored the factors that influence continuance intention to attend online courses via videoconferencing software. Studying 30 Taiwanese students, pretests and posttests of English grammar were administered. While both social environmental and personal factors were found to significantly influence students' continuance intention, social environmental factors had the strongest direct and indirect effects (Hsiao, 2012). Hampel and Stickler (2012) investigated the use of videoconferencing to support multimodal interaction in an online language classroom. In a primarily quantitative study with 20 students learning German online, a videoconferencing system developed in house, FlashMeeting, was used for tutorial sessions and learner meetings. Five ways emerged in that communication occurred in both the audio and text modes: (1) social conversations (salutations and farewells), (2) technology management, (3) negotiation of meaning (related to the task), (4) off-topic conversations, and (5) instructor feedback (p. 125). Analysis of the multimodal interactions supported by FlashMeeting resulted in three possible scenarios: (1) the modes complemented each other when combined, (2) one mode compensated for the other if technical difficulties occurred, and (3) the modes competed with each other in some scenarios (p. 132).

Innes, Kelly, and McCabe (2012) evaluated students' views of the delivery modes and the learning impact for an online postgraduate program in dementia studies in the United Kingdom. Seventy-six students responded to an online survey. Sixty-five percent of the participants reported the program expanded their thinking, 61% reported the program broadened

their professional practice, and 57% found the introductory day that was conducted in person "useful" or "very useful" (p. 373). The authors concluded that a blended approach to dementia education that incorporates both virtual and in-person teaching, and that emphasizes reflexivity can support the professions' need for trained dementia-care providers and prepare leaders in the field.

Aydin (2012) quantitatively examined the relationship between learners' perceptions of affective learning, instructors' attractiveness, and instructor evaluations within the context of a videoconferencing based distance education course in Turkey. Surveying 56 students in three courses, "moderate correlations were found between task attractiveness, social attractiveness, affective learning and instructor evaluations" (p. 247). Increases in task (r = .60) and social attractiveness (r = .71) were found to be positively and strongly correlated with increases in instructor evaluations (significance was set at 0.01). There was a high degree of agreement on items that were related to affective learning and instructor evaluations. Aydin (2012) concluded that "the majority of learners have a positive effect on learning in the videoconferenced-based course sessions and had similarly positive perceptions about the instructors in these courses" (p. 249).

Stewart, Harlow, and Debacco (2011) used a qualitative, ethnographic approach to collect data from students in eight doctoral courses regarding their experience of synchronous learning in distributed environments. They found "the use of videoconferencing technology allowed distance learners to have a presence in the classroom, and to have the experience of face-to-face engagement, without requiring their physical attendance" (p. 375). Videoconferencing encouraged instructor-student interaction and allowed distance learners to receive individual attention as well as sense a community of practice (p. 376).

Chipps (2010) performed a longitudinal study to investigate the use of synchronous videoconferencing to increase access to specialist nurse education in rural KwaZulu-Natal, South Africa. She evaluated two courses that used videoconferencing for nurses. The majority of nurses (over 85%) indicated high satisfaction with the videoconferencing and would recommend it to a friend. Over 69% of participants indicated videoconferencing was similar to face-to-face teaching. A cost analysis revealed significant potential savings in travel cost. Some technical and communication problems were reported including "flicking" of the screen. In this study, the focus was on implementation, not whether learning had occurred.

Celikkan, Senuzun, Sari, and Sahin (2013) investigated the use of interactive videoconferencing to teach a case study for electroencephalogram with 70 Turkish undergraduate nurses. They assigned students to the experimental group of watching the videoconference of the electroencephalogram happening in the lab and assigned the control group to a traditional classroom. The videoconferencing group demonstrated significant improvement of electroencephalogram skills ($p < .05$) and indicated overwhelming satisfaction with videoconferencing. Black (2010) studied the attitudes and perceptions of doctoral nursing students attending their coursework through synchronous and asynchronous means at two different universities. Using mixed methods, he found a statistically significant difference between the attitudes and perceptions of synchronous and asynchronous nursing students. Qualitative data indicated themes of technology challenges, satisfaction concerns, and recommendations for future student success in each modality. In summary, the prior studies reviewed various videoconferencing platforms utilized in a variety of contexts. No study was located that investigated nurse education certificate students' experience with synchronous, interactive videoconferencing.

PURPOSE

The purpose of this study was to explore the experience of nurse education certificate students who used the Collaborate platform for

interactive, synchronous videoconferencing within online courses.

METHODS

This study received institutional review board approval from the university affiliated with the second author and was deemed exempt. All students who completed the master's level nurse education certificate program were offered an opportunity to participate in this program evaluation. To obtain a starting point of knowledge about nurse education certificate students' experience with videoconferencing, a qualitative, narrative approach was used that leveraged focus groups. A narrative approach involves using open-ended questions to obtain one's story or experience.

Participants

Participants were registered nurses enrolled in a master's level, online nurse education certificate program at an American university. Forty-three of 54 students participated in one of four focus group sessions offered, reflecting an 80% participation rate. All participants completed four courses offered online that consisted of weekly videoconferencing using Collaborate with supplemental activities on Blackboard. The program was administered over two semesters.

The four online courses were administered in consecutive 7-week blocks. The program was designed to teach the art of instruction to nurses to prepare future faculty. The courses in the program focused on teaching and learning theory in clinical nurse education, methods of education, and evaluation in education. Weekly, 1-hour videoconferencing sessions were held for instruction. The faculty member used many features of the Collaborate platform to promote student engagement including polling, gaming, and desktop sharing. The instructor encouraged the students to participate by asking them to lead live debates, draw on the whiteboard, and respond to critical thinking questions, to complement other engaging teaching strategies. Students performed assignments that integrated educational technology, including development of an e-portfolio, a teaching webpage, wikis, virtual simulations, and leading a videoconference in a role-played faculty position with their peers playing the role of their students.

Four focus groups were performed in the spring of 2012 and 2013 as part of program evaluation to gather data from two cohorts. The interviews lasted approximately 30 minutes each. A trained research assistant performed the focus groups using Collaborate. Students were asked to sign on using pseudonyms as their logins to maintain anonymity. Students were orally asked the open-ended question, "What was your experience like learning through the Collaborate platform for interactive seminars?" Students typed in their responses using the text chat feature. Questions of elaboration were asked such as "What did you like?" "What did you not like?" and "Do you think we should continue to teach through the Collaborate platform?" The final question asked was, "Is there anything else you would like to discuss?"

The text chat was downloaded directly from Collaborate into transcripts. The research assistant removed all identifiers and replaced them with numeric codes. The research assistant provided the typed transcripts to the faculty member and a doctoral student for independent analysis.

Data Analysis

Lieblich, Tuval, and Maschiach's (1998) method of categorical-content narrative analysis was used. This method was best suited to capture the overall essence of the students' experience. Two nurse researchers read and reread the transcripts multiple times to ensure credibility. The narrative analysis allowed for the extrapolation of commonalities into "categories." Content categories were defined. Supportive quotes were provided under each category that emerged. The faculty member and

doctoral student drew conclusions independently and later merged to establish consensus.

FINDINGS

Five categories emerged from the data regarding the students' experience with videoconferencing: (1) enjoyment, (2) flexibility/convenient, (3) interaction, (4) comparable or better than face-to-face, and (5) technological problems. The majority of students expressed enjoyment of the classes offered through Collaborate. They appreciated the flexibility afforded through the online format, including the ability to watch the archive at their convenience. Participants noted how the classes were highly interactive. The venue was noted as comparable or better than traditional courses. The final category was that of technological difficulties.

Enjoyment

Participants expressed a high level of enjoyment of the courses facilitated through Collaborate. When asked what their experience was like, participants responded, "an excellent experience," "very interesting," "loved every minute of it," "a great way to learn," "wonderful," and "I loved it." Student 18 expressed, "it was a nice way to learn online—added a personal touch and gave us the ability to ask questions in real time. Kinda got to know the teacher too—which was nice." Participants expressed enjoyment with the faculty member's style of teaching and engagement. Participants enjoyed the ability to watch the archives at one's convenience and revisit the material. Student 16 commented, "This was the most efficient, effective learning I have ever experienced." When asked if we should continue to teach through the Collaborate platform, every participant indicated "yes."

Flexibility/Convenience

The majority of participants expressed appreciation for the flexibility and convenience of this format of content delivery. When asked, "what did you like?," Student 14 indicated, "flexibility, comfort and convenience of being home." Student 4 responded, "convenience of being at home or anywhere and it was accessible." Student 11 replied, "just being able to attend school in the comfort of my home is priceless." Participants discussed pleasure in being able to attend class in one's pajamas, not having to drive in the campus and deal with parking, and completing coursework day or night. The ability to watch the archive, instead of mandatory synchronous participation, was highly valued.

Interaction

The high level of interaction resulting from the delivery through Collaborate was appreciated. Student 9 responded, "it was a great experience, very interactive beats sitting in class and never a chance to communicate with your peers." Student 5 noted, "it was different but very interactive." Student 14 noted, "It was very good. There was much more interaction than I thought there would be." Student 11 noted, "It felt like we all knew each other and our professor well." Student 6 expressed, "It was an excellent platform for learning … the professor was awesome … she made the class so interesting compelling student participation always." The virtual classroom was described to be "more interactive and learner-centered than a traditional classroom (i.e. lecture)."

Comparable or Better Than Face-to-Face

Participants expressed that online learning using Collaborate made learning comparable or better than face-to-face methods. Student 4 responded, "the use of Collaborate wasn't much different than being in the actual classroom at times." Student 1 responded, "I liked it very much; not really different than traditional classes." Student 6 proposed, "it was identical if not better than face to face." Student 15 indicated, "I like the platform. Not sure if I will adapt to traditional setting again." Student 9 mentioned, "I actually liked the Collaborate

better than face to face. It has more advantages than traditional." Student 3 indicated, "This form of teaching is great, face to face is overrated at times especially at this level."

Technological Problems

Participants indicated they experienced technical problems at times. Student 12 indicated, "Collaborate was easy to use … the only problem was sound, but we were ok after a few classes." Technical difficulties experienced included, "glitches and sound," connectivity, and "at the beginning it was hard to get in." One participant suggested the School "provide laptops with the headgear that has all the software components to decrease technical difficulties." Student 14 noted, "I only had a couple instances when I had to log out and log back in." Student 5 expressed having "technological anxiety for a first timer." One participant expressed a disadvantage as a slow typist.

DISCUSSION

Limitations

This study had limitations. Although an innovative and convenient way to gather data, the use of Collaborate to administer the focus groups may have served as a disadvantage to poor typists or those who prefer to express themselves verbally. On the other hand, this format of delivery was advantageous because it maintained anonymity and provided participants comfort in expressing themselves freely and anonymously. Similar to focus groups performed in physical environments, the students appeared to respond and build off of each other's comments.

Demographic data were not gathered, limiting transferability. Furthermore, the faculty member who taught the courses with Collaborate served in analyzing the qualitative data. To minimize bias, a doctoral student performed an independent analysis and formulated very similar categories with the faculty member. One strength of the study was that a third party research assistant performed the focus groups. Because the study was performed qualitatively, the findings cannot be generalized. Furthermore, it is plausible that students in disciplines outside of nursing or using different forms of videoconferencing may have different experiences.

Comparison to Previous Research

The findings of this study are similar to Stewart et al.'s (2011) research. They suggested videoconferencing was found to encourage interaction and have a feeling of face-to-face engagement without their physical attendance. Similar to this study, Allen and Seaman (2013) suggested that learning outcomes in online education were perceived as the same or superior to those in face to face. However, in Allen and Seaman's study, academic leaders rather than students were asked about their perceptions. As in several prior studies, participants indicated technological difficulties and perceptions that videoconferencing reflects many aspects of traditional learning environments (Black, 2010; Chipps; 2010; Hampel & Stickler; 2012). This study supported the research of Aydin (2012), suggesting that the majority of learners have a positive affect with learning in videoconferenced-based courses. Conflicting studies were not located.

Practice and Research Implications

This study has implications for practice and research. Participants expressed enjoyment, appreciation of the flexibility and convenience, and being impressed with the level of interaction resulting from the videoconferencing sessions. Based on the high satisfaction reported from participants, educators may benefit from offering interactive videoconferencing to supplement online course administration. Given the participant population of master's level nursing students, it is possible that many were working nurses, and

this status may have positively contributed to their level of appreciation for flexibility and convenience compared to baccalaureate level students. Participants expressed that the courses were comparable or better than traditional methods. Faculty and administrators may consider moving traditional programs to an online format when possible. Comparative research is warranted to investigate which type of instruction—online with videoconferencing or traditional lecture—leads to better student learning outcomes and student retention. Many administrators fear student attrition if students do not possess an inherent level of independence or autonomy (Allen & Seaman, 2013); however, scheduled videoconferencing sessions may provide structure and instant feedback to modify this former conception and assumption about qualities of successful online learners.

A cost-benefit analysis is recommended to investigate workload and cost of online programs using videoconferencing versus traditional methods. Considering the national nurse faculty shortage, comparative study regarding faculty satisfaction with videoconferencing, face-to-face and asynchronous administration is warranted. Professional organizations may consider collecting data on the number of schools using synchronous versus asynchronous formats to determine trends. Furthermore, research is suggested to evaluate the use of synchronous versus asynchronous formats in relation to student satisfaction and learning outcomes in nursing. Leveled, discipline-specific, multisite studies are recommended.

Facing technological glitches is expected when encountering any new technology. The data regarding the students' experience suggested that students proactively receive assistance from information technology services provided at the institution to anticipate and prevent technical issues. It may be beneficial to have all students complete a checklist of software and compatibility prior to beginning the program. Faculty must keep in mind that online students may not live near campus and have planned alternate resources and recommendations. Of note, many of the students who mentioned having technical difficulties also verbalized that the difficulties were minor or overcome after a few sessions. It is possible that with the combination of technological improvements and increased technological savvy of upcoming generations, these issues may decrease.

CONCLUSION

This study served to provide current information regarding nurse education certificate students' experience with interactive, synchronous videoconferencing. The data suggested the students felt enjoyment, appreciated the flexibility and convenience, appreciated the interaction, found the format comparable if not better than face-to-face delivery, and experienced minor technological difficulties. This study supported the use of videoconferencing to teach concepts of education to master's level nursing students.

Trends demonstrate a movement toward online teaching and learning (Allen & Seaman, 2013). Despite the number of private and public institutions using videoconferencing to teach courses in nursing, little research is available on how to best utilize these platforms to maximize desired learning outcomes. Implementing innovation is valued, yet more research is needed to support decision making in higher education regarding best practices of teaching online.

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