

Enhancing student success in health care programs: active learning in a hybrid format

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ABSTRACT

Usage of active learning strategies allows students to learn concepts taught in classroom settings, think critically about those concepts in the context of daily life, and then apply those concepts to real-world situations. Recently, many academic institutions have started incorporating hybrid/blended classes into their programs to maximize efficiency and improve students' performance in classes. The purpose of this study was to explore the attitudes and perceptions of undergraduate health care students toward usage of active learning strategies in a hybrid/blended environment. Additionally, efforts were made to identify active learning strategies that could be used effectively in classes offered in a hybrid/blended format. This research utilized Yin's case-study approach and multiple sources of data, such as documents, archival records, and quantitative surveys, to enhance understanding of "phenomenon" and credibility of collected information. Results indicated that students were receptive toward usage of active learning strategies in a hybrid environment. Several strategies that facilitate learning and student engagement in a hybrid class format were also identified. Incorporation of active learning strategies in curricula may help instructors design content that enhances critical thinking and problem-solving skills.

Keywords: Active learning, blended, hybrid, case study

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INTRODUCTION

With an increased focus on cognitive development and student engagement, usage of active learning strategies enables students to think critically about concepts presented to them during class sessions (Russell, Comello, & Lee Wright, 2007). Research suggests that an instructor-centered environment promotes “dependent learning” (Schaefer & Zygmunt, 2003, p. 238) and can create an atmosphere where students are passive receivers of information and have fewer choices (Alzube, 2013; Nagaraju, Madhavaiah, & Peter, 2013; Schaefer & Zygmunt, 2003; Zohrabi, Torabi, & Baybourdiani, 2012). This traditional approach may lead to “superficial learning” (Armbruster, Patel, Johnson, & Weiss, 2009, p. 203) and fails to engage students in class activities and exercises (Bonwell & Eison, 1991; Lumpkin & Achen, 2015). It is noteworthy that health care classes are primarily offered in a traditional format, where instructors provide the required information to students with the expectation that students will be able to recall all the information when needed (Griffiths, & Ursik, 2004).

It is important to create an atmosphere of learning where students are more actively involved in class activities (University of Washington Bothell, n. d.), rather than sitting quietly and listening to the instructor for the duration of the class (Griffiths & Ursik, 2004). The incorporation of active learning strategies allows instructors to evaluate students’ understanding of the concepts presented in class and then make remediation, if necessary, while these concepts are taught during a class session (Van Amburgh, Devlin, Kirwin, & Qualters, 2007). The active learning approach, when employed in the classroom environment, helps instructors engage with students on a more real-time basis, encourages discussion of key concepts, and then answers students’ questions, as needed (Reddan, McNally, & Chipperfield, 2016). Rather than focusing on rote memorization of facts and usage of one single strategy, the active learning approach involves usage of a variety of methods aimed at enhancing students’ understanding of the material presented to them (Gleason et al., 2011). The active learning environment in the classroom helps students improve their thinking skills and connect classroom concepts to real-world problems (Van Amburgh, Devlin, Kirwin, & Qualters, 2007).

Adoption of Technology and the Hybrid Model of Instruction

Growth in use of learning management systems (Coates, James, & Baldwin, 2005) and the increased adoption of technology at university settings has changed the landscape of higher education (Lloyd-Smith, 2010). With the advancement of learning management systems, many universities across the United States and globally are incorporating innovative methods into their education programs to maximize efficiency and enhance student learning (Coates, James, & Baldwin, 2005). Educators have started exploring innovative course delivery methods and are including online content in their classes to meet the learning needs of students (McFarlin, 2008; Prunuske, Batzli, Howell, & Miller, 2012; Vatovec, & Balser, 2009). By combining both the face-to-face approach and distance model of course delivery, blended/hybrid learning enhances students’ learning and participation, which, in turn, results in improved performance in class (Amaral & Shank, 2010; Nguyen, 2015). It has also been suggested that the hybrid method of learning leads to better exam scores (Nguyen, 2015; Riffell, & Sibley, 2005), increases engagement with learning material (Nguyen, 2015; Riffell, & Sibley, 2005), and builds a sense of community and collegiality among students (Rovai, & Jordan, 2004). The University of Washington Bothell (n.d.) reported a survey of nursing students who took hybrid classes during

winter 2011. The majority of participants (81%) indicated they would be interested in taking additional hybrid classes. Factors that contributed to the success of the hybrid model of delivery included but were not limited to more opportunities to “interact” with course content, better interaction between fellow students, the ability to work on flexible schedules and multiple methods of communication in the class. It has also been suggested that usage of a hybrid model may help instructors assess student understanding of important topics (Prunuske, Batzli, Howell, & Miller, 2012). This may help instructors as they plan for student in-class activities and tasks.

As suggested above, hybrid classes provide an increased exposure to learning material, content, and opportunities for interaction (Prunuske, Batzli, Howell, & Miller, 2012), which may not be possible when classes are offered in a face-to-face traditional classroom format. Inclusion of active learning strategies in hybrid classes may help students learn new concepts and retain information presented to them during class (Amaral & Shank, 2010; Nguyen, 2015). This study presents a case of a hybrid undergraduate class, where a variety of learning strategies were used to create a positive learning experience for students. Data was collected to examine students’ perceptions and attitudes toward the usage of active learning strategies in a hybrid environment. In addition, efforts were made to identify strategies that help students stay engaged when classes are offered in a hybrid format.

For purposes of this research, the active learning approach refers to strategies that help students think about the application of concepts while they are being discussed in the classroom. These strategies help students to think critically about concepts, apply these concepts to real-world problems, and then ask questions to clarify problems, if required. Instructors have the opportunity to assess students’ understanding and make remediation, as needed (Reddan, McNally, & Chipperfield, 2016). Active learning strategies for this case (class) included team work/projects; interactive group discussions; case studies and videos; a real-world case scenario exercise; and research activities required for presentation, assignments, and discussions.

The hybrid model of instruction was defined as a methodology that incorporates both on-campus meetings and online activities via an electronic learning management system (Minnesota State University, n.d.).

MATERIALS AND METHODS

Case Description

This active learning methodology was used in an undergraduate health care class in which 24 students were enrolled. This class was developed and taught in a hybrid format during the fall 2015 semester. Class sessions were held every other week for 2.5 hours between 5:30 - 8:00 p.m. to accommodate working students. Desire to Learn (D2L) Bright Space was used as a learning management system. The class was divided into six smaller groups of students who worked together on a variety of projects. These projects included case study discussions, online discussions, and an end-of-semester group project. Students were also required to complete assignments available to them electronically via D2L Bright Space. The course syllabus and a tentative course calendar was provided to students on the first day of class. These documents were also made available to students online via D2L. Class notes, PowerPoint presentations, and peer-reviewed articles (according to the topics discussed) were available on D2L at least two weeks prior to class meetings.

Design and Reliability Measures

The methodology employed for this research was the single case-study design. For purposes of this research, data was collected through a review of documentation, archival records, and a student survey. Reliability and validation were two important considerations for the research methods and needed to be addressed (Baxter & Jack, 2008; Yin, 2009). For this research, these considerations were addressed by usage of multiple sources of evidence, establishing a chain of evidence, maintaining a case study data base, and developing a research protocol prior to data collection. These methods were integrated at different phases of the research, such as research design, data collection, and data analysis.

Documents and Archival Records

Documents and archival records served as an important source of information in this case study research (Baxter & Jack, 2008; Yin, 2009). These sources served as a stable source of information and could be reviewed multiple times during the process (Yin, 2009). It is also important to note that these documents and records were already in existence and were not created as a part of the data collection procedure (Yin, 2009). Documents included the course syllabus, course calendar, assignments used, and news items available to students via the D2L course website. Archival records included manuscripts/articles used in class; files available for public use, such as health care data available from state agencies and local bodies; records showing the number and types of patients served (for case studies and discussions); and the organizational records (budget, human resources) used for class discussion.

Survey Instrument

The survey was administered via Qualtrics to obtain the students' feedback on usage of active learning strategies in the class. The survey was comprised of two components:

- (a) The adapted didactic teaching section of Active Learning in Health Profession Scale (ALPHS). There are 6 items in the didactic teaching section of ALPHS. These items include questions about finding information required to answer questions, the expectation to identify connections between concepts taught in other classes, problem-solving sessions in smaller teams, usage of interactive methods for teaching, and establishing connection/links between current information and students' prior information (Kammer, Schreiner, Kim, & Denial, 2015). Permission to use this scale was sought and received prior to data collection.
- (b) The Active Learning component included questions that collected students' feedback on usage of specific strategies, such as usage of videos; peer-reviewed literature; teamwork; use of D2L brightspace; online course components; informal group discussions; the opportunity to seek feedback and ask questions, as needed; icebreaker sessions; case studies; collaborative activities during class sessions; and preparation and presentation of the final assignment.

Survey Participants

Data was collected from students who completed an undergraduate health care administration class offered in hybrid format. The consecutive sampling approach, where all the participants who met selection criteria are selected, was used to recruit participants in the study. This helped with reaching out to all participants who met the selection criteria and who were interested in participating in the study. Approval from the faculty research and development committee and the institutional research board at the university was sought and received prior to starting the study. Participation in this survey was voluntary and anonymous for the participant.

Survey Administration

Invitation emails with a link to the survey were sent to potential participants who were eligible to partake in the study. These emails summarized the necessary information about that addressed the purpose of the project, research procedures, potential risks and benefits, and measures adopted to ensure privacy of the research participants. Additionally, information about participation and the duration of the study was also included in the email communication. The survey was open for 3 weeks and reminder emails were sent out weekly.

RESULTS

Review of the Syllabus and Course Calendar

The course syllabus and a detailed course calendar were provided on the first day of the semester. The syllabus included information about the purpose of the course, a description of the assignments, grading criteria, an honesty policy, an attendance policy, and the university's procedures for disability accommodations. A detailed course calendar included information about timelines for quizzes, discussion posts, projects, and assignments for class. Additionally, dates for on-campus meetings were included and highlighted, so that students could make arrangements to attend classes in a timely fashion.

Review of the Communication Strategies Used in Class

Communication via News Item and Emails. News tool in D2L was used to provide updates and reminders of the assignments, information about guest speakers, and other necessary information students would need. This tool allowed the instructor to post important notices on the course webpage. The students were encouraged to review these items regularly. The email tool in D2L was also frequently used to communicate with the students who were registered for the course.

Communication via Frequently-Asked-Questions. The instructor included a "Frequently-Asked-Questions" section on the course D2L webpage, which allowed students to post questions and seek clarification prior to in-class meetings.

A Review of the Teams and Group Work

A review of documents and the class website revealed that students were required to complete online introduction posts during the first week of class. The instructor provided an outline for the introduction in order to glean information about the students' background and their strengths and interests. The information from the student-introduction posts was used to create teams for group assignments. Efforts were made to put individuals with different strengths into one group, with an assumption that students would learn from each other and work together to deliver the final product. Each group consisted of four members. The students were required to use the "Who-What-When" list to divide up tasks and keep track of the progress of different group assignments. Team members were also required to submit this list with each assignment. The students were also encouraged to use Google Docs, so that they could collaborate on written assignments electronically. A detailed rubric for grading was provided with every assignment, and the faculty made efforts to meet with each group individually to answer their questions and concerns. Team members were also expected to perform peer evaluations at end of each group assignment.

Strategies Used in Class

Major strategies used in the class are described below –

- ❖ Case studies and videos – Short case studies and videos of varying complexity were presented to the students in order to enhance their understanding of the material. Informal group discussions and an opportunity to ask questions during case study discussions helped the students think about real-world problems in depth.
- ❖ Teamwork and small group assignments – The students were assigned to a team, and they worked on several assignments together throughout the semester. This helped to promote interaction, positive interdependence, and leadership skills in team members.
- ❖ Real-world case scenarios and presentation – Real-world case scenarios were assigned to each student group, where they worked on solving problems presented to them in these case scenarios. This assignment exposed the students to a variety of problems faced by health care organizations, such as high turnover in skilled nursing facilities; clinical and administrative quality-improvement issues; diversity-related issues in the health care environment; and problems in health care organizations, because of a lack of strategic planning initiatives. Student teams were expected to perform an in-depth analysis of these scenarios and identify solutions that could help to improve the operations and practices of these organizations. Faculty expected and encouraged the students to conduct research, use best practices, search peer-reviewed literature, and integrate concepts presented to them in other classes. The students presented their analysis at the end of the semester. They used a variety of sources (peer-reviewed articles, government websites) as they worked on finding relevant information about their project.
- ❖ Inclusion of peer-reviewed literature and best practices – Peer-reviewed articles, hospital case reports, reports from health care organizations, and relevant web resources were posted on D2L at least two weeks prior to classroom discussion. The students were expected to review the material prior to their on-campus class meetings.

- ❖ Discussions – Students were required to participate in online discussions each week. They needed to include at least two peer-reviewed articles or relevant sources in their original format and provide a response post to their colleagues. They were also required to integrate concepts from other classes into their discussion posts.

SURVEY RESULTS

Demographics

The survey was sent out to 24 students, with a total of 12 participants participating in this study (50%). Of those who responded, 67% were females; 75% were Caucasian/white, and the majority of participants were between the ages of 25-34 years (42%) and 18-24 years (33%). Eighty-three percent of respondents were in the final year of their undergraduate programs. Fifty percent of respondents worked in health organizations, while half (50%) of participants worked for 30 or more hours per week.

Results of Active Learning on the Health Professions Scale

As evidenced by the data in Table 1 (Appendix), the majority of respondents agreed with the statements provided. Most students (80%) agreed that they were expected to search for and find relevant information to answer questions or solve problems. Ninety percent of the respondents indicated that they were expected to think about how the information or concepts are connected to each other. The majority of students (90%) agreed that they were expected to integrate learning from several courses to solve problems. Approximately 90% of the participants suggested that small groups were used to promote problem-solving. Out of the 10 participants who responded to the question on interactive methods, 50% indicated that interactive methods were “almost always” used while lecturing to stimulate discussion about information and concepts. Approximately 40% of the respondents indicated that “most of the time” interactive methods were used while lecturing. Of the 10 students who answered the question on activities during class, 50% suggested that activities were “almost always” included to promote a connection of information to students’ prior knowledge. Three students (30%) indicated that such activities were included in the classroom “most of the time,” while two students (20%) felt that the instructor “often” included these activities.

Results of the Active Learning Survey

The students were very receptive to learning methodologies utilized by faculty in the hybrid class, as indicated by their responses to a survey developed to examine student perception toward usage of active learning strategies in class (Table 2). The majority of participants agreed that the use of videos stimulated meaningful dialogue during on-campus and online class sessions. Of those responding, two students (20%) agreed “most of the time” and four students (40%) agreed “sometimes” that videos helped to stimulate meaningful discussions during online and on-campus class sessions. Nine students responded to the question that stated whether inclusion of peer-reviewed literature and sources in class helped provide an understanding of current practices in health care organizations. The majority of students (66.6%) responded in favor of inclusion of peer-reviewed literature and sources. Most students (80%) indicated that

working in teams and the instructor's feedback contributed to their learning experience. Students reported having a positive attitude toward the usage of D2L Bright Space and online quizzes, with all means above the midpoint. Informal group discussions, frequent question-and-answer sessions during on-campus and online sessions, opportunities to ask questions, and ice-breaker sessions all contributed positively to student learning experiences. All participants (100%) felt the inclusion of case studies helped them to better understand real-world health care problems and identify solutions that may work in health care settings. Student responses to all the items relating to opportunities for meaningful discussion, collaboration, and teamwork were positive. Additionally, students' responses indicated that they valued the inclusion of a final assignment and group presentation in the class.

DISCUSSION

This research intended to examine the perceptions and attitudes of undergraduate health care students toward the usage of active learning strategies in a hybrid environment. Efforts were also made to identify strategies that encouraged learning and help keep students engaged when classes were taught in a hybrid format. Prior research indicates that active learning strategies help to create a positive learning environment when classes are offered in the hybrid format (Skiba, 2006). The results of this study also support the inclusion of active learning strategies in a hybrid format, as it helps students understand classroom concepts in the context of real-world situations. The inclusion of interactive methods, efforts to establish a connection between concepts learned in other classes, use of smaller group activities, and making sure that students understand that faculty expect them to search and find relevant information to answer questions or solve problems, was received positively by the students. Previous studies have demonstrated that, by engaging students outside the class room through online course components, instructors can effectively use class time for open-ended problems, discussions, and other important assignments (Iglu & Jahren, 2014; Prunuske, Batzli, Howell, & Miller, 2012). These reports are consistent with the findings of the current study, which indicate that effective integration of online course content facilitates the learning process. Because health care classes are offered via a traditional teaching approach (Griffith & Ursick, 2004), this research helps to build a stronger case for the inclusion of innovative teaching methods when classes are offered both online and via hybrid courses in health care programs.

This study was limited by its small sample size, as many students did not participate in the survey. Furthermore, it primarily focused on the teaching strategies used in one course, which dealt with content related to health care management. Efforts should be made to include such strategies in other hybrid educational programs related to health care, so that more students can benefit from this approach.

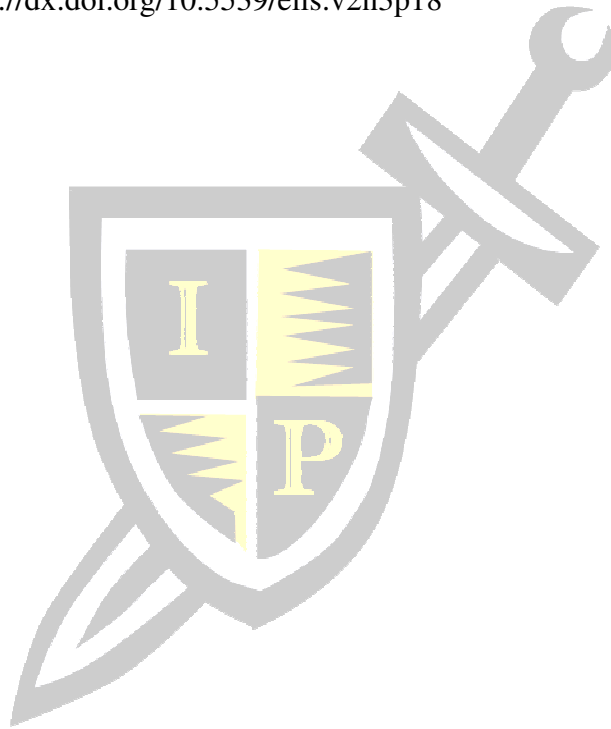
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APPENDIX

Table 1: Results of Adapted Active Learning in Health Professions Scale

Item	Mean	Standard Deviation
Students were expected to search for and find relevant information to answer questions or solve problems.	5.20	1.03
Students were expected to think about how information or concepts are connected to each other.	5.60	0.70
Students were expected to integrate learning from several courses to solve problems.	5.20	1.14
Small groups were used to promote problem solving.	5.20	1.03
Interactive methods were used while lecturing to stimulate discussion about information and concepts.	5.00	1.15
Activities were used to promote the connection of information to students' prior knowledge.	5.30	0.82

Table 2: Results of the Active Learning Survey

Item	Mean	Standard Deviation
Usage of videos stimulated meaningful dialog during on-campus and online class sessions.	4.20	1.55
Inclusion of peer-reviewed literature and sources in class helped in the understanding of current practices in health care organizations.	4.11	1.54
Working in teams and quick feedback from the instructor helped with the evaluation of concepts learned in the class.	5.40	1.58
Usage of D2L Bright space contributed to overall learning in the course.	5.40	0.84
Online quizzes and exams contributed to overall learning in the course.	5.40	0.97
Informal group discussions helped with understanding concepts presented during class.	5.10	1.29
The instructor frequently posed questions to test students' understanding of material presented in class.	5.10	1.29
Students were encouraged to pose questions when confused or unclear about a topic under discussion.	5.90	0.32
Icebreaker sessions at the beginning of the class or when a new topic was introduced enhanced student participation in class.	4.90	1.10
Usage of case studies in class helped students to understand real-world health care problems.	5.70	0.48
Usage of case studies in class helped students identify solutions that may work in health care settings.	5.60	0.52
Appropriate opportunities (online and on-campus) were provided to students so they could engage in meaningful discussions.	4.70	1.25

Appropriate opportunities for collaboration and teamwork were provided during class sessions.	5.00	1.15
Group preparation and presentation of the final assignment helped students apply key concepts learned in class.	5.10	1.20

