

Implementing Collaborative Project and E-Portfolio in an Online Graduate Course: A Case Study



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ABSTRACT: The ability to work in teams is an imperative competency in today's complex healthcare delivery system. Collaborative learning allows students to cultivate teamwork, communication, critical thinking, and problem-solving skills. Collaborative learning activity is an essential pedagogical approach to prepare students to meet the need of the healthcare workforce. This paper presents a research study in which a collaborative project was implemented in a redesigned healthcare administration course in an online graduate program. The objectives of this study were to evaluate the effectiveness of this revised course and uncover solutions to improve the implementation of the collaborative project and the usefulness of this course. Students' perceptions of completing a collaborative project and other learning activities such as ePortfolio were explored. Even though some students enjoyed collaborating with their teammates, other students did not like the collaborative project. The barriers to a successful collaborative project discovered in this study were also revealed in prior empirical studies. Limitations of this research were also presented. The recommendation was proposed for better integration of collaborative projects into the curricula of a program.

KEYWORDS: Collaborative Learning, Course Redesign, High-Impact Practices, Online Education, Team-based Learning

I. INTRODUCTION

Clinical care has become more complex and specialized in the U.S. healthcare delivery system. It demands that healthcare practitioners undertake complicated health services and learn new care models and methods. No longer is one specific health professional responsible for the patient's health outcomes. A healthcare team consists of multidisciplinary professionals such as doctors, nurses, and other health professionals from a variety of specialties who work together, communicate often, and share resources (Walston & Johnson, 2022). Each professional in the team has specialized knowledge and is responsible for a different task. All care team members work together to coordinate a patient's well-being. High-quality care necessitates careful coordination and collaboration that involves interactions with several healthcare professionals in various clinical settings. Researchers have found that team-based care can reduce medical errors and increase the safety, efficiency, and quality of healthcare (Rosen et al., 2018). Leveraging the unique skillset and perspective that each team member possesses enables the entire care team to meet patients' needs and advance the health of populations (Walston & Johnson, 2022). Team training is a critical part of healthcare management education. Learning the fundamentals of teamwork, collaborative care, and effective communication within healthcare management curricula helps students be better prepared for real-world situations.

This paper will examine the implementation of a collaborative project in an online graduate program in healthcare administration. The arrangement of this paper is as follows. The introduction highlights the importance of teamwork activities in the curriculum of healthcare management education. This paper will also review the literature regarding high-impact practices such as collaborative projects and ePortfolios. The third section will describe research methods, including the study design, setting and sample, data collection, and data analysis. The results and discussions will be presented in the fourth section, followed by a section discussing three limitations of this research study and future research. The sixth and final section will discourse the best practices and solutions derived from the literature review and the authors' experience implementing collaborative projects.

II. LITERATURE REVIEW

Evolving technology has provided opportunities for distance education to engage students using different methods. New ideas and opportunities are constantly tested for the effectiveness of pedagogic approaches in the online learning environment. Based on the findings from empirical research regarding student learning experiences, the Association of American Colleges and Universities lists 11 high-impact educational practices (HIPs), and the collaborative project and e-portfolio are two of the HIPs (Kuh, 2008; Robertson & Riggs, 2018). HIPs positively affect educational outcomes and correlate with increased retention, student

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engagement, and persistence to graduation (Kuh, 2008). Many higher education institutions have integrated evidence-based, high-impact educational practices into course curricula to strengthen student engagement and success.

A. Collective Learning

Collaborative learning is a learning approach in which students in a team interact on the similar or dissimilar attributes of a shared task to achieve learning goals (Azar et al., 2021; Dewi et al., 2021). In this learning model, students have their assigned roles, are more comfortable generating ideas, share their knowledge, and solve problems with their team members (Warsah et al., 2021). According to McHugh et al. (2020), as educators consider the use of “collaborative classrooms,” it is essential to recognize that these physical rooms alone are usually insufficient to achieve improved collaborative learning behaviors. One thing to consider is providing a consensus on what collaboration means in an online environment. Some of the suggestions by McHugh et al. include developing group-based learning events, having student groups work on the same material simultaneously, avoiding unintended opportunities for learners to work collaboratively and delegate, considering group size, promoting learner engagement through cognitive control, and assigning rotating roles. These ideas support an online learning community and allow students to build relationships with their peers and faculty members.

Notably, the perception of collaboration in an online environment is changing as this method of learning has become more accepted and respected. In a study conducted at a Malaysian university, Azar et al. (2021) investigated students’ and instructors’ perceptions of collaborative learning. The findings showed that although some students did not like collaborative learning, the majority of 160 undergraduate students enjoyed collaborative projects and expressed a positive perception towards collaborative learning because of the benefits of this learning model. On the other hand, the surveyed instructors were on one accord saying that collaborative learning facilitates students’ learning because they employ social skills and interactions during the learning process (Azar et al., 2021). In the collective learning model, students support each other in the learning process and rely on each other to acquire new knowledge, solve a problem, complete a task, or create a product (Busch et al., 2021). If any team members are behind in their studies, they could perform better eventually because of collaborative learning (Warsah et al., 2021). Thus, students do not feel isolated in online classrooms, and learning in a team is more meaningful and interesting (Azar et al., 2021). Once appropriately implemented, collaborative learning is an effective teaching and learning strategy to cultivate students for 21st-century skills such as analytics, communication, critical thinking, leadership, and problem-solving (Han & Ellis, 2021; Warsah et al., 2021).

B. Challenges in Implementing Collaborative Projects

When learning teams are assigned and created, team members need help figuring out what to start and what to do. According to Roberts and Riggs (2018), collaborative activities in an asynchronous online environment have their challenges; however, they also have enormous potentials to support and develop all students. Based on their research and teaching experience, Han and Ellis (2021) summed up three main challenges concerning collaborative learning. The first category of challenges is the setting of collaboration, for example, team size and composition (Han & Ellis, 2021; Sidorenkov et al., 2018). Examples of the second category of challenges are the nature of activities, the structure of activities, and the availability of scaffolding (Falcione et al., 2019; Han & Ellis, 2021; Tan et al., 2016). Student factors are the third category of challenges, including students’ attitudes, emotions, self-efficacy, self-regulation, and metacognition (Han & Ellis, 2021; Favor & Kulp, 2015). Among all challenges, student factors might be the leading impediment to the success of collaborative learning. Without all team members’ commitment to collaborative learning, the failure of learning could develop from ineffective communication, different discernments of quality work, the unequal contribution of efforts among team members, and the reluctance to accommodating multiple individuals’ schedules (Busch et al., 2021; Butt, 2017). Additionally, some students voice anxiety and frustration because they work with teammates with different mindsets and goals or are less engaged in team-based activities (Busch et al., 2021; Favor & Kulp, 2015; Kima & Lim, 2018).

Especially in the online learning environment, students are adult learners who reside in different time zones and have different working schedules, which poses additional challenges and leads to increased complexity in communication, collaboration, and setting deadlines for the team project (Brannen et al., 2021; Favor & Kulp, 2015; Robertson & Riggs, 2018). Likewise, some students do not favor teamwork because of the negative experiences of working with other students who might face a family emergency or unexpected job demands, which could delay their team progress and, eventually, affect the team grades (Azar et al., 2021; Busch et al. 2021). Furthermore, online learning requires students to be more self-disciplined, which is a critical skill in collaboration, but only some individuals naturally have it (Brannen et al., 2021; Favor & Kulp, 2015). Thus, Brannen et al. (2021) suggested using Group Work Contracts to facilitate collaborative learning in which the distribution of work and a timeline for completing the tasks are articulated. Group Work Contracts have been shown to improve clarification of appropriate behavior expectations and collaboration, promote students’ positive attitudes toward their group, and increase individual engagement and participation in a group activity (Brannen et al., 2021; Zhang et al., 2018).

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C. e-Portfolios

In addition to collaborative group assignments, some online programs are integrating ePortfolios into their programs. Research demonstrates the positive role of ePortfolios in first-year experiences, internships, service-learning, and capstone courses as high-impact practices (Sparrow & Török, 2018). ePortfolios allow students to track, witness, and showcase their entire tangible artifacts to provide examples of learning during the program reviews process, which qualifies ePortfolios to be a high impact practice. For accredited programs, the use of ePortfolios also support program outcomes in the distance education programs.

The online environment is fluid and evolving faster than the traditional classroom setting. To keep students engaged and increase retention rates, collaborative assignments and ePortfolio creations will help strengthen the student learning experience and meet the objectives for student learning. Specifically, in the healthcare related discipline, collaborative approaches foster collaboration and communication in healthcare interdisciplinary teams. Research on collaborative projects should be monitored to promote effective learning in healthcare administration programs. Skills can be developed during the collaborative learning processes to strengthen future healthcare leaders' interdisciplinary approaches.

D. Research Questions

Although collaborative learning has been implemented in various online undergraduate and graduate-level courses, no research has been done in an online healthcare administration graduate program (MHA). The following questions were raised to investigate the students' learning and satisfaction in a revised MHA course that has HIPs such as collaborative learning and ePortfolio:

- (1) How satisfied were the students with their experience in this revised MHA course?
- (2) What improvements are needed for implementing the collaborative project?

III. RESEARCH METHODS

A. Study Design

This study was conducted at a nonprofit university in the southwestern United States. A mixed-method approach was used to answer two research questions. This study utilized multiple data sources to investigate the effectiveness and impact of the collaborative project and the student's learning outcomes in this revised course. The data sources were composed of: (a) student and instructor surveys, (b) qualitative analyses in the discussion boards, and (c) evaluation of the artifacts such as journey assignment in the classrooms. Since this study constructed both quantitative and qualitative data, the researchers attempted to triangulate results between two different data sources.

B. Sample and Setting

The study population comprised adult learners who enrolled in the continuous quality improvement and risk management course of the master's program in healthcare administration. The master's program in healthcare administration offers online 6-week courses specifically designed for busy working professionals. The instructors who had taught this course were also included in the study population. The Institutional Review Board approved this study at the university. All data were anonymized and kept confidential, in compliance with the ethical guidelines of the Declaration of Helsinki, the National Commission for the Protection of Human Participants of Biomedical and Behavioral Researcher's Ethical Principles, and Guidelines for the Protection of Human Participants of Research: The Belmont Report.

C. Data Collection

Data were collected from all studied classes offered one year after the revised course was implemented. The student survey was sent out via email in the last week of the course. Within one week of the course ending, a follow-up email was sent out to encourage those students who had yet to participate in the survey to share their experiences about this study course. The instructors received the instructor survey within one week of the course ending.

The 5-point Likert scale student and instructor surveys contained a combination of open- and close-ended questions and were administered via Qualtrics®. The surveys were designed to gather the instructors' teaching experiences as well as students' learning experiences and opinions about the redesigned course. Both instructors' and students' participations were voluntary, and they had the right to withdraw their consent or discontinue participation at any time with no penalty. To address the privacy concern, two in-house surveys were anonymously managed for those who wished to participate in helping the MHA program improve the curriculum.

IV. RESULTS AND DISCUSSIONS

The results of this research are presented in this section to answer two research questions related to students' experiences and perceptions. The study population included 201 students, of which 40 completed the survey. This resulted in a 20% response rate. All seven instructors who taught this course responded to the survey.

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A. Research Question One

The first research question was to ascertain the students' perceptions of various components in this revised course. Table 1. displays the student survey results expressed by the percentage of students who either agreed or strongly agreed with the survey item.

Table 1. Student survey results expressed in percentage

<i>Survey Item</i>	<i>N</i>	<i>% of Agree + Strongly Agree</i>
Discussion Boards prepared me to deal with critical quality and patient safety issues in health care.	40	80.0
The Institute for Healthcare Improvement (IHI) Certificates enhanced my knowledge gained in MHA624.	40	82.5
e-Portfolio helped me start organizing the evidence of my accomplishments.	40	60.0
The Collaborative Project helped me learn to work with peers who have different backgrounds and experiences to solve the problems in a health care organization.	40	55.0
The Quality Improvement Initiative PP Presentation Peer Review helped me polish my skill in providing feedback and receive valuable comments from the instructor and peers.	40	72.5
Collaborate Project Journal helped me reflect upon my personal learning and growth in MHA624.	40	65.0
This course further stimulated my interest in a healthcare career.	39	74.4
This course increased my knowledge of the healthcare industry.	39	87.2
The instructions for learning activities were clear.	39	69.2

The survey item, 'this course increased my knowledge in healthcare' received the highest score. About 87% of surveyed students agreed or strongly agreed with this statement. Although most of our students are mid-aged frontline healthcare professionals, they learned a lot from this course because the material is full of practical knowledge. One student commented "*This course went more in-depth about QI and associated topics than I had.*" Similarly, another student stated, "*I knew a lot beforehand but it enhanced my knowledge.*"

Earning four certificates from IHI received the second highest score at 82.5%. Students voiced positively about the value of getting the certificates. The IHI certificates not only helped students learn better in this course but also prepared them for dealing with real-world issues. Here are some examples of students' feedback. "*These certifications provided real-world examples for the material we were learning which will be extremely beneficial in the workforce and in the classroom.*" "*The IHI certificates were worth the time and knowledge needed for the course.*" "*I enjoyed the IHI certificates. I thought they were a good enhancement to the course.*" "*Yes, it was a great tool and very excited to list these certificates on my resume.*"

The top third ranking is related to discussion boards. About 80% of surveyed students either agreed or strongly agreed that the discussion board prepared them to deal with critical quality and patient safety issues in health care. "*The discussion boards required critical thinking which would need to be utilized in critical quality and patient safety issues in healthcare.*" "*Discussion boards were an effective way to express what I learned from required and recommended readings. They also gave necessary examples of real-world situations to apply what I learned from the text.*" "*Understanding the basics and then learning different perspectives from others helped in preparing with potential issues.*" "*The Discussion Boards helped me learn a lot about the issues and how to go about improving them if in a position to do so.*"

Among all survey items, the collaborative project obtained the lowest score. Only 55% of surveyed students felt that the collaborative project helped them learn to work with peers having different backgrounds and experiences to solve problems in a healthcare organization. Some students had a positive attitude toward the collaborative project and felt it benefited them. On the contrary, other students had negative attitudes towards the collaborative project due to the lack of participation from their team members, different time zones/work schedules, and unequal distribution of group work. Positive comments include, "*I really enjoyed this part of the course. It was nice to hear from others and get their feedback.*" and "*I enjoyed working with my team members. Especially my team leader is a great leader who reminded us of things to do in 6 weeks and made sure that we were on the same page.*" Negative comments include, "*The project was not collaborative. It was workload heavy for 1 person.*" and "*The collaborative project was a good experience and it did allow us to focus on teamwork, but it can be difficult when everyone is not on the same work schedule. Some team members did not participate as much as others.*"

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Prior research (Favor & Kupl, 2015; Smith et al., 2011) showed that students who participated in group work in online courses were likely to be less satisfied with the overall experience and possessed a more negative perception when compared to those who took part in the face-to-face format. Favor and Kupl (2015) found that 38% of online MBA students preferred to work in a team, and 39% believed teams increased their learning. In Smith et al.'s (2011) study, 65.9% of graduate students felt positive about the group assessment. Thus, the finding (55%) regarding students' perception of a collaborative project from our study falls between these two empirical studies.

All surveyed instructors offered positive opinions regarding this revised course. Several instructors expressed the need for teamwork in the program. *"Team concept helps them to collaborate."* *"Because they are in teams, they were more apt to give feedback to their team members, as it may have a direct impact on their final project."* *"The activities allowed students to critically think about all aspects of quality improvement. Having students in groups enhanced engagement in discussions throughout the learning week. Students expressed positive experiences with group activities."* The results generated from the instructor survey are consistent with the findings from Azar et al.'s study (2021).

B. Research Question Two

The second research question was to investigate how the students and their teams can improve the team process and dynamics. Despite the fact that some students stated that the collaboration among their team members was phenomenal, many students expressed a variety of ways for improvement. The main reasons the teamwork could have worked out better in some teams were that it was hard for busy working adults to meet virtually, and some team members attempted to shift their responsibility onto a team leader.

First, several students pointed out the importance of assigning a team leader at the very beginning of the team process. One student affirmed that *"A team leader should not only be somebody who has a clear understanding of the task at hand, but also somebody with the right abilities to hold others accountable and ensure that each member of the team is working on their equal part."*

Second, the majority of students believed team communication should be enhanced. A student stated, *"I feel better communication from each teammate would have made it easier to understand timing and schedules."* Here are more examples of other students' comments, *"Frequent communication is especially important because while a team might think they understand each other, miscommunication is always possible, and so the more frequent the less opportunity for mistakes. It is also important to establish a leader (or leaders) who can help disseminate information to the team and make final decisions."* *"For teamwork to work, team members must feel comfortable sharing ideas (and building on those of others), making suggestions, and voicing opinions. You should ensure communication is not just flowing downward, but also upward and between members of the team."*

Third, the division of labor among team members must be defined. One student asserted that *"Everyone must be aware of their role and responsibilities; ownership is essential. Most importantly, everyone needs to understand and focus on the common goal.... Since all the group members are responsible for their success or failure, they must work collaboratively to overcome any setbacks and get the project back on track."*

V. LIMITATIONS AND FUTURE RESEARCH

There were three limitations in this study. First, this revised course was implemented in an online master's program in healthcare administration. Therefore, results derived from this study are not generalizable to all graduate courses at other departments in the same university or a different institution nationwide. The second limitation was a low response rate in the student survey. The total number of students in the study population was 201, but only 40 answered the online survey. A low response rate poses a non-response bias, which could skew the overall results. The third limitation is related to confounding factors, such as students' job status and family issues, which may interfere with students' learning and objective evaluation of the course. Especially this study was carried out during the COVID-19 pandemic. Our students were affected by the pandemic much more than other professionals. Their perceptions and experiences regarding the collaborative project might differ if there was no pandemic. As a result, it limits our ability to conclude the effectiveness of the collaborative project. One suggestion for further research is to manage the same research design for future MHA students once the COVID-19 pandemic is over. Such a study will help us understand if the COVID-19 pandemic is a significant confounding factor. Another suggestion for further research is to conduct similar research in other learning fields in the online environment to demonstrate and validate the effectiveness of collaborative learning in a broad sense.

CONCLUSIONS

The main aim of this research was to evaluate the effectiveness of a redesigned course in the master's program of healthcare administration. This course was revised to allow our students to develop collaborative skills, build academic knowledge, and enhance students' employability in the workforce. Performing a team project without the physical presence of team members in online courses may present an additional challenge as students are in different time zones and work schedules, leading to

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increased difficulty in setting deadlines and developing team dynamics. Students resisted a team-based project in the online classroom because they did not have time to collaborate effectively or because there was an underachiever on their team for whom they would have to compensate.

Working on a collaborative project in the online classroom can be exciting, challenging, and rewarding. Team-based learning can prepare students to deal with the real-world problems they will face in the workplace. Especially, healthcare professionals work in various teams to deliver quality care to patients. Our students can use acquired skills and experiences to be successful in their professions. Indeed, many of our students treasure the value of collaborative projects; however, they might have a deficiency in time management and project management skills that are required for team effectiveness. Although many challenges are inherent in collaborative learning in the online classroom, there are compelling reasons to overcome the difficulties and make collaborative learning a fruitful learning experience. For instance, incorporating the Group Work Contract recommended by Brannen et al. (2021) could reduce students' anxiety and frustration, resulting in better collaboration and learning experiences.

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