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The Impact of Collaborative Testing on Teamwork and Collaboration in Nursing Students

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Abstract

Teamwork and collaboration are inherent to the work of a nurse. In a post-pandemic nursing education world, students need more opportunities to collaborate and work as a team.

Clinical and classroom strategies in nursing education are often group-based to help support development of teamwork and collaboration skills. Testing is often omitted from being group-based but could be included as a strategy to increase teamwork and collaborative skills. The purpose of this study was to examine the effect of collaborative testing on teamwork and collaboration in nursing students. Post-implementation survey results provided support for the continued used of collaborative testing as the overall outcomes were positive.

Keywords: collaborative testing, nursing education, testing

Introduction and Background

Teamwork and collaboration are essential to professional nursing. Practicing nurses and nurse educators are keenly aware of this, but it is even more solidified by the fact that national organizations such as the Quality and Safety Education for Nurses Institute (QSEN) identifies them as key competencies to providing safe patient care. During the coronavirus pandemic of academic year 2020-2021, students in nursing programs across the United States were at a disadvantage for spending time in collaborative groups and teams. Many nursing students were not allowed access to clinical settings, and most were not permitted to spend very much time on campus in groups, severely limiting in-person interactions, teamwork, and collaborative events. While nurse educators evolved quickly in their proficiency at teaching remotely, barriers to providing effective collaborative opportunities in the remote environment were obvious. These include lack of student interaction, student and faculty fatigue with the online learning environment and lack of reliable internet access in many areas. In addition, many nursing programs have seen a decrease in program completion rates as students struggled to adapt to the remote learning environment.

As we come out of a world pandemic and move toward unhindered nursing education, the need to increase teamwork and collaborative opportunities will be paramount and critical to improved clinical outcomes. One method for sincere consideration is the implementation of collaborative testing. This type of testing has been studied for more than a decade and shown to positively affect problem-solving and

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communication skills as well as enhance group process skills[1,2]. Eastridge & Benson[3] found that collaborative testing decreased students' anxiety related to learning statistics when group-first testing was implemented. Long-term knowledge retention has also been reported to be an advantage of collaborative testing[4]. Examinations and testing in nursing education are most often used for the sole purpose of grade calculation; however, the testing process could also impact teamwork and collaboration skills. Allowing students to build on their previous knowledge of content while collaborating with peers to develop new ideas or concepts can create deeper learning as purported by the constructivist learning theory. A constructivist theoretical design is useful in giving learners opportunities to discuss and collaborate with learners of varying perspectives and experiences[5]. The purpose of this study was to examine the effect of collaborative testing on teamwork and collaboration in nursing students.

Method

The study was conducted at a public, 4-year university in the rural southeastern U.S. The university's institutional review board granted approval for the study. The convenience sample consisted of first and second-year nursing students in mental health nursing and fundamentals courses in a baccalaureate nursing program. The sample was 91% female, 9% male and predominantly white (94%). Students completed a minimum of three unit examinations applying the collaborative testing intervention. Students were divided into random groups consisting of three to four students per group for collaborative testing. After students complete the regular exam, they were not allowed to exit the room. Once all students were finished with individual exams, the groups completed the exam as a team. Additional points based on the group score were added to each individual member's exam score. Students participated in the collaborative testing as part of the courses. The survey about the experience was voluntary at the conclusion of the semester. After informed consent was obtained, participants completed the Student Evaluation of Collaborative Testing survey. The self-report instrument was adapted from the questionnaire used by Cortright et al[6] and adapted with permission to contain 18 Likert-style items.

Results

Participants were asked to rate the items on the following scale: 1=strongly disagree; 2=tend to disagree; 3=neither agree nor disagree; 4=tend to agree; 5=strongly agree. Means for survey items ranged from 1.34 to 4.91 for the n=32 participants. The lowest scoring items reflected participants' feelings about the ease of which others could be convinced about the correct answers (item 7, mean=2.69) and the fact they did not study less for the exams because of the collaborative test (item 13, mean=1.34). Several items (2, 3, 6, 11, 17, 18) with a mean of 4.81 or greater indicated participants appreciated the immediate feedback offered by the collaborative tests, the opportunity to collaborate with peers and more opportunity to critical think through the exam questions. Additionally, participants' scores indicated the collaborative tests help increase previous knowledge, improve understanding of material, and facilitated deeper learning by filling in knowledge gaps. The overall highest scoring item (15, mean=4.91) supported inclusion of the collaborative test process in other courses and content areas. Survey items and results are illustrated in Table 1.

Discussion

A limitation of this study was the small, convenient sample which limits generalizability of the results; however, the positive survey results from this study sample support the overall benefits of collaborative testing. Nursing is a collaborative profession and is constantly evolving in today's healthcare world. There are rare work shifts in clinical practice when a nurse does not consult with her nurse colleagues or other members of the interdisciplinary healthcare team regarding patient care and procedures/processes. Based on the collaborative nature of the profession, nurse educators should implement learning projects and utilize methodologies conducive for students to collaborate, practice teamwork, and deepen the students' understanding of content, not excluding the testing experience.

Table 1: Student Evaluation of Collaborative Testing Results

Survey Item	Mean
Collaborative testing increased my confidence.	4.65
Collaborative testing allowed me to increase my previous level of knowledge.	4.84
Collaborative testing facilitated my learning of the material.	4.81
Every collaborative member "pulled their weight" (contributed to the learning process).	4.59
The level of discussion during collaborative testing was high.	4.63
I appreciated the immediate feedback afforded by collaborative testing.	4.81
It was difficult to convince students of correct answers.	2.69
Collaborative testing enhanced my understanding and ability to synthesize and integrate material.	4.75
Collaborative testing provided a more positive relationship among students.	4.56
Collaborative testing provided a more positive relationship between students and faculty.	4.56
Collaborative testing provided the opportunity to discuss incorrect answers and fill in knowledge gaps and therefore improve understanding of the material.	4.81
My level of involvement during the discussions was high.	4.66
I studied less than normal for the exam because I knew I would have a collaborative test.	1.34
The collaborative test process allowed me to feel like I was part of a team.	4.50
I would recommend this process for other content areas.	4.91
Teamwork behaviors were apparent among the group members during the collaborative test.	4.69
I enjoyed the opportunity to collaborate with my peers.	4.88
Collaborative testing provided more opportunity for me to critically think through the test questions.	4.84

Implications

Duplication of this study with larger student cohorts in different subject areas is recommended. Exploring other areas of potential impact such as long-term knowledge retention would also be beneficial to support the use of collaborative testing in nursing education. Creating student test groups in the classroom based on personality characteristics, emotional intelligence quotient and academic ability would also provide interesting feedback on team dynamics. Further exploration of collaborative testing will further expand the body of knowledge on this unique learning strategy.

Conflict of Interest: Nil

Ethical Clearance: This project was approved by the Institutional Review Board of the University of Tennessee at Martin, IRB #2021-858-E05-4052/ Radf,Mar

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