COLLABORATIVE TESTING AND STUDENT LEARNING: DOES PEER DISCUSSION DURING TESTING ENHANCE LEARNING?

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Our Education System

"Everybody is a genius; that’s why you can’t judge a book by its ability to climb a tree. It will live its whole life believing that it is stupid."

- Albert Einstein

Presentation Objectives

1. Attendee will identify two ways to implement group testing in nursing curriculum.

2. Attendee will examine two advantages related to group examination.
Our Journey

• Why we became interested
• What we were seeing
• What we tried first
• It’s a Philosophy

Why Collaborative Testing?

Background
• The increased importance of interprofessional collaboration is becoming more apparent (IOM, 2010).
• Future nurses need to be prepared to work collaboratively as a team for the benefit of cost-effective quality patient care (Sandahl, 2009).
• Collaborative learning strategies are active and student-centered (Sandahl, 2009).
• Collaborative testing is an example of a collaborative learning strategy that promotes critical thinking, student achievement, and interpersonal and group processing skills (Sandahl, 2009).

Current Definitions
• Collaborative testing is a learning strategy that can be used in nursing education to possibly improve knowledge development, critical thinking, decision-making skills, and group communication (Sandahl, 2009).
• Collaborative testing is defined as a collaborative learning strategy where students work together on a test (Durrant et al., 1985; Lusk & Conklin, 2003).
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What do you think?

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Literature Review

• Lusk & Conklin (2003) Nursing Education
• Sandahl (2009) Nursing Education/Lit review
• Sandahl (2010) Nursing Education
• Scafe (2011) Business Education
• Centrella-Nigro (2012) Nursing Education
• SOTL, Education, Sciences, and other disciplines

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Findings in the Literature

• Cooperative learning has positive effects on race relations, self-esteem, and a willingness to cooperate in other settings (Trottier, 1999).
• With collaborative testing, students have the emotional and intellectual support that allows them to go beyond their present knowledge and skills and accomplish shared goals (Trottier, 1999).
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Findings in the Literature

• Through the discussion of rationale, sharing of ideas, and group decision making, students can experience deeper learning. Collaborative testing provides students with a process to think and work out their problems with fellow peers, allows for information sharing, and collaboration among students, which is required for their future practice (Sandahl, 2010).

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Findings in the Literature

• Faculty observed students assuming more responsibility for the learning of others, as well as their own actions.
• Many students admitted to studying harder for collaborative tests, so they would not let their partner down.
• As they became collaborators, students began to respect each other’s opinions and to value differences of their fellow students as a possible resource.
• The classroom attitude also changed markedly. During the test situation, the instructor no longer had to monitor for cheating and, therefore, no longer had to assume the role of police officer.

(Lusk & Conklin, 2003)

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Findings in the Literature

The two most frequently mentioned good aspects of collaborative testing concerned issues of interacting with others and confidence.
• About 30% wrote that sharing, talking, and the process of working with someone were beneficial.
• Approximately 35% mentioned feeling more confident.
• The most commonly mentioned negative aspect of collaborative testing was negotiating disagreements and taking responsibility. These drawbacks were mentioned by approximately 22% of respondents.
• Less than 10% of procedures associated with being partly responsible for another student’s grade and only about 5% felt the other was unprepared.
• Finally, 94% agree the collaboration is good for preventing “stupid” mistakes.

(Breedlove, Burkett, & Winfield, 2007)
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Advantages of collaborative testing

- Increase test scores across disciplines
- Students report less anxiety
- Improved student relations
- Improved thinking skills
- Increased motivation
- Increased communication skills
- Improved clinical reasoning
- Increased group skills
- More prompt feedback for students

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Initial Study

The purpose of the research was to learn more about student perceptions of collaborative testing as a learning strategy. The following research questions were addressed:

1. Do students perceive collaborative testing as beneficial?
2. Do students feel learning is enhanced when working as a group in a collaborative test compared to traditional testing?
3. Do students feel collaborative testing prepares them to work with their peers and to participate in peer to peer learning?

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Methods

- Faculty/student project
- Collaborative testing was completed throughout the sophomore year. After initial individual testing, students were placed in groups and completed the same exam as a group with only one answer sheet per group. Group grades were then calculated and if an individual had passed the exam on their own, they could get a small amount of group points added to their exam grade.
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Methods

• Sample: 80 sophomore nursing students in their second semester of the nursing program
• An anonymous survey was completed by students and was completely optional. A convenience sample was utilized. Results were not analyzed until after course grades had been submitted.
• The survey utilized a Likert scale with two open-ended questions. Descriptive statistics were compiled and analyzed.

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Study Findings

• Students liked the collaborative testing overall
• Students reported collaborative testing did not affect study time for the exam
• Collaborative testing helped improve critical thinking skills, understanding of rationale, and understanding of the material
• Collaborative testing allowed for group teamwork, communication, and collaboration
• Students felt that they had a voice and were provided opportunities to contribute within their group.
• They felt it helped them with their communication skills
• The testing helped them to learn how to collaborate with peers
• Students were less certain if collaborative testing affected test anxiety
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Student Comments
- This has been a good thing. Material I didn’t understand but my group did helped me understand it more.
- The discussion portion helped me a lot. It was interesting and informative to hear my peers’ rationale.
- It’s a great way to instantly review material you have been tested over rather than waiting a week. The collaborative discussions instantly help you realize what you missed and why.
- It promotes teamwork. Wonderful strategy that promotes fantastic opportunities for students.
- I feel there should be at least part of the test that is not collaborative to weed out any “coat-tailers.”

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Follow-up Study
Procedure
- Compared two groups of students who participated in collaborative testing
- Faculty shared same tests, teaching and learning strategies, PowerPoints, assignments, etc.
- Weekly meetings by faculty to discuss upcoming class
- Shared responsibilities for assignments (took turns doing podcasts)

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Sample
- Two sections of a beginning Introduction to Nursing class (first semester nursing program)
- Two different faculty (45 in one; 46 in another)
- First semester of different testing style questions
- Total of 91 students
- Pre-assigned alphabetically to groups by instructors
Methodology

- 2 exams used to perform the group testing
- 50 points for Exam 1 and Exam 2
- 30 points of 50 (individual); 20 points of 50 (group)
- Exam 1 (1 group performed the group test first while other group performed individual test first)
- Exam 2 (the group that performed individual test first on Exam 1 now took the group first while other group took individual first)

Methodology (continued)

- Group testing protocol
  - 5 to 6 members to each group
  - No use of any devices
  - Had 1 hour to complete the 20 questions
  - One member of the group turned in a group Scantron
  - Each member had own Scantron that allowed for own input in answers. This is what counted toward grade.

Test analysis

- Test analysis was completed by both faculty for each exam.
- Both faculty met and decided together what questions were statistically a problem
- Only Exam 1 and 2 contained a component of group testing
Data Analysis
• Exam 1 Group Testing scores
  Instructor A: Range of 17 to 20 (20 total)
    Median 18  Mean 17.889 (89.4%)
  Instructor B: Range of 16 to 20 (20 total)
    Median 17  Mean 17.778 (87.2%)
  Both groups:
    Total range 16 to 20  Median 17  Mean 17.667 (88.3%)

Data Analysis (cont.)
• Exam 2 Group Testing scores (raw)
  Instructor A: Range of 14 to 19 (20 total)
    Median 16  Mean 16.11 (81%)
  Instructor B: Range of 15 to 17 (20 total)
    Median 17  Mean 16.22 (81%)
  Both groups:
    Total Range of 14 to 19 (20 total)  Median is 16.5  Mean 16.17 (81%)

Findings
• Exam 1: Instructor A’s group took the group testing first and did demonstrate a higher test mean than the follow-up individual test mean. However, Instructor B’s group took the group testing second and did have a higher group mean than individual. There was no significant difference in exam performance whether taking group test first or second.
• Exam 2: The opposite schedule was performed for this exam with no significant difference in exam performance.
Discussion of results

• There was no real difference in group testing scores between sections despite timing of group exam.
• All students still had to prepare for the exam as they still had to take an individual component that was worth 60% of the exam grade.

What did the students think?

• Formative feedback remarks:
  – “Loved collaborative testing. Every member of our group contributed equally.”
  – “I liked the group testing as it made me more confident.”
  – “I like how we can still answer differently than the group.”
  – “I really liked the collaborative testing. It helped me realize if I was wrong about something and why.”

What did students think? (cont.)

Final course and instructor summative evaluations

– “Liked group testing A LOT.”
– “Great course! Liked the setup - environment facilitated a meaningful learning experience.”
– “Collaborating with team members was an effective learning style. It definitely boosted my communication skills.”
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**Limitations to Study**

- We picked groups alphabetically and did not change them throughout the course.
- Added alternate format questions to Exam 2, which was new to students and had not been done on Exam 1.
- Selected a small group of students from one university.

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**Barriers to Collaborative Testing**

- Classroom setup
- Class size
- Not currently threaded throughout curriculum
- Faculty resistance toward collaborative testing
- Fear of progressing an underperforming student
- Student Accommodations

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**Student Accommodations**

- Must comply with accommodations for the individual test
- Scheduling to allow for participation
- Distracting environment during group testing can affect students who require a quiet environment
Strategies for Implementing Collaborative Testing

- Use of collaborative testing during online testing
- Use of collaborative testing for exam review
- Allow for collaboration on in-class question practice
- Use collaborative testing for course exams and individual testing for comprehensive final
- Combination of individual and collaborative testing on each exam
- Only provide points if student passed individual portion of exam

Summary/Conclusion

- Provides an opportunity in the classroom where teamwork and collaboration can be achieved and is seen as a positive experience
- Provides an opportunity for peer to peer learning and student ownership
- Allows for greater review of tested material
- Seen as a valuable learning strategy by students
- An active learning strategy
- With thoughtful implementation can be used to increase learning while not inflating grades of unprepared students

References