

The Effect of Collaborative Testing on Nursing Students

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INTRODUCTION

Background and Literature Review

Collaborative testing (CT) is a learning strategy where students work together on a test (Lust & Conklin, 2003).

Collaborative testing has been used in various forms, the most frequent usage is in the area of multiple choice testing (Hickey, 2006).

Collaborative testing involves 2 or more groups of students taking an examination together (Hickey, 2006).

Collaborative learning strategies are active and student-centered (Sandahl, 2009).

Collaborative testing designs:

- Dyad testing – students choosing their partners or instructors assigning students into groups (Rossignol, 2004).
- CT according to clinical groups (6-7) & only on unit exams (Hickey).

Studies report higher scores on group testing and retention of class materials (Rossignol, 2004; Rao et al., 2002).

Student surveys report a decrease in test anxiety, improved peer relationships (Rossignol, 2006) increased motivation to study (Ligeikis-Clayton, 1996), effective communication and increased confidence in their knowledge level (Russo & Warren, 1999).

Appreciation of different viewpoints, improved critical thinking & reasoning were additional benefits (Hickey, 2006).

Disadvantages include weak groups, arguing, failure to contribute, and noise (Hickey, 2006).

A decrease in negative comments about exam questions and improved test review process have been reported (Mitchell & Melton, 2003).

Collaborative Testing, when used effectively can contribute to the students ability to develop “elements of teamwork, conflict resolution and communication” (Hickey, p. 88).

Nursing faculty & employers of nurses value these qualities, making collaborative testing the “perfect tool” to use when teaching nursing students (Hickey, p. 89).

PROBLEM

Nursing faculty are in constant search for new strategies of teaching and learning nursing. Reports of positive results from CT encourage early implementation in spite limitations in the applicability of study results. Faculty pursuit of academic excellence & the quest for supporting the development of student communication, teamwork & collaborative skills remain an important thread in nursing education.

PURPOSE of the STUDY

The purpose of this study is to compare the effects of two methods of conducting collaborative testing as a peer learning tool for undergraduate nursing students from a hospital-based program. Students were enrolled in a second level adult nursing course.

METHODS

The study is a part replication of the Sandahl 2010 study with the addition of another method of taking collaborative testing as reported by Hanson & Carpenter (2011).

Approval was obtained from the University of Pittsburgh Institutional Review Board (8/1/2013).

Participation in the study was preceded by students signing a consent form.

Research Questions:

1. Is there a difference in learning for nursing students taking the examination individually and by the two methods (A & B) of collaborative testing?
2. Is there a difference in retention of material for students who have experienced collaborative testing method A or B?
3. What are the student perceptions of their learning and other group process skills when collaborative testing is used as a learning strategy in a nursing course?

Research Hypotheses:

1. Student learning as measured by course examination scores will be greater for students taking the examination collaboratively using method A compared to students taking their examinations using method B.
2. Student retention of course content as measured by midterm and final examination scores will be greater for students using collaborative testing method A compared to method B.
3. Student perceptions of their learning, anxiety and group process skills will be positive as measured by a group testing evaluation tool (Sandahl, 2010) and course evaluation tool (SMHSON) when collaborative testing is used as a teaching strategy.

Methods of Conducting Collaborative Testing:

CT Method A:

- Students take the test and submit individual Scantron cards = Normal test score
- Faculty will randomize groups of 5-6 using randomtable.com
- CT – Students discuss questions among group members, half the allotted time for testing will be given – students will submit individual Scantron cards – consensus on answers not required = CT score
- If CT score is 90% and above, 1 raw point will be added to the Normal test score = became part of the course grade

CT Method B:

- Students take the test and submit individual Scantron cards = Normal test score
- Faculty will randomize groups of 5-6 using randomtable.com
- CT – Students discuss questions among group members, half the allotted time for testing will be given – students by consensus will submit one Scantron card for the group = CT score
- If CT score is 90% or above, 1 raw score will be added to the Normal test score of all group members = became part of the course grade

RESULTS

Forty one students participated in the study (21 using Method A; 20 using Method B).

Six course exams were utilized to implement the two methods of collaborative testing.

Method A N=21	Mean % Test 1 80	Test 2 84	Test 3 83	MT 77	Test 4 77	Test 5 79	Test 6 83	Final 81	
CT 9-16	95	95	93	-----	93	91	92	-----	Ave 12 ↑
Method B N=20	Mean % Test 1 71	Test 2 82	Test 3 72	MT 85	Test 4 81	Test 5 85	Test 6 87	Final 90	
CT 8-16	84	90	88	-----	95	97	95	-----	Ave 12 ↑

Students increased their test scores after engaging in collaborative testing.

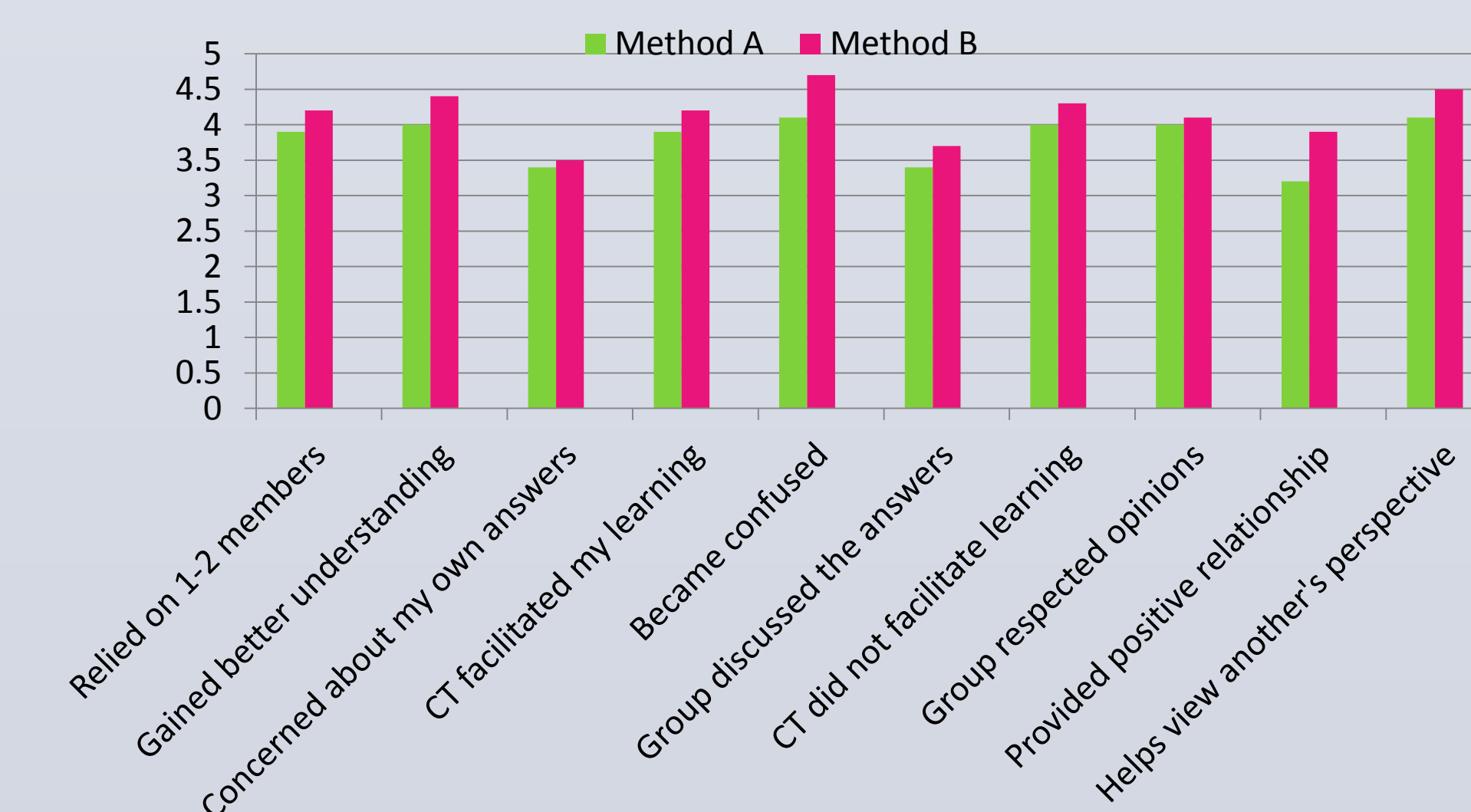
Students' achievement on tests using CT method A showed no difference from those who used method B. Both groups had an average of 12% increase in exam scores.

In Method A an average of 19 students achieved extra points from participating in CT while an average of 14 students benefited from CT using Method B.

Students' scores on the Midterm and Final exams showed a 4-5% increase.

Random assignment into groups encouraged communication and collaboration without undue advantage to the weaker students in terms of grade inflation.

Student Perceptions: Responses to Sandahl Survey Questionnaire



CONCLUSIONS

- Engaging in collaborative testing consistently increased scores an average of 12% using both methods of conducting CT. (NS)
- More students benefited from CT when using individual Scantron cards suggesting achieving consensus may be a barrier in the process.
- Retention of course material as measured by midterm and final exams showed a 4-5% increase. (NS)
- Students report positive perceptions about their learning experiences during collaborative testing sessions.
- The process of critically thinking & learning how to work together in a respectful and professional manner contributes to the professional preparation of nursing students.
- Opportunities to communicate, cooperate & collaborate has the potential to translate into better prepared beginning professional nurses.

Limitations:

Small sample size and unmatched groups in one type of nursing program limits the applicability of the results.

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Comments/Questions:

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