

Nursing Education Research Conference 2018 (NERC18)

A Retrospective View of the Effect of Double Testing on Nursing Student Examination Scores

Donna Crawford, PhD, MSN, RN, CNE

Baccalaureate Nursing Department, School of Nursing, College of Health and Human Services, Indiana State University, Terre Haute, IN, USA

Introduction: There are a variety of assessment methods available to nurse educators. The decision to use a particular strategy depends on the objective being assessed, the setting in which learning occurs, the level and number of students, and time constraints. This mixed methods study focused on the use of collaborative testing in a nursing Pharmacotherapeutics course at a Midwestern university. Collaborative testing is defined as an assessment method in which pairs or small groups of students work together to develop answers on course examinations (Oermann & Gaberson, 2017). This presentation will describe the use of double testing in which students take each examination twice, first alone and again following a 15-20 minute discussion with an assigned group. In this classroom group consensus was not required. When used in this manner collaborative testing becomes a type of posttest review (Parsons and Teel, 2013; Centrella-Nigro, 2012). Collaborative testing functions to teach students the importance of collaboration, which was identified as one of the Quality and Safety Education for Nurses (QSEN) project competencies. QSEN defines teamwork and collaboration as the skills required for a nurse to “function effectively within nursing and inter-professional teams, fostering open communication, mutual respect, and shared decision-making to achieve quality patient care” (QSEN, 2014). Collaborative testing is a learning strategy that encourages students to participate, negotiate, and work together as a team during testing. Social interdependent theory (Johnson & Johnson, 2005) identifies the positive effect of the use of effective communication in order to reach a common goal. The use of collaborative testing can help students develop skills that are important for competent nursing practice. Three research questions were used to guide this study: (1) Is there a difference between the class average individual test score and the average class double-testing test score on unit examinations over eight semesters? (2) How much difference occurs between the class average individual test score and the average class double-testing score on unit examinations over eight semesters? (3) Are students satisfied with the double-testing method? *Literature Review:* Collaborative testing methods have been used successfully in a variety of settings within nursing education. Research indicates that students have reported high satisfaction with the use of collaborative testing (Gallagher, 2009; Hanna, Roberts, & Hurley, 2016; Sandahl, 2010; Wiggs, 2011). Research also indicates that examination scores are higher with the use of collaborative testing (Eastridge, 2014; Martin, Frieson, & Pau, 2014; Molsbee, 2013; Sandahl, 2010) causing some concern related to grade inflation (Duane & Satre, 2014). Heglund and Wink (2011) studied the effect of collaborative testing on the examination scores of 166 nursing students and reported a 3% grade increase that did not meet the criteria for statistical significance. *Data Collection:* There were two aims of this study. The first aim was to determine the percentage of grade increase that students received over the course of eight semesters with the use of double-testing ($n=403$). A second part of the study focused on student perceptions of the use of collaborative testing. This study utilized a convenience sample of traditional nursing students in the first semester of a baccalaureate nursing program. Following IRB approval, average examination scores were obtained from the Black Board grade book using the course statistics feature in order to determine the amount of grade increase realized from the use of collaborative testing. Each semester six unit examinations are administered using double-testing. Three average scores were obtained for each examination; an independent score for the solo examination (Test A), the score received following the group discussion (Test B), and the final examination score which is usually the average of Test A and Test B. Collaborative testing is not used for the comprehensive course final examination. In order to determine student satisfaction, the course evaluation for the Fall 2016 semester included three questions concerning student satisfaction with collaborative testing ($n=38$). *Findings:* The average grade increase over eight semesters was 3.3%, which is consistent with the findings of Heglund and Wink (2011). As for student satisfaction, consistent with past research, most students (90%) strongly

agreed that they enjoyed the use of collaborative testing. *Recommendations:* To decrease concerns related to grade inflation an educator may consider awarding collaborative testing points only to those students who independently pass the examination. A 3% grade increase may or may not be sufficient to increase a student to a higher letter grade, but students do appreciate the opportunity for further learning that may add a few points to their grade. Educators may feel that the time spent in test review is worth the rewarding of a few extra points. Students do express high satisfaction with collaborative testing and feel that it is a worth-while addition to learning.

Title:

A Retrospective View of the Effect of Double Testing on Nursing Student Examination Scores

Keywords:

Collaborative Testing, Double Testing and Nursing Education

References:

- Centrella-Nigro, A. M. (2012). Collaborative testing as posttest review. *Nursing Education Perspectives*, 33(5), 340-341.
- Duane, B. T. & Satre, M. E. (2014). Utilizing constructivism learning theory in collaborative testing as a creative strategy to promote essential nursing skills. *Nurse Education Today*, 34, 31-34. doi:10.1016/j.nedt.2013.03.005
- Eastridge, J. A. (2014). Use of collaborative testing to promote nursing student success. *Nurse Educator*, 39(1), 4-5. doi: 10.1097/01.NNE.0000437366.96218.f1
- Gallagher, P. A. (2009). Collaborative essay testing: Group work that counts. *International Journal of Nursing Education Scholarship*, 6(1), 1-13. doi: 10.2202/1548-923X.1845
- Hanna, K., Roberts, T., & Hurley S. (2016). Collaborative testing as NCLEX enrichment. *Nurse Educator*, 41(4), 171-174. doi: 10.1097/NNE.0000000000000241
- Heglund, S. & Wink, D. (2011). Impact of double testing on student knowledge in a professional issues course. *Journal of Nursing Education*, 50(5), 278-280. doi:10.3928/01484834-20110131-06
- Johnson, D. W. & Johnson, R. T. (2005). New developments in social interdependence theory. *Genetic, Social, and General Psychology Monographs*, Nov; 131(4), 285-358.
- Martin, D., Frieson, E., & DePau, Antonina (2014). Three heads are better than one: A mixed

methods study examining collaborative versus traditional test-taking with nursing students.

Nurse Education Today, 34, 971-977. doi: 10.1016/j.nedt.2014.01.004

Molsbee, C. P. (2013). Collaborative testing and mixed results. *Teaching and Learning in*

Nursing, 8, 22-25. doi:10.1016/j.teln.2012.09.001

Oermann, M. H. & Gaberson, K. B. (2017). *Evaluation and Testing in Nursing Education*,

5th ed. Springer Publishing Company, New York.

Parsons, S. D. & Teel, V. (2013). Double Testing: A student perspective. *Nursing Education*

Perspectives, 34(2), 127-128.

QSEN Institute (2014). Pre-licensure KSAS. Retrieved from: [http://qsen.org/competencies/pre-](http://qsen.org/competencies/pre-licensure-ksas/)

[licensure-ksas/](http://qsen.org/competencies/pre-licensure-ksas/)

Sandahl, S. S. (2010). Collaborative testing as a learning strategy in nursing education. *Nursing*

Education Perspectives, 31(3), 142-147.

Wiggs, C. M. (2011). Collaborative testing: Assessing teamwork and critical thinking behaviors

in baccalaureate nursing students. *Nurse Education Today*, 31, 279-282.

doi: 10.1016/j.nedt.2010.10.27

Abstract Summary:

This presentation will describe the use of collaborative testing as an assessment method for baccalaureate nursing students and the impact of double testing on examination scores over a period of eight semesters. Student satisfaction and recommendations for the use of collaborative testing will also be discussed.

Content Outline:

1. Introduction

A. What is collaborative testing? A method in which students work together on a test. Double testing is a type of collaborative testing that can function as a post-test review.

B. Collaboration is very important in nursing practice. The QSEN guidelines state the need for nurses to be competent in collaboration and teamwork as a requirement for safe practice. It is important for nurse educators to seek out learning activities that teach collaboration.

2. Body

A. Describe the procedure for double testing used in this classroom.

- a. Students take the examination individually and submit their answer sheet (Test A).
 - b. Once everyone is finished students are divided into groups for discussion and then students complete a second answer sheet (Test B).
 - c. If the student passes the examination individually the scores of Test A and Test B are averaged to determine the final score. No more than 3 points can be added.
- B. The concern of grade inflation.
- a. For this study, the class average grades were obtained over a period of 8 semesters. This includes the average of Test A, Test B, and the final examination score. The scores of Test B were always higher than Test A, which indicates that the students did learn from working in groups.
 - b. The result was that grades increased an average of 3.3% over eight semesters.
- C. Student satisfaction with collaborative testing.
- a. Students were asked three questions related to the use of collaborative testing on the final course evaluation.
 - b. 90% of students were satisfied with the use of collaborative testing and felt that it helped their learning of course content.

3. Conclusion

- A. Collaborative testing increases student grades on average 3.3%. To make sure that students do not rely on others to pull their examination grades up, it is recommended that extra points only be added to the examination scores of students who pass the examination individually. Also, collaborative testing should not be used for all course examinations.
- B. Students consistently like collaborative testing. It helps them to get to know each other and learn to work together in a positive manner.
- C. Educators consistently like collaborative testing. It reduces the effect of uncomfortable test review sessions and it is rewarding to observe students teaching each other.

First Primary Presenting Author

Primary Presenting Author

Donna Crawford, PhD, MSN, RN, CNE
Indiana State University
Baccalaureate Nursing Department, School of Nursing, College of Health and Human Services
Assistant Professor
Terre Haute IN
USA

Professional Experience: 2013 to present--Assistant Professor, Department of Baccalaureate Nursing Department, School of Nursing, Indiana State University, Terre Haute, IN 2007 to 2013--Faculty, Baccalaureate Nursing Department, School of Nursing, Indiana State University, Terre Haute, IN
Author Summary: Donna Crawford is currently teaching a combined pathophysiology/pharmacology

course to first semester nursing students. She enjoys identifying creative teaching methods that keep students engaged. She has used collaborative testing for more than four years with both traditional baccalaureate students and second degree nursing students.