Poster Type: Innovative

All for One and One for All: Improving Student Learning with Group Tests

Dr. Gaea Hock
Kansas State University
315 Umberger Hall
Manhattan, KS 66506
785-532-1166
ghock@ksu.edu

Emily Keeton
Mississippi State University
201 Lloyd Ricks Watson
Mississippi State, MS 39762
662-325-0099
emk212@msstate.edu

Dr. Christian Baldwin
Mississippi State University
117 Dorman Hall
Mississippi State, MS 39762
662-325-8280
cbaldwin@pss.msstate.edu

Dr. Courtney Meyers
Texas Tech University
104A Ag Education Building
Lubbock, TX 79409
806-834-4364
courtney.meyers@ttu.edu

All for One and One for All: Improving Student Learning with Group Tests

Introduction/Need for Innovation

Enhancing students' ability to work on teams is an important part of the college experience. Teamwork is one of the 7 Soft Skill Clusters identified by Crawford, Lang, Fink, Dalton & Fielitz (2011). The "teamwork" cluster includes such behaviors as positive and encouraging attitude, maintains accountability to the team, and productivity.

Assessment is defined as the activities undertaken by teachers and students that provide information to be used as feedback to modify learning activities (Black, Harrison, & Lee, 2004). In a traditional teaching setting, learners are assessed individually. Feedback is not immediately given, and this sometimes results in a long waiting period for students to receive their results (Giuliodori & DiCarlo, 2008). Group testing enables students to take tests with peers and allows students to discuss questions and their reasoning for an answer, resulting in immediate feedback and filling in knowledge gaps (Cortright, Collins, Rodenbaugh, & DiCarlo, 2008).

Hanshaw (2012) concluded there are more positive than negative outcomes to be gained from cooperative testing. Evidence includes: an increase in memory and learning, decrease in test anxiety, enhanced listening skills, and enrichment of social interactions. Furthermore, students express their levels of test anxiety and sense of competition for a grade reduce significantly (Hancock, 2007). The use of group tests enables students to work collaboratively to assess their own learning by dedicating more time to discussing course content.

How it Works/Methods/Steps

While there are several different ways in which this methodology could be implemented, in this particular class, the students were told they would complete two tests as a group, but didn't know who was in their group until the test day. Class attendance record and points earned were used to group the students. The groups were homogenous in regards to high-achieving, good attendance students together and lower-achieving, poor attendance students grouped together. This was done in an effort to discourage social loafing in the groups and encourage all students to contribute to answer choices.

The day of each test, students learned what group they were in by looking at the list displayed on the projector. Students located their name and the group number associated with it then found the same number at a table in the room. Only one copy of the test per group was provided to discourage students "dividing up" the questions. Students were allowed to converse and discuss each question on the test. They had to come to a consensus as to the correct response. If a student didn't agree with the others, he or she was allowed to dissent and indicate his or her rationale on the test. This particular class period lasted for 75 minutes which allowed adequate time to complete the test.

After the test, students were asked to complete a satisfaction instrument and a group assessment. The group assessment instrument allowed each group member to assess the others. The assessment was not used to change the individual's grade, but rather as a tool for reflection. Tests were graded and handed back at the next class meeting. Students were able to review their

responses and seek clarification for any missed questions. They were also given the opportunity to reflect on whether the grade the group received is what they deserved.

Results to Date/Implications

Group tests were implemented in Introduction to Ag Information Science in the Fall 2015 semester. This course had 40 students from three different majors and ranged from freshmen to seniors. Each test had 11 groups with 3 or 4 students in each group. The class average for test one was 76% and 90% for test two. This was an increase from the previous fall when the class average for test one was 70% and 81% for test two.

After each test, students completed a satisfaction instrument. On Likert-type questions ranging from *1 = strongly disagree* to *5 = strongly agree*, students indicated the group test enhanced their learning, helped them understand difficult concepts, were enjoyable, and were a nice change of pace from individual assessments (Table 1). They also did not find them distracting or confusing (Table 1).

Table 1
Satisfaction with the group test process

	Test 1 (N = 40)		Test 2 (n = 37*)	
Item	*Mean*	*SD*	*Mean*	*SD*
Enhanced Learning	4.20	.75	4.20	.65
Understand difficult concepts	4.15	.88	4.16	.79
Enjoyable	4.30	.72	4.38	.63
Nice change of pace	4.60	.73	4.65	.58
Distracting	1.75	.70	1.59	.63
Confusing	1.95	.74	1.70,	.73

Note: *1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree*
*three students did not take the second test

Future Plans/Advice to Others

There are several pieces of advice for future implementation of group tests in the college classroom. First of all, instructors should consider the objectives of the course and if group tests are appropriate. The structure of the group test can be done in a variety of ways. Students could have the same groups for each test, test could be completed outside of class, grading could reflect input. If there is a strong need to evaluate each student individually, the group test may not be the best tool. Finally, each group of students is different and there may be those who do not want to complete the test together. In the event this occurs, the instructor needs to decide if they can complete the test individually or require them to complete with a group. In regards to the test, it should be written in a manner to encourage discussion (both in question difficulty and length).

Costs/Resources Needed

There is no cost to administer group tests. The groups do need to be determined prior to the test date, which requires forethought. Appropriate classroom space to allow each group to discuss without the other groups hearing is beneficial.

References

Black, P., Harrison, C., & Lee, C. (2004). *Working inside the black box: Assessment for learning in the classroom*. Granada Learning. Retrieved from https://weaeducation.typepad.co.uk/files/blackbox-1.pdf

Cortright, R. N., Collins, H. L., Rodenbaugh, D. W., & DiCarlo, S. E. (2003). Student retention of course content is improved by collaborative-group testing. *Advances in Physiology Education*, *27*(3), 102-108. doi: 10.1152/advan.00041.2002. Retrieved from http://advan.physiology.org/content/27/3/102.short

Giuliodori, M. J., Lujan, H. L., & DiCarlo, S. E. (2008). Collaborative group testing benefits high-and low-performing students. *Advances in physiology education*, 32(4), 274-278. doi: 10.1152/advan.00101.2007 Retrieved from http://advan.physiology.org/content/32/4/274.short

Hancock, D. R. (2007). Exploring the effects of group testing on graduate students' motivation and achievement. Assessment & Evaluation in Higher Education, 32(2), 215-227. doi: 10.1080/02602930601051176. Retrieved from http://eds.b.ebscohost.com/eds/pdfviewer/pdfviewer?sid=a5f541e9-85a0-4028-808a-966ded22edb5%40sessionmgr104&vid=1&hid=108

Hanshaw, L. G. (2012). Qualitative aspects of group-only testing. *College Student Journal*, *46*(2), 419. Retrieved from http://eds.b.ebscohost.com/eds/pdfviewer/pdfviewer?sid=f347999f-a86c-4c1b-a414-f98167f032af%40sessionmgr106&vid=1&hid=108