



## **Learning Together? Using Group Exams in Your Courses**

Summary of a presentation by Brett Gilley, December, 2010.

### **Outline**

- What are group exams?
- What are ours like?
- Advantages / Drawbacks / Student response /
- Some Data

### **Classes within the CWSEI project using group**

- PHYS 250 -Modern Physics for Engineers
  - 57 students Lecture format – 2 hour class
  - 3 group exams (2 midterm,, 1 final))
- EOSC 111 – A Laboratory Exploration of Planet
  - 110 students
  - lab format
  - 18 students per lab
  - 12 pre lab group quizzes ((less than 5 minutes)) one each week
- EOSC 114 – The Catastrophic Earth – Condensed summer term
  - 200 students
  - Large lecture format 33 hour class
  - immovable seats
  - Condensed 3 week summer class
- EOSC 114 – The Catastrophic Earth – Fall term
  - Two sections: 400 students and 150 students
  - Large lecture format 50 minute class
  - Immovable seats .
  - First exam start next week

### **What exactly do we do?**

During exam time

- Students complete and hand in individual exam
- Then get into groups of ~4 to work on group exam
- The Group Exam is identical to the individual - plus a one or two more difficult questions
- Students work on group exam together
- But with less time
- Students given the following instructions:
  - Sit with your group
  - 10:30 - 11:25 Individual Exam
  - 11:25 - 11:30 Hand in Individual Exam and get Group exam
  - 11:30-12:00 Group Exam Please put your group ID on Your Scantron form



## Advantages

- Nearly instant feedback = excellent for retention
- Develops “soft” group work skills
- Lower achieving students get extra explanation
- Higher achieving students get to do some explaining reinforcing knowledge
- Equal achieving students get to discuss (argue?) concepts.
- Reduces anxiety
- ALL students participate!
- Quieter students get a chance to contribute even in large classes

## Students like it and believe it helps their learning

### Student Comments Phys 250

- “some problems, its a good way to find out what you did wrong on the individual exam almost immediately.”
- “Great idea! The group exams give you a chance to go over your answers to the exam while you still care about the questions.”
- “Going over the exam as a group is something I myself rarely do (I usually would review alone). Being able to review it as a group as part of the test itself was very useful in determining where my reasoning had been wrong.”
- “... That said, there was the issue of excessive discussion in the group exam. That is, there were several times where a part of a question was contentious within our where a part of a question was contentious within our group and the ensuing debate, frequently ended only by calling over Louis, often took up so much time that doing calling over Louis, often took up so much time that doing the last few questions was hurried and messy.”

## Feedback from EOSC 114

Question asked was “Please complete the phrase ‘Group Exams are... ’ ”

### *Positive Comments (Total 208)*

- Discussion 48
- Learn why you were wrong 37
- New Perspectives 29
- Better grades 21
- Instant feedback 16
- Review 10
- Build confidence 88
- Understand questions better 6
- Learn techniques from others 6
- Other 27

### *Negative Comments (Total 56)*

- Coming to consensus 21
- Realize did poorly individually 3
- Time consuming 13
- Unbalanced knowledge in group 6
- Worth too much 2
- Convinced of wrong answer 3
- Other 8



## Possible Disadvantages

- Social loafing
- Dominant group members Sid kb
- Sidetracked by process
- Getting wrong answer
- Assigning Marks
- Student inexperience with groups!
- Time!

## Future Plans

- Test whether group tested material is learned better than material tested “normally”.
- Determine how much (or how little) group work experience or practice is needed in a class that uses group exams.

## Acknowledgments

- Dr. Louis Deslauriers
- Alison Jolley and Sarah Henderson
- Dr. Sara Harris
- Dr. Randal Mindel
- The Earth and Ocean Sciences Department The Carl Wieman Science Education Initiative
- The Carl Wieman Science Education Initiative

## Some references

- Collins, J. 2006. Education Techniques for Lifelong Learning, Writing Multiple-Choice Questions for Continuing Medical Education Activities and Self-Assessment Modules, RadioGraphics, 26, 543-551.
- Cortright, R.N., Collins, H.L., Rodenbaugh D.W., and DiCarlo, S.T. 2003. Student retention of course content is improved by collaborative-group testing, Advan. Physiol. Edu. 27: 102-108 pp, 2003
- McLaughlin, M. 1992. "Employability Skills Profile: What Are Employers Looking For?" (Report 81-92-E). Ottawa, ON: Conference Board of Canada.
- Michaelsen, L.K., Watson, W., Cragin, J.P. and Fink, L.D. 1982. Team Learning: a Potential Solution To the Problems of Large Classes Journal of Management Education 7; 13
- Shindler, J.V. 2004. "Greater Than the Sum of the Parts?" Examining the Soundness of Collaborative Exams in Teacher Education Courses. Innovative Higher Education Volume 28, Number 4
- Stearns, S. A. 1996. Collaborative Exams as Learning Tools College Teaching, Vol. 44, No. 3 (Summer, 1996), pp. 111-112