Working With Groups

Learning Objectives

After this workshop you will be able to:

- Recognize the benefits of cooperative group work
- Identify some pitfalls of group work and strategies for avoiding them
- Gain confidence in techniques for managing classrooms full of students

Large-Group Discussion:

Why put students in groups?

- As educators, why might we ask students to work together in groups?

Tips from the Research: Positive Effects of Group Work

- Performance of group is better than best student[1]
- Performance of all students improves[1]
- Increased student enjoyment
- Increased grades, motivation[2]

[1]Heller et al, Am. J. Phys, **60** (7), p. 627-636 (1992)

[2]Treisman, J. Negro Ed., **59** (3), p.463-478 (1992)

Large-Group Discussion:

Problem Group Dynamics

- What do you think might be some common problems with group interactions?

Small-Group Exercise: (6 min)

Maintaining Functional Groups

- As a TA, what could you do to prevent or resolve each of these problems?
  - Brainstorm with your groups
  - Choose a representative to share your results

Large Group Discussion:

Maintaining Functional Groups

- What did you come up with?

Tips from the Research:

Group work has been shown effective at improving student problem-solving skills when combined with:

- Group *and* individual accountability[1]
- Rapid feedback[1]
- Mixed- ability groups[2]
- Small tables!

[1]Taconis et al, J. Res. Sci. Teach., **38** (4), p. 442-468 (2001)

[2]Heller et al, Am. J. Phys, **60** (7), p. 627-636 (1992)

A Broader Perspective:
Working The Room

1. Circulate through room
2. Diagnose difficulties with physics or groups
3. Coach the group that needs help the **most**
4. If you spend a long time, re-circulate and diagnose before engaging again

- Get a problem another group has already solved? Get them to explain it to each other.
- Entire class confused? Discuss with the whole class.

Activity adapted from: TA Orientation, Department of Physics and Astronomy, University of Minnesota

Whole-Class Discussions

- Introduction
- Conclusion or Summary
- Widespread problems

Large Group Discussion:

Whole-Class Discussion: Pitfalls

- What are some problems that might arise when conducting a full-class discussion?

Large Group Discussion:

Whole-Class Discussion: Solutions

- How could we address these problems?

General Discussion Techniques

- Use your Questioning skills
  1. Ask an open-ended question
  2. Wait for the answer
  3. Paraphrase, or ask the student to elaborate
  4. Repeat above steps as necessary
- Periodically summarize (on blackboard, overhead, etc)
- Draw as many students as possible into the discussion
- Speak up!

Review: Learning Objectives

Learners will be able to:

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Feedback:

On a 3x5 card please tell us:

- Are you more confident or more nervous about working with a class full of students?
- Write down one thing we can do to improve this segment next year.

References

This module was developed with materials from:

- the Tomlinson Project in University Level Science Education, Faculty of Science, McGill University
- 2006 TA Orientation, Physics Department, University of Minnesota
- Heller et al, *Teaching problem solving through cooperative grouping. Part 1: Group versus individual problem solving*, Am. J. Phys, **60** (7), p. 627-636 (1992)