

# Facilitating Group Work to Maximize Student Learning in Labs, Discussions, and Teams

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## AGENDA

- ▶ What do we know about group learning?
- ▶ Forming effective groups
- ▶ Challenges to group learning
- ▶ Making groups work for *everyone*
- ▶ Best practices for teaching labs

## ACTIVITY REFLECTION

- ▶ Think back to your own undergraduate experience....

What were the benefits of learning in settings where student groups were often used?

.... in discussions, labs, recitations?

*Take 2 min to write a list on scrap paper.*

## HOW DOES GROUP WORK FACILITATE LEARNING?

- ▶ Develops higher order thinking and analysis skills
- ▶ Develops skills of interaction and cooperation
- ▶ Appeals to a group of learners that often feel lost in traditional learning environments

## GROUP LEARNING: research shows...

### ▶ Academic Success:

College students who score at the 53<sup>rd</sup> percentile when learning *individualistically* score at the 70<sup>th</sup> percentile when learning *cooperatively*.

Johnson, Johnson, and Smith. 1998. *Change*

### ▶ Class size doesn't matter:

Although one might assume that smaller classrooms tend to feel more personal to students, studies indicate that students felt community in courses that used formal group work, regardless of class size.

Summers, Beretvas, Svinicki, & Gorin. 2005. *J. Exp. Educ.*

## GROUP LEARNING: research shows...

### Attitude Effects

- ▶ Persistence towards goals (less attrition)
- ▶ Intrinsic motivation
- ▶ Applying learning in new situations
- ▶ Greater time on task
- ▶ Improved interpersonal skills.

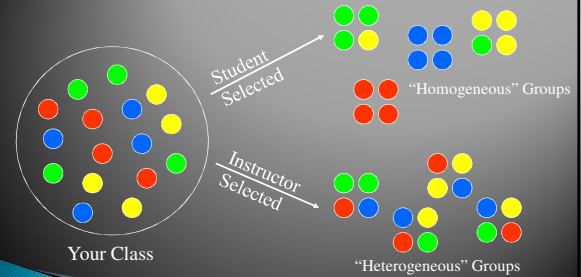
## CHARACTERISTICS OF SUCCESSFUL GROUPS

- ▶ Heterogeneous in ability and student background
- ▶ Groups of 3 to 5 students
- ▶ Group and individual accountability
- ▶ More women than men
- ▶ If possible, do not isolate underrepresented populations

\*\*\*Instructor-formed groups is the bottom line.

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## FORMING GROUPS: Homogeneous vs. Heterogeneous



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## EFFECTS OF CULTURAL DIVERSITY ON GROUP DYNAMICS

### Consider the following question:

What are the advantages and disadvantages of forming culturally-diverse groups vs. "ability-diverse" groups?

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## ACTIVITY ASSESSING STUDENT BACKGROUNDS

- ▶ Think about the typical introductory course in your discipline. Imagine that you are trying to assess the preparation, ability, knowledge, and enthusiasm of students on the first day of this class.

## SOME FINAL THOUGHTS ON FORMING GROUPS

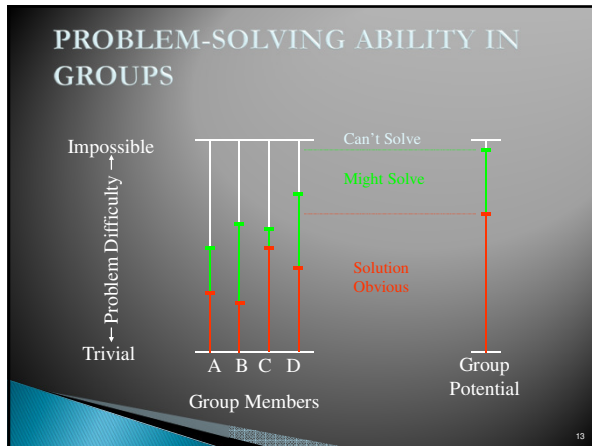
- ▶ Give students a transparent rationale for group formation.
- ▶ Avoid unnecessary barriers to group cohesiveness.
- ▶ Group work can translate to different settings.

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## ACTIVITY THE CUBE EXERCISE

- ▶ Groups of ~3 will work on solving the cube puzzle.
- ▶ One person (not working on the puzzle) will be asked to serve as an observer.
  - ▶ Observers should make note of everything they see happening as the groups solve the puzzle.
  - ▶ They will be asked to report their observations to the rest of the workshop at the end of the exercise.

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### What are some problems that may arise during group work?

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- ▶ Free riding/social loafing
- ▶ Time and “transaction” costs
- ▶ Skills and attitude problems
- ▶ “Group staple”

### QUOTES FROM THE LITERATURE

- ▶ “My overall impression from the experiences I’ve had working in groups is that those group projects left me with the feeling that I had learned my portion of the project but not about the project overall.” 52% agreed (n=77).
- ▶ “My experience with group projects has been negative and very difficult to complete according to my standards. Created lots of last minute work. There’s always been at least one member not come through.”
- ▶ “I like to be in control of my personal grade. If there has to be a group project, it shouldn’t be a high percentage of the overall grade for the course.”
- ▶ – “Group projects teach teamwork and how to deal with different personalities but often a couple of people end up having to do the work for the entire group to get a good grade.”

McCorkle, DE et al. 1999. *J. Marketing Educ.*

### STRUCTURE ROLES TO MANAGE PROBLEM GROUPS

- Scribe
- Reporter
- Manager (Facilitator)
- Group observer (evaluator/encourager)
- Devil’s advocate
- Time keeper

### MANAGER

- ▶ Time keeping and management
- ▶ Keep on task
- ▶ Equitable participation (hear everyone)
- ▶ No domination
- ▶ Consensus and clarity checks

## GROUP MANAGEMENT STRATEGIES

- ▶ Set ground rules for interactions and expectations for individuals and groups (get input from students)
- ▶ Establish accountability:
  - Individual preparation, attendance, & performance
  - Group products and deliverables
  - Self-assessment (formal)
- ▶ Group processing & evaluation (team building)
  - Role = observer, journal keeper
  - Group discussion (positive vs. change)

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## *ACTIVITY* CASE STUDIES

- ▶ What are the issues in these examples?
- ▶ What advice would you give to the GSI regarding the management of group work?
- ▶ What strategies could he/she use to remedy any problems?

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## TEACHING LABS

- ▶ Goals:
  - Make a connection between theory and technical skills
  - Mastery of the scientific process
  - Experiencing abstract concepts in a concrete manner

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## TEACHING LABS- BEST PRACTICES

- ▶ Know the concepts and procedures
- ▶ Provide a broad overview and demonstrations
- ▶ Clarify procedures to students
- ▶ Identify safety issues
- ▶ Think about time management

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## TEACHING LABS- GRADING LAB REPORTS

- ▶ Lay out grading criteria clearly and in advance
- ▶ Determine your policy for lateness
- ▶ Read through several before actually grading
- ▶ Decide how heavily you will weigh content vs. form

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## TEACHING LABS- GRADING LAB REPORTS

- ▶ Grade on thoughtful analysis
- ▶ Give useful and prompt feedback to students
- ▶ Learning to grade is an ongoing process

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### **SOME REMINDERS...**

- ▶ Group formation and management occurs throughout the term
- ▶ It need not always occur on day one
- ▶ A pair is also a group
- ▶ Rotate roles within groups
- ▶ Input from students, ownership of process

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