



Student Teams

Russ Pimmel & Joey Parker
College of Engineering, University of Alabama

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Workshop format

- “Working” workshop
 - 1/2 to 3/4 of time in team & individual activities
- Limited time to complete workshop activities
 - Purpose is to get you started
 - Won't give you the “answer” or even the “formula”
- You will frequently feel you need more time



Workshop Topics

- Introduction
 - Workshop objectives
 - Definition & Importance of teams
- Aspect in using teams
 - Forming teams
 - Training teams
 - Writing assignments
 - Monitoring progress
 - Using self-assessment
 - Grading individual and team work
- Wrap-up

Workshop Goal—Individual Exercise



- Write a one-sentence statement of your main workshop goal
 - Why are you here?
 - What do you want to learn most?
- Write legibly – someone will be reading your writing
- Trade cards two or three times
- Read response if selected



Workshop Goals

- Goals
 - Increase your interest in using student teams
 - Improve your ability to use student teams
- Focus on one type of student teaming
 - Extended projects
- Provide some helpful ideas for other types
 - In-class activities
 - Routine homework
 - Capstone design projects



What is a Team?

A team is a small number of people with complementary skills who are committed to a common purpose, performance goals, and approach for which they hold themselves mutually accountable. ¹

- Small number
- Complementary skills
- Common purpose, performance goals, and approach
- Mutual accountability

¹*The Wisdom of Teams: Creating the High-Performance Organization*



What is a Student Team?

- Small number
 - Typically 2 to 5 students
- Complementary skills
 - Students in course have same skill set
 - Differ in skill level and basic ability
- Common purpose, performance goals, approach
 - Not natural for student teams
 - Must be developed
- Mutual accountability
 - Not natural for student teams
 - Must be imposed by assignment requirements

Concerns About Using Teams

– Individual Exercise



- What is your biggest concern about using teams?
 - What keeps you from using teams?
 - What bothers you the most if you use them?
- Trade cards two or three times
- Read response if selected.



Concerns About Using Teams

- How do I grade individuals?
- How do I deal with “slackers”?
- How do I deal with dysfunctional teams?
- What makes up a good assignment?
- How do I form teams?



Reasons for Using Student Teams - Individual Exercise

- What is the most important reason for using student team?
 - Why bother?
- Trade cards two or three times
- Read response if selected

Reasons for Using Student Teams



- ABET requires it
- Industry expects it
- More complicated (realistic) projects
- Develop students' interpersonal skills
- Students learn content from each other



What Employers Want

- **Learning to Learn**
- Listening and Oral Communication
- Competence in Reading, Writing, Computation
- Adaptability: Creative Thinking and Problem Solving
- Personal Management: self esteem, goal setting, motivation, personal and career development
- **Group Effectiveness: interpersonal skills, negotiation, and teamwork**
- Organizational Effectiveness and Leadership

Strategies For Team Exercises In Today's Workshop



- Assign team roles & follow through on responsibilities
 - Coordinator -- Coordinates discussion & develops consensus
 - Recorder -- Writes down the ideas & reports them
 - Gatekeeper -- Keeps the team on the subject
 - Timer -- Makes sure the team stays on schedule
- With smaller teams – combine gatekeeper & timer

Team Roles For Workshop Exercises



- For first exercise
 - Coordinator – Individual with longest official department name
 - Recorder – Individual on left of coordinator
 - Gatekeeper -- Individual on left of recorder
 - Timer -- Individual on left of Gatekeeper
- Roles rotate clockwise on subsequent exercise



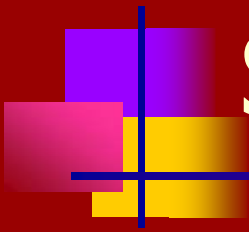
Strategies For Workshop Team Exercises – Part 2

- Be positive, supportive, and cooperative
 - Limit critical or negative comments
- Be brief and concise in discussions
 - Avoid lengthy comments, stories, or arguments
- Stay focused



Important Elements of a Student Team Activity – Team Exercise

- List three or four important elements in a good student team activity
 - What makes team activities work?
 - What do you need to take care of ?
- Methodology
 - Brain storm individually – 2 minutes
 - Establish consensus as a team – 4 minutes
 - Prepare transparency
 - Report team results – 2 minutes



Important Elements of a Student Team Activity

- Forming effective teams
- Training teams for performance
- Writing appropriate assignments
- Monitoring progress and intervening
- Including self-assessment
- Grading individual and team efforts

Effective Cooperative Learning Activity



- The Five Elements of CL:
 - Positive interdependence
 - Individual accountability
 - Group processing
 - Social skills
 - FACE-to-face promotive interaction

- PIGS FACE

Forming Teams – Team Activity

- Write three or four or five guidelines for forming student team
 - Should you use a self-selection, random or deterministic process?
 - If deterministic, what do you consider?
- Methodology
 - Brain storm individually – 2 minutes
 - Establish consensus as a team – 4 minutes
 - Prepare transparency
 - Report team results – 2 minutes

Guidelines For Forming Teams

-- Felder and Brent



- Use teams of three or four students
- Form teams that are heterogeneous in ability levels
- Avoid teams with women or minorities outnumbered
- Select teams yourself
- Allow some final recourse for dysfunctional teams



Forming Teams

- Survey form
 - Indicate three preferred work times
 - MWF, TR, SS -- morning, afternoon, evening
 - Grades in prerequisite courses
- Criteria for forming teams
 - At least two common preferred work times
 - Balance of ability as indicated by prerequisite grades

Meyers-Briggs Type Indicator (MBTI) / Personal Style



- Energizing - How a person is energized:
 - Extroversion (E) and Introversion (I)
- Attending - What a person pays attention to:
 - Sensing (S) and Intuition (N)
- Deciding - How a person decides:
 - Thinking (T) or Feeling (F)
- Living - Life style a person prefers:
 - Judgement (J) or Perception (P)



Using MBTI Results

- The Personal Style Inventory raises several issues that students should consider.
 - Task-oriented groups often benefit from a mixture of types.
 - Team interactions can be improved if teammates understand the needs of others based on personal styles and adjust to them.

Team Training – Team Exercise

- List three or four or five items that must be included in team training
- Methodology
 - Brain storm individually – 2 minutes
 - Establish consensus as a team – 4 minutes
 - Prepare transparency
 - Report team results – 2 minutes



Team Training

- Team roles (coordinator, recorder, etc)
- Team development (storming, forming, ...)
 - Natural progression – expect it
- Member's responsibilities
 - Invest time, participate, cooperate, listen
- Operating strategies
 - Stay focused, be positive, cooperate
- Code of Cooperation
- Meeting guidelines (agenda, roles, minutes, etc.)



Stages of Team Development

- All teams go through 4 identifiable stages of development
 - *Forming* - team members are polite to each other but little is achieved
 - *Storming* - members start to argue
 - *Norming* - members accept each others differences
 - *Performing* - members trust each other and true progress is made
- Important to emphasize that all teams evolve
 - Helps them trough the transitions



Common Team Problems

- Floundering
- Overbearing or dominating participants
- Reluctant participants
- Unquestioned acceptance of opinions as facts
- Rush to accomplishment
- Attribution, discounts and "plops"
- Wanderlust: digression and tangents
- Feuding members



Types of Team Decisions

- Unilateral/Authoritarian
- Handclasp or Minority
 - Small group decides outside meeting
- Majority
- Unanimity
 - Each member has veto power
- Consensus
 - Modify decisions until all can “live with it”



Code of Cooperation

- EVERY member is responsible for the team's progress and success.
- Attend all team meetings and be on time.
- Come prepared.
- Carry out assignments on schedule.
- Listen to and show respect for the contributions of other members.
- CONSTRUCTIVELY criticize ideas, not persons.
- Resolve conflicts constructively.
- Pay attention and avoid disruptive behavior.
- Avoid disruptive side conversations.
- Only one person speaks at a time.
- Everyone participates, no one dominates.
- Be succinct, avoid long anecdotes and examples.
- Maintain confidentiality.
- Ask questions when you do not understand
- HAVE FUN!!

Code of Cooperation – Evolving One



- Use two team activities
 - Have teams develop list of four to six behavior patterns that bothered them most when they worked on teams in the past
 - Have them turn this into a positive
 - Becomes their Code of Cooperation
- Have students
 - Type and submit these
 - Formally agree to honor them
- Repeat similar process for meeting guidelines

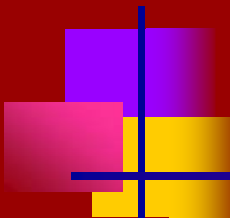


Effective Meetings

- Plan & Prepare an agenda
 - Make sure there is a need for the meeting
- Inform
 - Let team members know what they are to provide during the meeting
- Structure/Control
 - Have a clear purpose for the meeting and stick to it!
 - Use roles
- Summarize and Record
 - Document decisions & actions as soon as made
 - Keep minutes

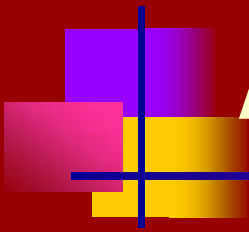
Designing Effective Team Assignments – Team Exercise

- Write three or four guidelines for faculty to use in creating team assignments
 - What are the elements of a good team assignment?
 - What promotes effective cooperative learning positive interdependence, individual accountability,... (PIGS FACE)
- Methodology
 - Brain storm individually – 2 minutes
 - Establish consensus as a team – 4 minutes
 - Prepare transparency
 - Report team results – 2 minutes



Designing Effective Out-of-Class Assignments – Key Aspects

- Assignment too difficult for a single individual
 - Time constraints
 - Skill constraints
- Assignment easily subdivided
 - Subtasks have both independent and dependent aspects
 - Independent aspects – Clarifies student responsibilities
 - Avoids “herd” approach
 - Dependent aspects -- Requires interaction



Designing Effective Out-of-Class Assignments – Key Aspects

- Intermediate goals (milestones) established
 - Established by instructor or students
 - Develops time management skills
- Self-assessment and instructor monitoring should be built in
 - Instructor monitoring to keep team on track
 - Self-assessment to help students develop internal guidelines and checks

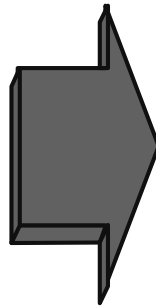
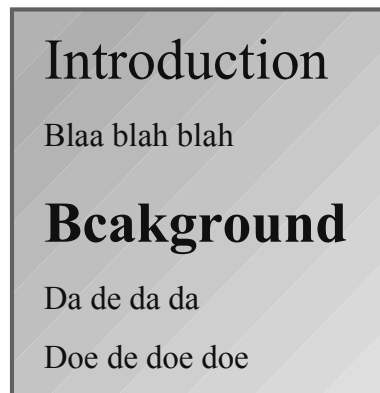


Team Reports – Pros & Cons

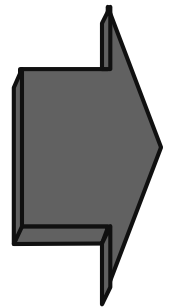
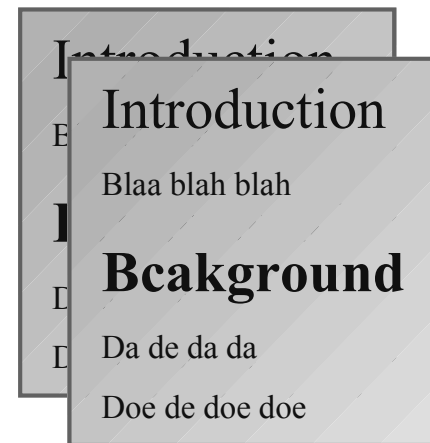
- “Group reports” are not always a good team activity
- “... worst activity ... available for building group cohesiveness and minimizing social loafing is ... group term papers ...”
 - “Designing Effective Group Activities,”
Michaelsen, Fink, and Knight

Team Reports – Steps #1 and #2

John writes the sections on Intro and Background



John makes 2 other copies and gives to Sue and Bill to edit



also turn in copy to instructor!

Team Reports – Steps #3 and #4

John also gets Sue's
and Bill's sections
to edit

Uncertainty Analysis

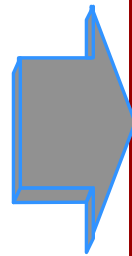
$\sigma = \sqrt{klds}$
ljl dfk jk ldfj
kljdfkka akkla
lkfjakldflakja

Results

Lab did great!

Conclusions

We're super engineers!



John edits the *other*
portions, *signs them*,
and returns them

Uncertainty Analysis

$\sigma = \sqrt{klds}$
ljl dfk jk ldfj
kljdfkka akkla
lkfjakldflakja

John
ok..

yUK!

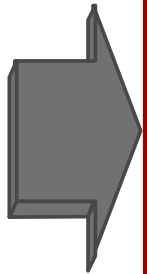
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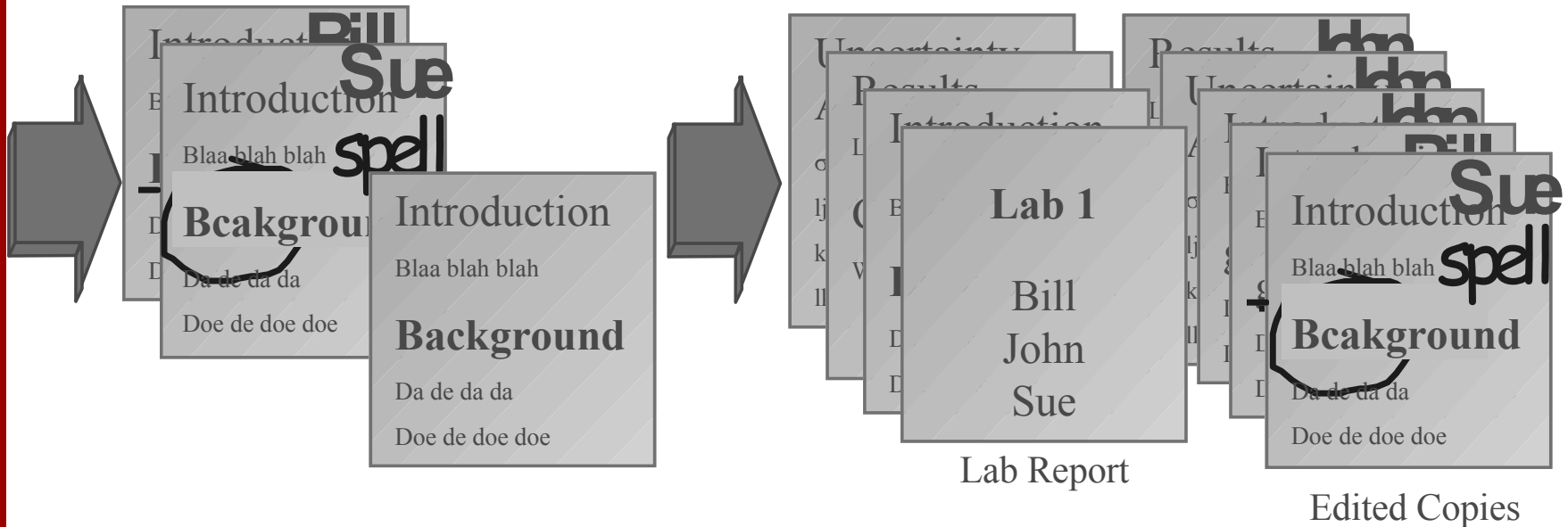
John
Good job



Team Reports – Steps #5 and #6

John revises his section based on edits, highlighting changes

The group assembles the final report *and* the copies of the revisions





Team Reports – Pros & Cons

- Why do they work?
 - Clear division of labor saves student time
 - Each student individually responsible for portion of report
 - Draft reports clearly indicate prior effort in both writing and editing



Designing Effective In-Class Assignments – Key Aspects

- Plan your exercise carefully
 - Know what you want students to go away with
- Have students work independently, then compare results
 - Minimizes loafing
- Have students first develop a plan for longer exercises
- Have a team deliverable for each exercise
 - Use simple grading: 10 for correct, 8 if not

Designing Effective In-Class Assignments – Key Aspects

- Use fixed teams -- Require them to sit together
 - Change them periodically
- Short exercises (2 to 5 minutes)
 - “Drill” activity – repeat some manipulation or next step
 - Define relationships – How is this like (unlike) that?
 - Extension -- What’s comes next in development?
 - Define new term
- Require them to write and submit answers
 - One from each team-- Rotate recorder responsibility
- Grade leniently
 - Emphasize participation (and attendance)

Progress Monitoring and Self-Assessment

- List a few approaches that allow instructors to monitor teams' progress and a few for teams to use for self-assessment of progress.
 - What can you do to determine if teams are working effectively?
 - What can teams do to determine if they are working effectively?
- Methodology
 - Brain storm individually – 2 minutes
 - Establish consensus as a team – 4 minutes
 - Prepare transparency
 - Report team results – 2 minutes



Memos

- Weekly memos required from each team member:
 - Accomplishments
 - Plans
 - Problems
- Regular deliverables help students allocate time effectively
- Stresses the importance of planning
- Keeps all team members informed of progress



Monitoring And Intervening

- Requires weekly goals
- Weekly progress reports
 - Simple form – 5 minutes
 - Individual and confidential
 - Indicate progress, activity level, and effectiveness
 - Use 3-value scale: “adequate”, “almost adequate”, “inadequate”
 - Identify non-performers
- Briefly meet with teams with problems
- Talk to non-performers



Monitoring And Intervening

Ultimate penalty (from Junior ME course syllabus):

- *In the event that a team member fails to do his or her share of the work, the team may elect to “fire” that member.*
- This will require a hearing with the instructor, appropriate and detailed documentation, and sufficient justification of such action.
- If a team member is “fired,” they will be individually responsible for completing and writing up all remaining laboratories.
- The “fired” team member will not be able to join another group.

Grading Individual Effort or Performance

- List a few approaches that instructors can use to assess (“grade”) individuals
 - How can you determine how much credit each team member earned?
 - How much should depend on group and individual performance?
- Methodology
 - Brain storm individually – 2 minutes
 - Establish consensus as a team – 4 minutes
 - Prepare transparency
 - Report team results – 2 minutes

Grading Individual Effort or Performance



- Most students are grade conscious
 - Activities that are not graded are not important
- Team activity must be graded, but
- Individual contribution to team must also be graded
 - Individual Accountability!

Team And Individual Evaluations

– Senior ECE Course

- Grade group project report and individual quizzes
- Ask each student to evaluate teammates “effort”
 - Assign percent of total effort
 - Subjective -- allows for accommodations
- “Average” peer data to get individual effort score
- Use in computing grades

Individual Report Grade = Team Report Grade * Individual Effort Score * Team Size

Team Quiz Grade = $\sum_{\text{All Members}} (\text{Individual Quiz Grade} * \text{Individual Effort Score})$

Team And Individual Evaluations

– Junior ME Course

- Grade each section of lab report
 - Objective, Background, Experiment, Results, Conclusions, References, Appendix
- Sum section grades for total report grade
- Student grade:

$$\begin{array}{ccccc} \text{Student's} & & \text{Team} & & \text{Student's} \\ \text{Sections} & + & \text{Grade} & + & \text{Editing} \\ (45\%) & & (45\%) & & (10\%) \end{array}$$

Issues Addressed In Workshop -- Part 1



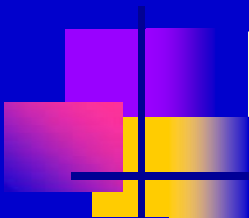
- Biggest concerns about using teams
- Most important reason for using student team
- Important elements in a good student team activity

Issues Addressed In Workshop -- Part 2



- Forming effective teams
- Training teams for performance
- Writing appropriate assignments
- Monitoring progress and intervening
- Including self-assessment
- Grading individual and team efforts

Commitment – Individual Exercise



- Write a one-sentence statement
 - If you have used team activities before, indicate one aspect you will change.
 - If you never used student team activities before, indicate why you will or will not use them now.
- Trade cards two or three times
- Read response if selected



Other Issues / Questions?



TO DO LIST

- Need some 3X5 cards for individual exercise.
- Need some blank transparencies and pens for the team exercises.
- Need some sort of evaluation form
- References?
 - Hit ASEE site?
 - Felder's site?
- 1st handout: 1,4,8,10,14,16,19,24,32,42,46,52