Team Projects: The Good, The Bad, and the Ugly

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Abstract

Team projects offer students unique and valuable benefits. However, they also may present difficult challenges to both students and instructor. This workshop presents the evolution of team projects in introductory level courses at the University of Wisconsin Fox Valley, including methods of assessment. Suggestions about managing team projects from workshop participants are included.

Introduction

Why a Team Project?

Introductory level courses are frequently survey courses, with many topics covered relatively briefly. Team projects can offer students the opportunity to research an area of interest to them in depth. Further, the ability to work effectively in teams with diverse people is a skill highly prized in most workplaces. Finally, I believe that well-functioning teams can produce superior projects and greater learning, as the team members pool their talents and teach each other over the course of the assignment.

The Good

To reiterate: Teams can produce superior projects. Team members gain social skills, a feeling of accomplishment, and maximum learning. Finally, team projects can be fun!

The Bad

Students in my introductory level courses frequently lack time management skills, complicating accomplishment of a team project. Team members may have different goals, vastly different abilities and commitment levels, and these differences hinder team functioning. Additionally, our institution allows students 10 weeks of the 15-week semester to drop courses, so teams sometimes find members leaving after a project is well in progress. Instructors may find team project management and assessment to be an extremely time-consuming activity.

The Ugly

Two personality types present special problems for their teams. The "drill sergeant" student intends to be solely in charge of the project, directing the activities of his/her underlings. Team members naturally resent a drill sergeant. More insidious is the "silent partner", the academic parasite who intends to do little or nothing toward the project. These and other less serious problems require the instructor to have students periodically evaluate their team's performance to identify problems early.

Team Projects at UW Fox Valley

Types of projects

Students in my general biology and environmental biology courses have completed a variety of semester-long team projects. The most common project has been to research an issue of interest, then present a poster summarizing the nature of the issue and evaluating the arguments. Other projects have included campus environmental audits, with results presented on a poster or in a written report, and issue-based written reports with oral summaries or debates.

Team size

I have found that teams of three to five work best for our commuter campus; larger groups are unwieldy and find it nearly impossible to identify a common meeting time with so many diverse schedules. I have allowed students to form their own teams based on common topic interests; students report near universal satisfaction with this process, as opposed to being assigned to groups by the instructor.

Team-building

I spend considerable time on team-building, especially in introducing the project. One fun activity is to give students "brain teaser" problems to work on in groups. Inevitably they realize that they are much more successful in solving problems when working as a team than on their own.

I also provide students with ideas for managing and working within a team (Appendix A) and reinforce those in class discussions.

It's important to obtain periodic feedback regarding teamwork and participation. Teams must meet several deadlines for completion of various portions of the project (examples: topic selection, preliminary abstract, poster design) to aid in time management. My students also complete a preliminary participation evaluation of themselves and their team members about a

month into the project. Teams meet with me soon after these participation evaluations have been submitted, when we try to fix any developing problems before they mushroom.

Assessment

Assessment of my team projects has several components. I allocate minor point values for meeting the interim deadlines. The project itself, whether poster or paper, is assessed according to grading rubrics. The rubrics cover the typical requirements for project content and organization and allocate the largest portion of project points. Students also fill out evaluations of their peer's projects as well as a self-evaluation.

Finally, about 20% of the project points are allocated on the basis of group participation evaluations. Students allocate themselves and their team members points for participation (Appendix B.) I normalize all point totals to be equivalent to those for a team of four, then plot all the students' point totals on a graph. I assign participation points based on the resulting normal distribution. Groups who have excellent teamwork fall in the middle range with such a method, so I routinely assign bonus points for those students.

My feedback to the students includes a summary of points allocated for each item above, as well as extensive written comments on the strengths and deficiencies of the project and comments from the peer evaluations.

Suggestions from workshop participants

- At project start, solicit from entire class a list of the characteristics of the ideal team member. Assign each student the task of becoming that ideal. Ask students midway through project and at end to evaluate in writing their progress toward that goal.
- Construct groups. Pass out a questionnaire to find out what skills each student has, plus roles they would be most comfortable with, then construct balanced groups.
- Provide electronic bulletin boards and other electronic means to facilitate group communication, editing, etc.
- Increase number of interim deadlines (up to one per week) a team must meet to prevent procrastination.
- At the project's end, have each student list the jobs they did and roles they filled, for the project. Other group members must sign the list, indicating their agreement, before turning the list in.
- Allow a student who received low participation scores from their team members the opportunity to rebut the evaluations before assigning final scores.
- Alternative assessment method: Team members grade themselves and each of their team members for participation on a 0 to 100% scale. Each student's individual grade is calculated by multiplying the project grade (meeting deadlines, project assessment, etc.) by their participation average. Example: If a project is assigned 88 points out of 100 possible, and a student received an average 80% participation score from themselves and their team members, their project grade would be 88 X 0.80 = 70.4 points. This method more completely integrates team work assessment into the overall project assessment.

Appendix A. Team Management and Goals Student Handout

One of the goals of this project is for you to learn to work effectively and actively with your team. Increasing numbers of employers are relying on groups and teams to enhance quality and competitiveness, so this is an important goal. Group skills you learn in college classrooms may give you a head start on the job later. Your ability to work together as a group will be included as a part of your overall grade in this project.

It's often easy for groups to get bogged down in socializing or in failing to coordinate schedules and so find little time to concentrate on the project. In order to maximize your efficiency and results, observe the following suggestions:

A. Set clear goals early.
Goals will help you know where you are going and set a boundary for your work. The word "goals" simply refers to having all the members of your group agree on what needs to happen within the group. A group who doesn't set goals will often find their efforts to be poorly coordinated and unsuccessful.

At the beginning of this project, agree on a set of several goals that will direct your efforts. The goals will focus on what you expect from each other, and will provide early direction. Such goals could include statements about the time line of your work ("By Oct. 2 we will assign group jobs to each member", etc.), the grade that you want on your project and what you will have to do to achieve that grade, or how you will work together to ensure that the content of your presentations will be accurate and interesting.

Goals should be centered on what each person will <u>do</u> within the group, and should be formulated by all group members. Don't worry about writing your goals in stone from Day 1; you can always adjust your goals and change them as your work evolves.

B. Assign group leadership roles.
Every group needs a manager to coordinate the process, as well as someone to keep notes, etc. A leader is NOT someone who controls the group, but rather someone who helps manage the process. At your first meeting, assign "jobs" to each group member. You might wish to work on the volunteer system, or assign roles by birth dates, or draw straws, or whatever other method you all find agreeable.

Regardless of how you organize your group roles, EVERYONE MUST HAVE A JOB AND MUST BE ACCOUNTABLE TO THE GROUP. However, you can rotate roles, or adjust duties later.

C. Set "talking rules."
One of the most important aspects of working in a group is making sure that every member is heard, and that no single person dominates the group. "Talking rules" will ensure that every person will have his/her say, and also that no individual will dominate the discussions. The rules can be as simple as "The group starts on time", "Group members will not interrupt each other," "Members will try to limit comments to one minute or less," and so on. Set your group's

talking rules in your first meeting.

If you are unhappy with your group's dynamics and work, talk first to your group members to try to resolve the situation. No individual should feel that they're carrying the load for others. If your attempt at fixing the problem is unsuccessful though, then talk to your instructor about the problem. Don't suffer in silence.

Teamwork

A course on interdisciplinary teamwork at Auburn University produced this description of eight behaviors associated with effective teamwork. Adopting these behaviors will help you work more effectively in groups, and will also help you produce a superior project.

1. **Collective Decision Making.** Decisions are discussed and agreed to by all in effective teams. In less effective teams, one person strongly asserts a position and everyone else follows along, even if they disagree.

2. **Collaboration/Interchangeability.** On effective teams, members do whatever is needed to get the job done. They are not afraid to tackle unfamiliar tasks. On less effective teams, members work independently only on tasks that utilize familiar skills.

3. **Appreciation of Conflicts/Differences.** Productive teams expect conflict and disagreement. They openly discuss their differences and see them as means to improved decision-making. Less-productive teams work to avoid conflict, preferring superficial agreement rather than tackling differences substantively.

4. **Balance of Participation.** Effective teams recognize that people do have other demands on their time, and as a group they are willing to help a member who may for a time need to decrease the amount of effort devoted to the team. This is different from what happens on ineffective teams, in which one or two members do more than their fair share of the work, resent it, but never confront members who do not contribute adequately.

5. **Focus.** Good teams keep their ultimate goals and objective in mind. If they fall behind, everyone pitches in to help the team get back on track. Teams run into trouble when they do not partition their time well and, having spent way too much time on early tasks, have no time left for the final push (or vice versa, skimp on early effort and try to do the entire project in the last couple days.)

6. **Open Communication.** Members on effective teams keep each other informed. They discuss individual work in progress. They let others know when they may be late or missing. Lack of communication hampers effectiveness of other teams. They work too much on their own and do not share progress or collaborate.

7. **Mutual Support.** On good teams, members support each other and verbally let that support be known. They compliment each other on work well done, and publicly thank others who have contributed to the group's success. On poor teams, the focus is on individual work, with little awareness, interest, or appreciation of what others in the group are doing.

8. **Team Spirit.** Effective teams develop pride and loyalty in their group. They stand up for their group and speak positively about it. When teams aren't working well, members feel no commitment to the team and may even see the group as an impediment to accomplishment of individual goals.

(Adapted from Panitz, Beth. "Team players". ASEE [American Society for Engineering Education] Prism, December, 1997: p.9.)

Appendix B. Team Participation Evaluation Form

You will be asked to assess the participation of your team members toward accomplishing your project. You will be given a total of (25 X no. team members) points to divide up among your group members. For example, if there are 4 people in your group, each person will divide up 100 points among all the members of the team based on the contribution of each to the project. If you all worked well together and participated uniformly, you would assign each person (including yourself) 25 points. If, on the other hand, you thought you did the lion's share of the work, and another individual barely showed up, your point assignments might look like: 60, 20, 15, and 5.

I will integrate all the participation evaluations from your team, your self-evaluations, and my observations, and assign up to 20 "participation points" to each person as part of their issue project overall score.   Each student's evaluation of team members will be CONFIDENTIAL, though I will report to you the total points assigned to you for participation.

This is a serious responsibility - one that you will be frequently asked to do in the workplace - and is one that sometimes makes people uncomfortable. Please think carefully about how your team functioned, and be as fair and accurate as possible. There are frequently very good reasons why one individual is able to contribute more or less than others; we all understand that. However, I would like you to simply evaluate the relative contribution of each member without taking into account extenuating circumstances.

Procedure
On the lines below, enter your name and those of your team members. For each member, then, indicate how many points of the total available (typically 75, 100, or 125) each person, including yourself, deserves for participation.

        Your name_____   _____ points
        Team member_____   _____ points
        Team member_____   _____ points
        Team member_____   _____ points
                                     Total   _____ points