

Using Project Management Concepts in the Facilitation of Group Work

This document has been developed to help Ryerson instructors integrate project management techniques into their group work assignments. These methods can help instructors design projects that encourage collaboration rather than conflict, and help students understand and define their roles in a group.

Common Problems

The prospect of group work in class often earns a negative reaction from students and instructors alike.

The most common problems for students using group work in the classroom are an absence of leadership and coordination, an inability to communicate effectively, difficulty defining and assigning tasks, trouble maintaining equal participation, and frustration with setting and achieving group goals.

When asked about the implementation of group work in the classroom, instructors have expressed frustration with choosing an assignment well-suited to collaboration, dividing students into groups, and dealing with student conflicts or disruptive group members.

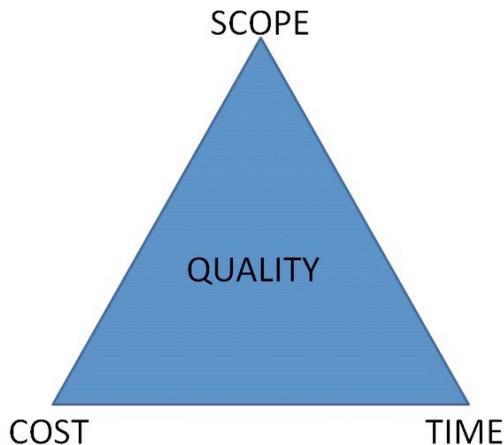
Why Use Group Work

The Association of American Colleges and Universities have identified group work as a high impact educational practice. “Collaborative learning combines two key goals: learning to work and solve problems in the company of others and sharpening one’s own understanding by listening seriously to the insights of others, especially those with different backgrounds and life experiences” (Kuh, 2008).

In “Strategies for Energizing Large Classes: From Small Groups to Learning Communities”, over 100 faculty using small group activities in large classes were interviewed on their rationale for such practices (Macgregor, Cooper, Smith, Robinson, 2000). The responses clustered into the following categories:

- Promoting cognitive elaboration
- Enhancing critical thinking
- Providing feedback
- Promoting social and emotional development
- Appreciating diversity
- Reducing student attrition

The National Survey on Student Engagement (NSSE) identified Active and Collaborative Learning as one five benchmarks of Effective Educational Practice. The 2009 report explains, “Students learn more when they are intensely involved in their education and are asked to think about and apply what they are learning in different settings. Collaborating with others in solving



problems or mastering difficult material prepares students to deal with the messy, unscripted problems they will encounter daily, both during and after college” (NSSE, 2009).

The University of Wisconsin conducted a survey of over 800 students for their *Technology Enhanced Collaborative Group Work Evaluation Report*

- 86% of students agreed that group work is valuable.
- 63% of students agreed that they learn more effectively in groups

The research on group work of various sorts confirms that group can offer students powerful learning experiences. But without a basic understanding of small group dynamics, it is unlikely that those in groups will accrue the potential benefits of collaboration. For instance, in a survey done on 700 students taking an introductory biology course, 55% of students reported never participating in study groups because of the perception that it was easier to work alone. However, of the students that utilized study groups, 85% believed their participation in a study group helped improve their exam grade (The Teaching Professor, August-September, 2011).

Project Management

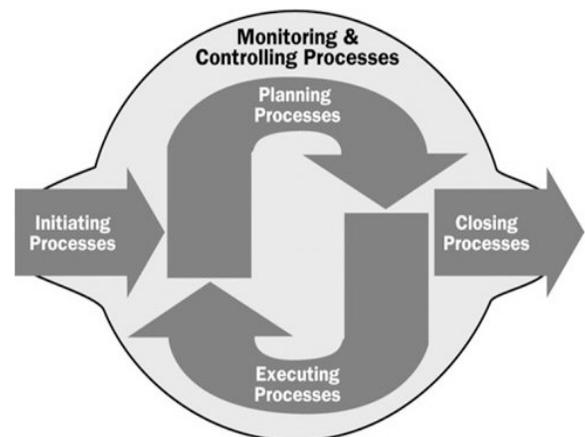
One method of helping students work effectively within groups is through the application of project management techniques.

According to *A Guide to the Project Management Body of Knowledge*, a project “is a temporary endeavor undertaken to create a unique product, service or result.” Project Management is “the application of knowledge, skills, tools and techniques to project activities to meet project requirements.”

Project management is accomplished through the application and integration of the project management processes of:

- Initiation
- Planning
- Executing
- Monitoring and Controlling
- Closing

Through the use of these processes, project managers are able to mitigate the effects of the triple constraints faced by all projects – scope, cost, and time.



Initiation

All projects should begin with a **project charter**. The project charter “is a statement of the scope, objectives and participants in a project. It provides a preliminary delineation of roles and responsibilities, outlines the project objectives, identifies the main stakeholders, and defines the authority of the project manager. It serves as a reference of authority for the future of the project” (Lehmann)

“The purpose of the project charter is to document:

- Reasons for undertaking the project
- Objectives and constraints of the project
- Directions concerning the solution
- Identities of the main stakeholders” (Lehmann)

To help students get off to a good start, provide them with a project charter template to fill out before beginning work with their group. Having a project charter reduces the possibility of conflict. A good charter also helps set the groundwork for successful conflict resolution. A sample project charter template can be found on page six of “Guiding Group Work” (<http://ir.lib.uwo.ca/cgi/viewcontent.cgi?article=1001&context=tips>).

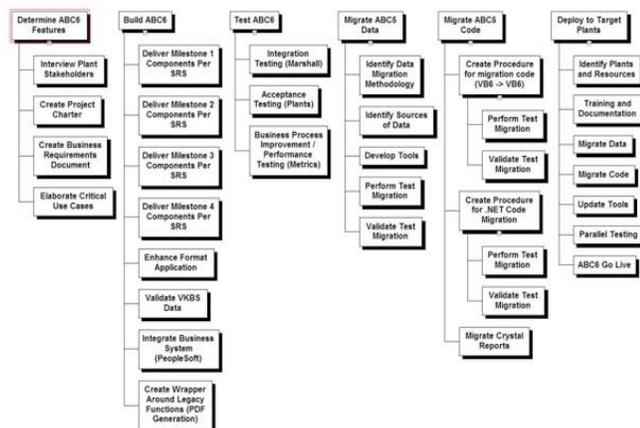
Planning

While planning the project, the project team should involve all appropriate stakeholders (PMBOK, 2004). After creating the group charter, clear goals and responsibilities should be assigned to each member. Details about each goal should also be identified. For each goal, students should ask “Why are we doing this?”

This list of goals and responsibilities is called a **Work Breakdown Structure (WBS)**. A WBS can take a number of forms, from a spreadsheet to a flowchart. Each group should have a work breakdown structure outlining the members' responsibilities. A sample WBS is attached as an appendix to this document. Students can also make their own WBS using Excel or Vue, an open source visualization tool (<http://vue.tufts.edu/index.cfm>).

Work Breakdown Structure (WBS) Activity Checklist

Phase	Requirements	Status	Activity	No
Requirements phase	Data flow diagrams			
	Data requirements			
	Functional requirements			
	Network models			
	Presentation requirements			
	Interface requirements			
	Prototyping			
	Development of requirements			
	Sizing of alternative solutions			
	Expenditure estimates			
	Resource Estimates			
	Reviews			
Detailed design/planning	Detailed design			
	File layouts			
	Detailed design and interfaces			
	Logical design			
	Physical design			
	Security design			
	System control tables and codes			
	Data validation of logical procedures			
	Audit tracking			



Executing

Forming Groups

There are three general types of student groups.

- In-class Groups
- Study Groups
- Project Groups:

These groups can be either student-formed or instructor-assigned. Students often prefer forming their own groups, while as instructors often want more control. When deciding which method to use, keep in mind that “although students-selected groups perceived they produced higher-quality work, the actual grades assigned to the group projects did not differ between group formation conditions” (Hilton and Phillips, 2010). What’s more important is that the groups, no matter what their makeup, are taught how to communicate with each other.

Managing Project Meetings Effectively

One area where communication often breaks down is during group meetings. To help avoid this, provide students with a framework for project meetings. For example

When planning a project meeting:

- 1) Identify the purpose of the meetings
- 2) Agree on the frequency of meetings
- 3) Before the meeting:
 - i) Determine the purpose
 - ii) Distribute an agenda in advance
 - iii) Start and end on time
- 4) During the meeting:
 - i) Confirm the time limit and stick to it
 - ii) State the objectives
 - iii) Keep things moving (be the one who gets things back in track)
 - iv) When further work is needed assign action items
 - v) Use votes or consensus to agree on actions
 - vi) Summarize
- 5) After the meeting:
 - i) Follow-up
 - ii) Send notes from meetings

(Verma, 1996)

If students commute to campus and are finding it hard to meet, there are several methods for setting up virtual meetings. They can meet and share their work via document sharing programs, and discuss their project using instant messaging and VoIP (Voice over Internet Protocol) programs.

Free communication tools include:

- Document Sharing: Google Docs (<https://docs.google.com>)
- Wikis: Wikispaces (<http://www.wikispaces.com/>)
- File Sharing: Dropbox (<http://www.dropbox.com/>) / Spideroak (<https://spideroak.com/>)
- Instant Messaging: Trillian (<http://www.trillian.im/>) / Adium (<http://adium.im/>)
- VoIP: Skype (<http://www.skype.com>)

Leadership

Effective groups must be able to decide if they need a leader and, if so, how to select their leader and what the leader's job will be. Gary (1981) defined leadership as “the process of influencing other team members toward a goal” (Verma, 1996).

One possible suggestion for students is to use self-managed work teams. In self-managed work teams, the leadership role rotates, with a different member chairing each meeting. The leader is responsible for setting an agenda and outcomes for the meeting, and for sending them to members ahead of time. The leader is also responsible for encouraging team members and keeping the group on track.

Designing Group Work

The success or failure of group work rests largely on careful planning and design. For instance, Barbara Gross Davis stresses the importance of:

- Creating group tasks that require interdependence.
- Making the group work relevant.
- Creating assignments that fit the students' skills and abilities.
- Assigning group tasks that allow for a fair division of labor.
- Setting up "competitions" among groups.

(Davis, 1993)

When preparing for group work, keep in mind that “research indicates the manner in which an instructor facilitates a group project has a significant impact on the success of the group project” (Engage). Often, when group work fails, it is because tasks weren't well-suited to group work, deadlines were unrealistic, or there was no peer support (Freeman, 2011). It is important to prepare students with strategies for collaboration, to design assignments to meet specific learning objectives, and to be clear about how collaborative work will be graded. Conduct regular assessments of the process to see what is and isn't working (Engage).

Assessing Group Work

Group work requires unique assessment method. One important best practice is giving early feedback. For instance, providing students with comments on the first components of their project so they can get a sense of how they are doing. Another important aspect of evaluating

group work is identifying and assessing individual contributions. Use the work breakdown structure (see attached) to determine the contributions of individuals.

Peer Assessment

Carefully designed peer assessment can be an effective method for assessing group work. Some advantages of peer assessment include:

- Encourages student involvement and responsibility
- Helps students understand their role and contribute to the group work process
- Develops student judgment skills
- Considered fair by some students, because each student is judged by their own contribution
- When successfully implemented, it can reduce marking load
- Can reduce the ‘free ride’ problem because students are aware their contribution will be graded by their peers

There are also some disadvantages to keep in mind.

- Additional briefing time can increase instructor work load
- There is a degree of risk with respect to the reliability of grades, as there may be peer pressure to assign high marks
- Students may have a tendency to award everyone the same mark
- Students may feel ill-equipped to undertake the task of assessment
- Students may ‘gang up’ on one student

To minimize these disadvantages and maximize the benefits, there are several best practices for implementing peer assessment of group work:

- Make sure that what is being assessed is concrete and outcome-based (e.g. timeliness of contribution, attendance at meetings, contributions were relevant and the student met their objectives)
- It is not appropriate to assess things like how hard an individual worked
- Assessments should be guided by questions
- Assessments should include justification

Rubrics

Rubrics can be a good way to guide peer assessment. They provide clear evaluation criteria, motivate students to achieve higher performance levels, and provide evidence of learning patterns that can then be used to identify students’ strengths and weaknesses. These patterns can then be used to modify the curriculum, instructional design, and learning practices (Maki, 2004).

Rubrics can provide students with clearer expectations, more consistent and objective assessment, and better feedback, as well as encourage critical thinking (Mueller, 2012). However, they can also reduce students’ interest in what they are learning, and send a message that success is more important than learning (Kohn, 2011). Therefore, rubrics must be carefully designed and applied. See a sample rubric attached to the end of this document for more ideas.

Work Cited

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Work Breakdown Structure for Group work

Project Name:

Group Number:

Team Members:

Main Tasks:

- 1.
- 2.
- 3.
- 4.
- 5.

Assigned Task #: _____

Work breakdown structure (WBS) for each task:

Details	Responsibility (Name)	Start Date	Due date	Status (Done/Ongoing/In progress...etc)
(Example) Research: Topics Theory				
(Example) Present to Group: Document PowerPoint Online				
(Example) Interview: Whom When Why				

Group Charter/Contract

What is/are the goal(s) of our group? (*Goals should be SMART: Simple, Measurable, Attainable, Results oriented, Time bound*)

RECOMMENDATION: Check to see if the goals are similar to the ones that the instructor provided for the group.

What are our pressures? (ex. Money? Time?)

RECOMMENDATION: Have they listed all possible pressures? Are the pressures realistic?

How will we deal with/compensate for our pressures?

RECOMMENDATION: What are their strategies to overcome these pressures? For example, if time is a pressure, how will they plan to resolve this problem? Possible solutions: virtual meetings, Skype, discussion board forums.

What are the strengths of our group and its members?

RECOMMENDATION: The instructor should look for a variety of skills that could contribute to the success of the group and the project. Is there enough diversity (if diversity is needed), is there any overlap?

Group member	Strength(s)

How will we capitalize on the strengths of each member? (*Hint: Think about your group goals. How might each person contribute to achieving them?*)

RECOMMENDATION: Instructors should provide the students with examples of responsibilities related to the project. This will help students in understanding the various roles. The students can then list how they can contribute to the specified goals.

What communication strategies will we use to communicate?

(*Email? Facebook? What is the maximum expected response time?*)

RECOMMENDATION: If students are using Skype, they all need to have accounts and share their Skype ID. If they are communicating by email, what is the frequency of communication and how quickly should they expect a response?

What process will we follow if someone does not live up to the responsibilities? Be specific.

RECOMMENDATION: Some possible answers to this question include

- Examine the reasons and try to find a solution among the group.
- Inform the instructor of the situation.
- Make plans for who will take over each part of the project if a student drops out the group.

Signatures

Member 1	Member 2	Member 3	Member 4

RECOMMENDATION: You might not need signatures for online students, but should request an acknowledgment that they all agree to the charter. This could be done by email to you and to the group members.

SMET Group work rubric

Skills	4 Advanced	3 Competent/meets expectations	2 Progressing/does not fully meet expectations	1 Beginning/does not meet minimum expectations	Score
Contributions/participation Attitude	Always willing to help and do more, routinely offered useful ideas. Always displays positive attitude.	Cooperative, usually offered useful ideas. Generally displays positive attitude.	Sometimes cooperative, sometimes offered useful ideas. Rarely displays positive attitude.	Seldom cooperative, rarely offers useful ideas. Is disruptive.	
Working with others/cooperation	Did more than others – highly productive Works extremely well with others, never argues	Did their part of the work – cooperative. Works well with others, rarely argues.	Could have done more of the work – has difficulty, requires structure, directions and leadership, sometimes argues.	Did not do any work – does not contribute, does not work well with others, usually argues with teammates.	
Focus on task/commitment	Tries to keep people working together. Almost always focused on the task and what needs to be done. Is very self-directed.	Does not cause problems in the group. Focuses on the task and what needs to be done most of the time. Can count on this person.	Sometimes not a good team member. Sometimes focuses on the task and what needs to be done. Must be prodded and reminded to keep on task.	Often is not a good team member. Does not focus on the task and what needs to be done. Lets others do the work.	
Team role fulfillment	Participated in all group meetings, assumed leadership role as necessary. Did the work that was assigned by the group.	Participated in most group meetings. Provided leadership when asked. Did most of the work assigned by the group	Participated in some group meetings. Provided some leadership. Did some of the work assigned by the group.	Participate in few or no group meetings. Provided no leadership. Did little or no work assigned by the group.	
Communication/listening Information sharing	Always listens to, shares with, and supports the efforts of others. Provided effective feedback to other members. Relays a great deal of information – all relates to the topic.	Usually listens to, shares with, and supports the efforts of others. Sometimes talks too much. Provided some effective feedback to others. Relays some basic information – most relates to the topic.	Often listens to, shares with, and supports the efforts of others. Usually does most of the talking – rarely listens to others. Provided little feedback to others. Relays very little information – some relates to the topic.	Rarely listens to, shares with, or supports the efforts of others. Is always talking and never listens to others. Provided no feedback to others. Does not relay any information to teammates.	
Job proficiency/correctness	Work is complete, well organized, no errors and is done on time or early.	Work is generally complete, meets the requirements of the task, and is mostly done on time.	Work tends to be disorderly, incomplete, not accurate and is usually late.	Work is generally sloppy and incomplete, excessive errors and is mostly late or not at all.	

Peer Evaluation Rubric from:

http://cosee-central-gom.org/seascholars/lesson_plans/lesson2web/intro/peerrubric1.html

Participation

- 4 Student consistently participates in group work.
- 3 Student participates in group work most of the time.
- 2 Student participates in group work some of the time.
- 1 Student does not participate in group work.

Role Performance

- 4 Student effectively performs assigned role within the group.
- 3 Student adequately performs assigned role on a consistent basis.
- 2 Student adequately performs assigned role some of the time.
- 1 Student does not perform assigned role within the group.

Works Toward Team Goals

- 4 Student consistently works toward team goals.
- 3 Student works toward team goals most of the time.
- 2 Student works toward team goals some of the time.
- 1 Student does not work toward team goals.

Cooperation

- 4 Student interacts well within the group and respects other group members.
- 3 Student interacts adequately within the group and respects other groups members.
- 2 Student interacts adequately within the group but does not respect others.
- 1 Student does not cooperate with other group members.