Guidelines for Student Group Projects

Cardiff University Education and Innovation Project (CUSEIP) on 'Investigation of student and staff expectations of team work' with a Placement student Tsvetina Ivanova (under the supervision of Helen Phillips and Wendy Ivins), has produced some guidelines on student group projects that could be beneficial to students who are interested to know more about boosting students' group performance. The guidelines below can serve as a starting point for student teams who are about to work together on a project. They can be used as an exemplar format for group projects but should also be taken with some consideration of their relevance and appropriateness to the specific project. The guidelines must be tailored for the specific project requirements and assessment in order to be helpful to the team.

What is a team and what makes a team successful?

A team is defined as a structured group of people working on defined common goals that require coordinated interactions to accomplish certain tasks (Forsyth, 1999). A successful team is one that completes its task, maintains good social relations and promotes its members' personal and professional development (Levi, 2015, p.19).

Acknowledgement: These guidelines have been adapted from the *Guide to Student Team Projects* from *Group Dynamics for Teams* by Daniel Levi (2015, p.369).

A.1 Starting the Team

Team Warm-ups

Team warm-ups are usually done to help team members form social relations at the beginning of a project so that **trust and communication** are facilitated throughout the course of the project. For example, team members could start off by introducing each other in turns and sharing their hobbies and interests. Having a small turn-taking in explaining your **strengths and weaknesses** in the beginning could also help task coordination afterwards. While there are a lot of activities that are advised to be performed by the team in the beginning, student teams that spend time planning for team work and task work are more successful in the long run (Mathieu & Rapp, 2009).

Communication is vital for the efficiency of the group but student group projects often have issues communicating. A survey done within the School of Computer Science (Year 1, Year 2 and Placement year students, N=31) have found that 35% of students would say that they have communicated regularly as a team but it hasn't been effective while 11% would share that they haven't communicated regularly and haven't managed to work effectively.

In other words, regular communication would not guarantee efficient work process and the lack of it won't help either. In order for the team to be successful, team members must learn how to **communicate effectively** which comes by fostering team member's ability to understand each other's thoughts, emotions and behaviours. In fact, recent research has been emphasizing social sensitivity skills and group's emotional intelligence as factors that are equally or even more important for the group's success than team members' intelligence is (Woolley et al., 2010; Bender et al., 2012; Cheruvelil et al., 2014).

Team members who know each other well and are comfortable communicating are more likely to build emotional intelligence as they work together. A friendly and supportive environment can be cultivated from the very beginning if members listen and respect each other's opinions and learn to make decision in an inclusive and reasonable manner.

Development of a Team Contract/Ground Rules

It is important to obtain agreement about the goals of the team, the roles and responsibilities of team members, norms and operating rules, and expectations about the performance of team members. Teams should use the **Code of Conduct for Student Group Projects** as core principles that they adhere to when reaching those agreements. **The contract** can serve as an initial commitment for the team and should focus on the team's work process. Figure 1 presents an example format for the development of a team contract that could help your team's initial discussions.

Team Contract	
Team Goals	What are the main goals of your team?
Team Objectives	What specific actions or criteria relate to these goals? How can these be measured or evaluated?
Team Member Roles	What are the primary roles and responsibilities of each team member?
Team Norms	What operating rules does the team need?
Team Member Evaluation	What criteria will be used to evaluate each member's performance?

Figure 1. Team Contract.

SOURCE: Adapted from Herrenkohl, R. (2004). Becoming a team. Mason, OH: South-Western.

When thinking about the team's progress make sure that the goals that the team sets up are **specific**, not general. The team should also write up objectives that are **measurable** so the team can evaluate whether the goals were met. Discussions about **the team's expectations from members** can also be vital for the smooth work process of the group. Consider discussing some of the following:

- What are the primary roles and responsibilities of team members in terms of their tasks and relations with one another?
- Does the team expect equal commitment and participation from each member?
- How important is it that assignments are done on time or that work is high quality?
- How important is working cooperatively and maintaining good social relations?
- How important is reaching the team's goals for each member?
- How could the team handle differences in team members' expectations of the work they produce?
- What means of communication will the team use?
- Will the team use any additional software to keep track of its progress?
- How should decisions be made?
- How often should the team meet?
- What are legitimate reasons for missing meetings?
- Would there be any limit for missing meetings and what should be done when people miss too many meetings?
- How important it is that everyone participates in team discussions?
- When assignments are made, what should be done when team members do not complete them?

- Who is responsible for the agenda and minutes?
- How should conflicts and disagreements be handled?
- How can the team encourage members to listen attentively and respectfully to others?
- What should the team do to enforce its rules?

The answers to these questions could serve as a base for **the team's ground rules**. It can be really beneficial to write those down in the beginning of your project to prevent future misunderstandings and help resolve potential conflicts within the team.

Alongside the group's goal to meet the desired outcomes, your personal development should not be neglected as well**. Consider how the team's goals are reflective of your own learning goals**. Make sure you voice your concerns to the group if you feel like the work you are doing as part of the project does not meet your own expectations in terms of the learning outcomes you are supposed to reach. If you don't get appropriate response from the group you can always take that to your supervisor who should be able to resolve the issue. If the issue you want to raise is somehow more related to personal matters between you and another student(s), you could always talk to the Module Leader or the Senior Personal Tutor.

Team members' performance evaluation

After discussing expectations of the team, it is vital that you discuss how these expectations could be reflected in **team members' performance evaluation**. Evaluations are useful strategies that can be used in various ways even if they are not part of the project's requirements. Teams could still develop their own evaluation criteria in order to enhance their performance.

Peer evaluations and self-evaluations can be used to develop students' team skills. They teach students about teamwork and what is expected from them; encourage students to reflect on team processes, their own team contributions, and their teammates' contributions; and provide students with developmental feedback (Dominick, Reilly, & McGourty, 1997; Gueldenzoph & May, 2002; Mayo, Kakarika, Pastor & Bustur, 2012). For these reasons, using peer evaluations appropriately can help students learn to be more effective team members (Brutus & Donia, 2010; Oakley, Felder, Brent & Elhajj, 2004).

Students' survey data from undergraduates and master students from the School of Computer Science (N=48) also pointed out that 58% of students thought that **introducing peer assessment** in future group projects **would facilitate team member's engagement in the project** and **the recognition of individual contribution** to the project while 40% of them also thought that it would facilitate **team communication and discussions** as well.
One of the main complaints people have about their performance evaluations is that they did not know what was expected from them. Think about discussing the following issues:

- How important is it for the team to evaluate its performance?
- What criteria should be used to evaluate each team member's performance?
- How should the criteria be implemented when team members are evaluated?
- How often should the evaluation take place?
- How should the evaluation outcomes be used afterwards?

Research has indicated different strategies that could be used in team member's evaluation, some of them including students developing **behaviourally anchored rating scales** designed to be immune to biases due to liking or personality (Gueldenzoph & May, 2002; Levi & Cadiz, 1998; Ohland et al.,

2012). It can be useful to have a look at tools that are only relevant and have already been validated in order to reach the most appropriate approach.

Leadership and Meeting Roles

Teams often establish meeting roles to help meetings operate more efficiently. The two most common meeting roles are **team leader/coordinator** and **recorder**. The leader/coordinator acts as a facilitator who ensures that information is shared and processed by the team in a supportive and participative environment. This includes keeping the team discussion on track, preventing personal criticism, and ensuring participation by all team members. The team recorder takes notes on key decisions and task assignments in order to provide documentation of the team's activities.

Frequent mistake that students do is not assign any leader which often leads to task coordination happening on an ad-hoc basis: 26% from a Computer Science undergraduate students sample (N=31) said that task coordination within their groups had been very poor or had happened on an ad-hoc basis. On the other hand, selecting a team leader at the first meeting could mean the most talkative, not the best suited students gets to fill the role which can again jeopardize the team's progress in the future.

It is advisable that during the first three weeks of a team project, **the leader role is rotated**, especially if team members don't know each other at all. Eventually, the team can decide to keep rotating or select a permanent leader by an open discussion or anonymous voting.

Managing Team Technology

All teams need to agree on which technologies to use for various functions while making sure everyone has sufficient capacity to use the technologies. There are a variety of norms that teams may decide to develop about the use of technology. Here are some of the questions teams should discuss when developing technology norms:

- What technology should be used for different types of communication?
- What is the appropriate length and response time for different technologies (e.g. email versus texting)?
- When should messages or replies be sent to everyone on the team?
- What are the rules for modifying or editing shared documents?
- Should individual team members be responsible for proofreading their own work or should the team assign somebody to take on that responsibility if they are willing to/have the relevant skills?
- How would the team regulate equal contribution of all team members once they start working on their tasks?
- When does an issue, decision, or conflict require a face-to-face meeting?

A.2 Planning and Developing the Project

Survey data from Computer Science, NSA and Master students within Computer Science (N=48) showed that 48% of students would have benefited from guidance on **Coordination and Delegation of tasks** before their group projects had commenced; 46% of them felt the same about **Group Project planning** and 33% indicated **Team roles** as something they would have benefited from. Finally, **Team discussions and meetings** was the area 29% of students picked. You can find relevant information on these and other related topics below:

Challenge the Assignment

When given an assignment, most teams jump right in and start to solve what they view as the main problem. Often, students would work on their initial ideas until it is obvious that their first approach is not working, at which point they have to go back and start over which can be really inefficient and frustrating.

Take the time in the beginning to fully understand the assignment and ask any questions if something is unclear. Once you develop an approach with you team, after the first 2-3 weeks you may want to review the project assignment and the direction your team is taking by discussing some of the following questions:

- What are the benefits of our approach to the assignment?
- What are the problems of our approach to the assignment?
- Should we change the approach once we have found problems to it?

It is always better to change direction earlier rather than later in the project.

Project Planning

To plan a project, the team needs to break the project down into its basic parts, develop a schedule proposing length of time to perform the parts and the necessary sequence to complete the parts, assign team members to work on the parts. A project timeline can be made as a simple graphical representation of a team project. The team should try to **develop a timeline** for the project and consult it regularly to track progress. It is useful to include some milestone reviews around your important deadlines – times when you will review the team's progress and modify the project plan if needed.

Roles and Assignments

Team projects can be divided in a number of ways. Team members need to negotiate their role assignments with each other while remembering that **equity** is less a matter of whether everyone is doing the same amount of work, and more about whether everyone is pulling his or her own weight and is equally invested in the outcome.

The most common approach used by student teams is **to divide the project and assign one person to perform each part**. Team meetings are used to monitor progress and coordinate activities. A few parts of the project (making strategic decisions or reviewing the final report) are left for the team as a whole. This is an efficient approach, but it leaves the team vulnerable to a team member who fails to perform his or her role.

An alternative approach is **the pair system**, where at least two people are assigned to each major activity, and everyone works on more than one part of the project. This approach encourages coordination and integration and protects the team from problem team members.

Importantly, each team member should receive tasks that are **valuable for their learning** and they should do those tasks themselves in order to learn. Helping fellow team members is a professional and loyal act as long as it is purely explanatory and it is not taking away the value of learning from the particular member.

Equal engagement by all team members can be a challenge for most student teams due to a number of factors such as differences in motivation, skills or knowledge. Survey data from Computer Science

undergraduate students (N=31) has shown that 40% of students report on one or a couple of members who haven't engaged or have engaged to a slight extent compared to the rest of the team.

Note that **students are not expected to go beyond their assigned tasks** to compensate for the lack of engagement of other students. In the case of lack of engagement by a student, it is the team's responsibility to address the issue by talking to that student and trying to find an agreed solution to the problem. If that doesn't resolve the issue, the team must report it to the supervisor who will then consider it only when forming the individual student's mark, not the one of the team.

Similarly, if a student produces **work that is not meeting the expected quality**, it is again the team's responsibility to address that, following the same procedures.

Remember that **efficient communication and outlined ground rules/contract in the very beginning could facilitate resolving any of those issues** to a significant extent. If team members are open and loyal towards each other, they are better able to cope with challenges that they face as a team.

A.3 Monitoring the Project and Maintaining Teamwork

Team Meetings: Sharing Information, Making Decisions, and Tracking Assignments

Team meetings are used to **coordinate activities, track progress, make decisions, and assign tasks**. They should start with sharing information and reviewing progress. Team members check in by updating the team on their activities and work assignments. If the team has developed a project plan and timeline, it can review its progress on meeting the objectives. After reviewing progress, team meetings focus on decision making. Decisions relate to project topics, management of the team, team activities, task assignments and coordination of tasks. At the end of the meeting, important decisions are summarized and task assignments reviewed.

It is the team leader's job to help structure and facilitate the team meeting. Simple **agendas** that outline the meeting structure and identify decision topics are useful to keep the team on track. The leader can ask for **input on the agenda** before or at the beginning of the meeting. The recorder monitors progress of the meeting and records the major decisions and task assignments.

Group Process Evaluations

Once the team has started working on its project, the team needs to monitor its progress, manage problems and improve how it is operating. One of the biggest problems is to get beyond scapegoating or blaming individuals (or outside forces) for the team's problems**.** It is not problem people who are causing difficulties- it is a team process that does not work and **your team has to accept responsibility that they allow problem behaviours to occur and continue.** Scapegoating is just a way of blaming others for the problem so the team does not have to work on a solution once it has allowed for the problem behaviour to occur.

Teams often ignore problems until they are very disruptive and difficult to solve. It is better to identify problems early and deal with them before they disrupt the team's operation. Regular group process evaluations are one way to do this.

Group process evaluations can be performed at the end of team meetings. The team could have each team member rate the team's performance and then answer the following questions: What is the team doing well? What areas of improvement are needed? After answering these questions, discuss the responses in the team. Use the discussion to **acknowledge accomplishments, identify problems, and develop solutions for the team's problems**.

Managing Problem Behaviours and conflicts

If the team identifies a problem, there are many ways they can manage it. As it was mentioned earlier, the first resort that the team should focus on is dealing with the problem internally by **relying on the team's ground rules and communication principles**. Figure 2 shows an example activity that the team could use to manage problem behaviour.

Defining the Problem Behaviour
Discuss examples of when and why this behaviour occurs. Write a definition of the behaviour below.
Managing Problem Behaviours
Preventive Measures: What can the team do to prevent this behaviour from occurring?
Compensatory Approaches: How can the team change how it operates to compensate for the behaviour?
Change Approaches: What strategies can the team use to change the behaviour?

Figure 2. Managing Problem Behaviours Activity.

SOURCE: Adapted from Scholtes, P. (1994). *The team handbook for educators*. Madison, WI: Joiner.

Even though teams are expected to attempt to address any problematic behaviour, they should still acknowledge it to their supervisors. In the case of a reoccurring issue or one that seems to take too much of the team's time and effort, the team should always consider reporting it to the supervisor or Module leader for the specific project.

Milestone: Midpoint Evaluation

The midpoint of the project cycle is a time when teams should stop **and re-evaluate the team's goals and objectives, the direction of the project, and the way the team is operating**. Although it is halfway through the project's period, most teams discover that the project is less than half completed. The team may want to go back and review the team's contract, discuss the project's direction, or review and modify the project timeline so it reflects the team's actual performance. Finally, do a group process evaluation and review how well your team is working together.

A basic midpoint evaluation technique for reflecting on the team's performance is the **Start-Stop-Continue Approach** (Dyer, 2007). Individual team members write down what they think the team should start doing, stop doing and continue doing in order to be more effective. The team discussed these views and looks for patterns or common responses. The team leader asks for concrete examples of the identified issues. Next, the team discusses ways to change what they are doing to become more effective.

After the midpoint, **teams need to make a push toward performance**. Working hard to complete the project is only useful if you are heading in the right direction and have a group process that supports teamwork. Now is the time a team make sure that this happens and the project moves forward.

A.4 Completing the Project

Once you have completed your project, you should think about reflecting on your learning experience during the course of the project. It can be really useful to discuss how the team has performed as a whole, in one last meeting. If your team was like most project teams, you had your ups and downs along the way, with challenges and conflicts to manage.

This is not likely to be your last team project as a student or professional, so you should try to learn as much as possible from the experience. You could discuss the following questions with your team:

- How did your evaluations of the team's performance change during the course of the project?
- What were the things that your team did well during the project?
- What were the areas where improvement was needed?
- Was your team able to resolve its problems along the way?
- Having done that project, is there anything you would do differently in your next group project?

Most of these questions could then feed into and facilitate your final reflection reports.

References:

Bender, L., Walia, G., Kambhampaty, K., Nygard, K. E., & Nygard, T. E. (2012, February). Social sensitivity and classroom team projects: an empirical investigation. In *Proceedings of the 43rd ACM technical symposium on Computer Science Education* (pp. 403-408). ACM.

Brutus, S., & Donia, M. B. (2010). Improving the effectiveness of students in groups with a centralized peer evaluation system. *Academy of Management Learning & Education*, *9*(4), 652-662.

Cheruvelil, K. S., Soranno, P. A., Weathers, K. C., Hanson, P. C., Goring, S. J., Filstrup, C. T., & Read, E. K. (2014). Creating and maintaining high-performing collaborative research teams: the importance of diversity and interpersonal skills. *Frontiers in Ecology and the Environment*, *12*(1), 31-38.

Dominick, P. G., Reilly, R. R., & McGourty, J. W. (1997). The effects of peer feedback on team member behavior. *Group & Organization Management*, *22*(4), 508-520.

Dyer, W. G. (2007). *Team building*. John Wiley & Sons, Ltd.

Forsyth, D. (1999). Group dynamics. Belmont, CA: Thompson

Gueldenzoph, L. E., & May, G. L. (2002). Collaborative peer evaluation: Best practices for group member assessments. *Business Communication Quarterly*, *65*(1), 9-20.

Levi, D. (2015). *Group dynamics for teams*. Sage Publications.

Levi, D., & Cadiz, D. (1998). Evaluating Team Work on Student Projects: The Use of Behaviorally Anchored Scales To Evaluate Student Performance (ERIC Document Reproduction Service No. TM29122). East Lansing, MI: National Centre for Research on Teacher Learning.

Mathieu, J. E., & Rapp, T. L. (2009). Laying the foundation for successful team performance trajectories: The roles of team charters and performance strategies. *Journal of Applied Psychology*, *94*(1), 90.

Mayo, M., Kakarika, M., Pastor, J. C., & Brutus, S. (2012). Aligning or inflating your leadership self-image? A longitudinal study of responses to peer feedback in MBA teams. *Academy of Management Learning & Education*, *11*(4), 631-652.

Oakley, B., Felder, R. M., Brent, R., & Elhajj, I. (2004). Turning student groups into effective teams. *Journal of student centered learning*, *2*(1), 9-34.

Woolley, A. W., Chabris, C. F., Pentland, A., Hashmi, N., & Malone, T. W. (2010). Evidence for a collective intelligence factor in the performance of human groups. *science*, *330*(6004), 686-688.

Ohland, M. W., Loughry, M. L., Woehr, D. J., Bullard, L. G., Felder, R. M., Finelli, C. J., ... & Schmucker, D. G. (2012). The comprehensive assessment of team member effectiveness: Development of a behaviorally anchored rating scale for self-and peer evaluation. *Academy of Management Learning & Education*, *11*(4), 609-630.