Thinking
Teamwork
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Activate

a resource for HK PolyU Teachers

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Collaborative Learning

Collaborative learning is a term that covers a variety of educational approaches which require students to work together. Collaborative learning can take place both inside and outside the classroom, and activities can vary from structured small group tasks that take minutes to demanding group projects that might extend over a semester. This approach differs from traditional teaching approaches because students are expected to be active rather than passive, and work together to achieve a common goal rather than compete with each other.

Working Together is More Than Working Alone

When students work together on well-designed collaborative learning activities, there is an opportunity for them to advance their own and each others' learning. Studies over several decades have alerted us to potential academic benefits, including:

- Increased academic achievement
- More academic discussion outside of the classroom
- Longer information retention
- Better higher level reasoning through sharing and integrating ideas
- Better understanding of alternative viewpoints
- Improved critical thinking
- Higher motivation

As well, benefits have been identified that will be useful in employment and life:

- Improved social and communication skills
- Better teamwork skills as students work together to achieve a shared goal
- Leadership practice
- The development of a global outlook when working with students of other nationalities
- The development of independent learning skills

A quick internet search will provide plentiful information about the benefits of collaborative and cooperative learning.

When interviewed for the **Learning to Learn Project (2000)**, some PolyU students talked about the benefits they gained from working in groups of group work.

> Sometimes, if I do it alone, I may go wrong and go to the extreme. As a group, others can correct me or give some advice.

> I find other people's opinions and ideas are different from mine... We can select better ideas... The result is much better.

> Working with different people with different attitudes gives you different experiences which will be useful when you get a job. You will come to know the opposite party's personality. You might have a problem working with others but you'll learn some solutions.

Good Outcomes Don't Happen by Chance

Group work, especially when it takes place over an extended period, can become a vehicle for conflict and freeloading. Undue stress can be placed on students, and some students can be frozen out. Again, in the **Learning to Learn Project**, we learned from our students who alerted us to the pitfalls, the realities, their frustrations and concerns.

> After we talked to him about his poor work, he became even worse.

> We don't really have cooperation. Usually, we arrange for each student to work on a question separately.

> Group work turns out to be work for the few good ones and some people don't get the chance to learn anything much at all.

> If I have to work with students I don't know well, I worry that I can't get along with them. I don't know their attitude towards work; maybe they will not do anything, or they will be dictatorial and won't listen to others.

The Hong Kong Polytechnic University
香港理工大學

Educational Development Centre

This issue outlines constructive practices and activities that will enable you to develop your students' skills for collaborative learning so that problems are avoided and benefits are realised.

Start Small and Start Early

Introduce Collaborative Learning to Your Regular Classes

We cannot expect students to collaboratively work on a group project without preparation. **Good outcomes don't happen by chance!** From the first year, in large lectures or small classes, you can get students to work together on tasks which might last just a few minutes or extend from one lecture to the next. The skills that students acquire through smaller-scale collaboration will stand them in good stead later on when the demands on them are higher. To get students' cooperation and enable them to learn, it is important that you find activities that engage them and you manage the process well.

Collaborative Learning Activities to Use In Class

Quiz

Why? Check understanding, share information, develop negotiation skills.

When? Good to start or review a topic.

How?

1. Working alone, students are given 5 - 8 minutes to complete a ***True/False Quiz*** consisting of about 10 items.
2. Students are asked to form groups of 5 and appoint a recorder.
3. Students compare answers and negotiate a group answer for each question.
4. When agreement is reached, the recorder enters their team's answers on the whiteboard. The teacher advises each recorder if there are any mistakes.
5. Recorders with incorrect answers must return to their teams to identify where they have gone wrong and re-enter new answers when agreement is reached.

Jigsaw

Why? Students, when they have to research then teach each other, develop a deeper understanding of content than if they just listen to a lecture or have a discussion. There are also considerable opportunities for developing generic skills.

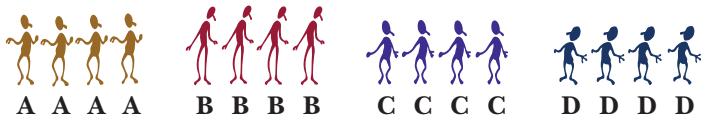
When? Effective if you have a large amount of information to cover. Depending on the topic, the activity might involve out-of-class work and spread over two classes.

How?

There are different variations of this activity but here's how one teacher used the method to help her students learn about presentation skills.

1. She composed 4 questions she thought the students needed to address in order to make a good presentation:
   (A) How do you prepare a presentation?
   (B) What skills are needed to capture and keep an audience's attention?
   (C) What technologies might be used in a presentation and how is it best to use them?
   (D) How can nervousness be overcome?
2. She assigned each class member a question (A, B, C, or D).

3. Students were instructed to form ***Expert Groups*** of 4 people who had the same letter/question.



   Groups had one hour in class to share their knowledge and consult resources that allowed them to answer their question and decide what was important to teach their classmates.
4. New groups, ***Learning Groups***, were formed. Students each had 10 minutes to teach their group members about what they had learned. *A* taught about *Preparation, B* taught about *Engagement, C* taught about *Using Technologies*, and *D* taught about *Overcoming Nervousness.*

Managing Activities

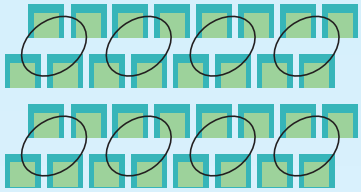
1 Explain the purpose of the activity and give clear instructions

Tell the students **Why** you are asking them to complete a task. Back up verbal instructions with written instructions specifying **What, How, Who and When,** e.g.,

- ***Read*** your task sheet.
- ***Form*** groups of 3.
- ***Predict*** what would happen if you carried out the experiment (5 minutes).
- ***Appoint*** a reporter who will present your group's prediction and reasoning to the class.

2 Display a diagram showing how to form groups

Don't be put off by class size or architecture. In a lecture theatre, display a diagram so students know how to group themselves.



3 Ask the students to reflect

Pose questions that get students to reflect on how the group has worked together.

- *Identify one thing that someone did to solve a problem they encountered.*
- *What particular words or actions were useful to solve any disagreement that arose?*

Jigsaw can be done in large and small classes. Check out variations: *Using Jigsaw in College Classrooms* by Susan Ledlow http://clte.asu.edu/active/usingjig.pdf

Collaborative Learning through Group Projects

Group project work is a popular teaching method at PolyU. Students are expected to work together outside of class and over an extended period of time on a product, a design, a report, a presentation, or a combination of these. Group projects place different pressures on students, especially those who have not worked in groups before. They also place additional demands on teachers: there's much more to group projects than putting students into groups and writing a good brief. **Good outcomes don't happen by chance!** Teachers must consider what they can do to ensure that students get more from working together than working alone. This page and the next provide prompts to help you think through just some of what is involved as well as some activities to try.

Structuring Group Activities for Better Cooperation

Research shows that if you want better outcomes from group work than individual work, a project should contain the following five elements:

- Clearly perceived positive interdependence
- Individual accountability
- Face-to-face interaction
- Interpersonal and small group skills
- Group processing

Michael Chiu, a tertiary-level computer science teacher who completed a PolyU Masters degree several years back, described in his dissertation how he applied these principles with one class of students. The performance of these students was significantly better than a control group of students whose group activities were not structured for them to cooperate. Here is how he structured the cooperation:

- **A complex project was broken into smaller parts:** The group met *face-to-face* to break the computer program that they were to create into parts for individuals to complete alone. If one person didn't do their work, the group assignment couldn't be completed. This fostered ***positive interdependence*** as it was in the interest of every group member to ensure other members completed their share of the work.
- **Individual work:** Each group member completed their part of the computer program. This part was given to the teacher and a portion of each person's overall grade was dependent on this work, making them ***individually accountable***. This addressed free-riding and gave each student a sense of ownership over the project.
- **Integration of individual work:** Class time was allowed for group members to meet *face-to-face* to integrate their individual work into a larger program. Students had to explain their work to each other and process information as a group to come up with the best way to construct the overall program. Having worked separately, each member had come to a different understanding of the nature of the program. Differences were resolved with ***interpersonal and small group skills***.
- **Self-reflection:** Each person wrote a reflection on the changes made to their work during the integration stage of the program. This ensured that each person understood and was a part of the integration stage.
- **Grading:** Students received different grades for their individual work, their self-reflection, and for the overall integrated program. This promoted ***positive interdependence and individual accountability.***

Q & A

Q From **Activate Issue 8, Active Learning in Project Work** (http://edc.polyu.edu.hk/Activate/8.pdf), I learned about designing a good project and writing a project brief. My students have also found the PolyU Group Project video to be helpful. Recently I was confronted with a new problem. Five students who always sit together came and asked if they could form their own team instead of working in the assigned groups. Is it a good idea to let students form their own groups, or is it better for me to decide?

A Groups made up of people from different abilities, different nationalities and different educational backgrounds have several benefits:

- Students learn how to work with people who think differently. They face more challenges in decision making and resolving conflict. These skills are highly valued in the workplace.
- Students' assumptions about others are challenged. Where international, mainland and local students work together, a global outlook is fostered.
- Stronger students help weaker students and weaker students see how stronger students study.

It is important that you tell students why you have purposely put them in mixed groups. They should expect to encounter different ways of thinking and it is important that they are prepared to deal with these differences.

Giving Group Projects a Head Start

Teams don't always work because students don't always know how to make them work. There are some things that you can do to get students to start working as a cohesive team from the outset. **Good outcomes don't happen by chance!** Rather than tell them about teamwork, set aside some time to introduce them to the project and participate in some well-structured team-building activities. Try these activities to get students to focus on the important questions that they may not know to ask.

"How Will We Work Together as a Team?"

What? Through identifying characteristics of teams that fail, students come up with ground rules for working together.

How?

1. In their project group, students brainstorm what for them would be *"the worst team imaginable"*.
2. The team uses these negative characteristics to construct *ground rules* for working together.

"What Are Our Skills and Strengths?"

What? Students identify the human resources they have in the team that will enable them to complete their project, and work and learn together.

How?

Use rounds to get information, e.g.,

- Round 1: "Something I do like doing/do well that will help us in this project is..."
- Round 2: "Something I don't like doing/don't do particularly well is..."
- Round 3: "A skill I would like to develop is..."

"What Do We Need to Do to Finish the Project?"

What? The group makes a provisional plan for how they will finish their work.

How?

1. The project brief is examined.
2. The project is broken down into smaller parts (e.g., library search, interviews).
3. A sequence for completing the parts is decided.
4. A provisional timetable is produced.

Gantt charts help groups see what they need to do and where they are heading. **Mind tools** describes how to create one:
http://www.mindtools.com/pages/article/newPPM_03.htm

Gantt charts can also be made in MS Excel:
http://office.microsoft.com/en-us/excel/HA010346051033.aspx

"What Will Each of Us Contribute?"

What? Each person in the group is assigned an area of responsibility for getting the work completed and making the team work.

How?

The group takes into account their declared strengths and weaknesses and assigns roles and responsibilities.

Task responsibilities

- Having identified what needs to be done to complete the project, and the skills and interests of individual members, tasks are allocated.

Process responsibilities

Possible responsibilities might include:

- Liaison with supervisor
- Progress monitor
- Record keeper and summariser
- Devil's advocate (who proposes alternatives to group thinking)
- Facilitator (makes sure all contribute, makes sure discussion is on the topic)

"What Happens When Things Go Wrong?"

What? Students anticipate problems that might arise and plan how the group will react to these problems.

How?

1. List problems that might arise (the ground rules and agreed responsibilities that have been determined will help with this).
2. Agree on actions to be taken if these problems eventuate.

Group Assessment Matters

Assessing group projects is complex. If you are finding it difficult to allocate marks fairly to individuals within teams, or are unsure about how you can assess both content and process, refer to:

Gibbs, Graham. (1995). *Learning in Teams: A Tutor Guide* (Call number: LB1032 .G524 1995)

Read "Activate" Issue 11 online at:
http://edc.polyu.edu.hk/Activate/11.pdf

This issue was written by Adele Graham and Sam Graham.

Further Information

Educational Development Centre
The Hong Kong Polytechnic University, Hung Hom, Kowloon
Phone: 2766-6292 Fax: 2334-1569 Email: etdept@inet.polyu.edu.hk