Thinking Teamwork Task-focused Transcendence

Activate

a resource for HK PolyU Teachers

Feb 2006 Issue 8

Active Learning in Project Work

In This Issue

- *Issues are identified and resources are recommended to help you effectively plan and manage project-based learning*
- *Tools are suggested that will help your students successfully complete their projects*
- *A PolyU teacher provides advice on writing project briefs that enable creative solutions*

Projects typically engage students in extended in-depth investigations which demand that they answer or research into a question or problem. As well, or alternatively, they may be expected to develop a solution or a product that addresses a driving question. Often, project-based learning involves hands-on experience or collecting first-hand data about the real world.

Projects offer different opportunities for teaching and learning. The contexts within which projects can operate are extremely diverse and project work can take many forms. They may involve a single lecturer or a department. In other situations, there may be cross-disciplinary activities or external (industry or professional) partners. Sometimes students work independently and sometimes they work in groups.

As the experiences of some PolyU students show, **projects provide an effective vehicle for the 4 Ts of the *Active Classroom* to be achieved:**

But good project experiences don't just happen by chance. Some PolyU students have far less positive experiences than others and there are students who report that their projects have been both a waste of their time and stressful.

Teachers play a vital role in making projects work. To do this demands that they *know what* is involved, *know how* to work effectively with their students in this different form of teaching and learning, and *know who* to involve so that learning outcomes are achieved.

Issue 8 brings into focus some important things to think about when using projects with your students. As well, we recommend some resources that may help you and your students make the most of the extraordinary and exciting learning opportunities that project-based learning provides.

The Hong Kong Polytechnic University
香港理工大學
Educational Development Centre

Making Projects Work

There are more tasks and issues to think about in project work than is immediately apparent. While there is no strict recipe for project-based teaching, some common tasks can be identified. They are listed below along with some associated questions and possible actions. Forewarned is forearmed!

Design a Good Project

You might ask yourself:

- Are the goals and intended learning outcomes clear?
- What room is there for students to have some choice in what they do?
- Will the students see the work as interesting, challenging and meaningful?
- Does the project require the students to apply what they are learning?
- Is the timeframe realistic?
- What form should the project take? (e.g., individual or group? open or closed?)
- Are resources (supervision and materials) available?
- Will the process be assessed as well as the artifacts?
- Is the amount of work required reflected in the marks that can be gained?
- What criterion and standards will be applied and who will be involved in the assessment?
- What skills do the students need to complete a quality project on time?

Brief the Students

Meet with the students and work through the written brief that outlines the project requirements as well as the assessment criteria.

The briefing may provide a good opportunity for you to:

- Show the students examples of successful projects done by former students.
- Make sure they understand protocols such as contacting resource people, claiming costs if appropriate, and ethical requirements.
- Explain the role and responsibilities of their supervisor(s).
- Remind them about PolyU resources and services they may want to use to help them complete their work (e.g., the Library, the English Language Centre).

Develop Students' Skills

Ask yourself:

- What formal instruction might be organised for the class?
- What resources might be recommended to the students for their own use?

Supervise Effectively

This involves:

- Agreement on expectations.
- Regular meetings.
- Progressive independence for students.
- Feedback about ideas and work in progress.
- Early intervention when problems arise.

Assess the Work

Make sure that:

- Assessment is consistent with what was laid out at the outset.
- The feedback will be useful to the students in their future work.
- Students have an opportunity to learn from the experiences and work of their classmates.

Developing Your Project Teaching Skills

If you are new to project teaching or want to explore some different approaches to this work, EDC offers courses from time to time. In the meantime, you can help yourself by exploring these resources.

Project Based Learning in Engineering (PBLE)

Not Just for Engineers!

This PBLE Guide is a **Big** (but very good) **Read**! Engineers may find the *Case Studies* a trigger for thinking about their own projects, and all PolyU teachers will find advice they can adapt to their own contexts. There is information about project design, learning outcomes, developing students and their skills, and assessment.

A Guide to Learning Engineering Through Projects (Fund for the Development of Teaching and Learning)

For the (long) print version go to:
http://www.pble.ac.uk/pble-guide-final.pdf

For browsing try the online version:
http://www.pble.ac.uk/guide-final.html

Creating Rubrics

Rubistar is a free tool you can use to create rubrics for your project-based learning activities. Try one of the templates or make one from scratch. Go to:

ALTEC, The University of Kansas

http://rubistar.4teachers.org/index.php

Group Work

Go to this short(ish) article if you want to make your group projects more robust. Don't be misled by the title which suggests that only assessment issues are the focus. The article contains excellent advice on how to set groups up to avoid problems arising and the consequent fallout that is so often a concern.

Assessing Projects by **Marcia Devlin** for the **University of Melbourne and the Australian Universities Teaching Committee**

http://www.cshe.unimelb.edu.au/assessinglearning/docs/Group.pdf

Supervising Projects

Although written for supervisors who are faced with a growing number of research students, many of the strategies, tools and suggestions can easily be adapted for supervising undergraduates' project work.

Managing More Postgraduate Research Students by **Adele Graham** and **Barbara Grant** for **Oxford Centre for Staff Development**

Copies are for loan from Pao Yue-kong Library.
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Developing Students' Skills for Project Work

Project-based learning demands skills that students may or may not have. Depending on the project, students may be required to:

- Analyse a question or find and refine a problem.
- Review existing literature as well as determine methods to use.
- Schedule tasks and manage time.
- Collect, manage and analyse data and information; use theories to explain; draw conclusions.
- Develop thoughts and ideas and later create artifacts (e.g., a report, a presentation, a programme).
- Communicate with their teachers in a different way; communicate with professionals in their field.
- Work in groups and all that involves (e.g., leading, negotiating, resolving disagreements).

While some of these skills may be learned through trial and error, their development should not be left to chance. Here is just a sample of PolyU resources that are available for using with, or recommending to, your students.

Working Your Way Through a Group Project

Learning to Learn Project, Hong Kong Polytechnic University

The Video

http://www.polyu.edu.hk/learn-to-learn/student/html/videos/Overview.htm *Note: The Clip is at the bottom of this page. Right click on the version you want to play, then click again on "Play in Realtime Theatre Mode".*

Write into your Project Brief that group members watch the Clip together. Alternatively, you might use the Clip in your project class as a team building exercise. Here's one suggestion (it will take about one hour) for how you might go about it:

The introduction section (one minute, up until the "Learning to Learn" logo) shows PolyU students talking about problems in group projects. Use it as a "need to know" warm-up.

The second section (six minutes) runs from "Group Projects" to "Stages of a Project" and is a simulation whereby a group of PolyU students do not work effectively as a team.

- Before watching, ask the students to individually note down the mistakes they observe while watching.
- After watching, get the students into their project groups and give them about 15 minutes to compare their lists and make a composite group list of mistakes project groups can make.

The third section of the Clip (two minutes) goes from "Stages of a Project" to when the narrator says, "If they had a chance to do it all over again, let's see how they could do it better..." .

- Play this segment after asking the students to watch for any mistakes they missed.
- Ask the students to add their omissions to their own group's list.

The final section is seven minutes.

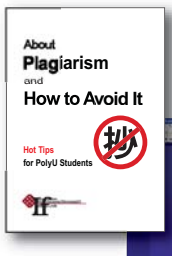
- Before watching, ask the students to note down all the advice they hear about making groups effective.
- After watching, give the students another 15 minutes to negotiate and record how they will work together to complete a quality project on time. The record may be one artifact to be included in the assessment.

The Book

http://www.polyu.edu.hk/learn-to-learn/teacher/_contents/htm/fs_j1.htm

This link will take to you the **Student Workbook** (the one the students refer to on the Clip). While the material is specially aimed at group project work, the tools may easily be adapted for individual projects.

Deterring Plagiarism



About Plagiarism and How to Avoid It is a small booklet (free copies are available from EDC).

Plagiarism ... Oops No Way! is on the Web at http://edc.polyu.edu.hk/PSP/student.htm

If plagiarism is problem, design your project so that students are required to refer to either or both of these PolyU resources. They provide students with a quiz to find out what they know (or don't!) about plagiarism and information that will help to bridge their knowledge gaps. As well, they can learn about the consequences if they don't take the matter of doing their own work seriously.

Project Briefs that Enable Creative Solutions

For **Alice Lo, Associate Professor** in PolyU's **School of Design,** any teacher who expects students to generate ideas beyond current possibilities needs to pay careful attention to developing students' creativity. Thinking creatively is not just an imperative for designers!

When the objectives of a project call for innovative solutions, Alice has found that it is critical to pay careful attention to how she writes problem statements and project briefs.

Reinforcing this message (that you can read more about in the book that she has recently published with her colleague **Associate Professor Alex Fung,** and former colleague **Mamata Rao**), Alice suggests that rather than blame students for their lack of creativity, an important first step is for teachers to examine their project briefs. "In the School of Design where team teaching is important", she says, "we do this as a team".

Alice and her co-authors have found the work of Roger von Oech, Jack Foster and Donald Trefinnger et al. (see **Reading Suggestions**) particularly useful in constructing and reviewing project briefs. When looking for imaginative and innovative solutions, they have found it important to write problems that:

- Pose questions.
- Invite the generation of many (and rich) ideas, drawing students naturally into the flow of creative thinking.
- Free students to think outside the square and don't box them in with limitations, restrictions, qualifications or criteria.
- Provide a starting point for departure and so are brief, to the point, and easily understood.

Demonstrating with an example, Alice and her colleagues are convinced that wording problems in different ways evokes quite different solutions. While coming up with interesting designs, groups of students that were given a short amount of time to discuss and generate ideas in response to the project brief of "Design a chair", were somewhat limited by their preconceptions of the functions of chairs, what they look like and what they are made from (see Fig.1).

Fig. 1 "One Chair, Entire Life" (Stephanie Chung Yin LAI and group mates, BA (Hons) in Design)

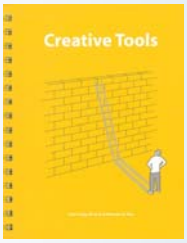
Other groups, with the more open-ended project brief to "Design a comfortable seating place", were stimulated to think more broadly. Fig.2 "Fantasy" - a semi-spherical toilet design - the work of one sub-group - focused on images, sound, smell and the environment. New and unusual possibilities!

Fig. 2 "Fantasy" - a semi-spherical toilet (Kai Hong HO and group mates, BA (Hons) in Design

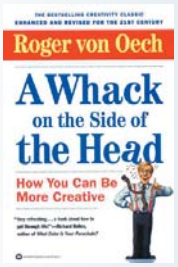
These and similar experiences working with students outside of the School of Design have encouraged Alice to continue to bring words under the microscope and restate problems. While the ambiguity may at first be challenging for the students, the process that ensues brings more interesting solutions because "students are no longer pre-occupied by what has gone before".

Reading Suggestions

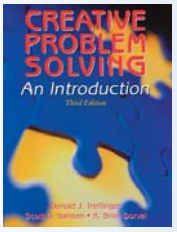
All these books are available from Pao Yue-Kong Library



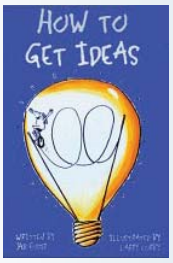
Fung, A., Lo, A., & Rao, M.N. (2005) *Creative Tools.* The Hong Kong Polytechnic University. (Call number: BF408.F86 2005).



Von Oech, R., (1992) *A Whack on the Side of the Head: How You Can be More Creative.* New York: Warner Books. (Call number: BF408. V58 1998).



Treffinger, D.J., Isaksen, S.G., & Dorval, K.B. (2000) *Creative Problem Solving: An Introduction.* Waco, TX: Prufrock Press. (Call number: BF441. T74 2000).



Foster, J. (1996) *How to Get Ideas.* San Francisco, Calif.: Berrett-Koehler Publishers, Inc. (Call number: PN147. F66 1996).

Thanks to ...

Associate Professor Alice Lo for sharing her experiences and her work. Thanks also to her co-authors, Associate Professor Alex Fung (PolyU) and Mamata Rao (now at the National Institute of Design, Bangalore, India) for allowing us to reprint graphics from "Creative Tools".

Read "Activate" Issue 8 online at: http://edc.polyu.edu.hk/Activate/8.pdf

Further Information

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