

# Active Learning through Problems & Cases

In recent years, there has been an upsurge in the use of problems and cases in teaching across a wide range of academic disciplines. Advocates for these active, student-centred approaches observe that they enable students to retain knowledge longer and develop more self-directed learning skills. They also claim that - amongst other benefits - these methods have the potential to:

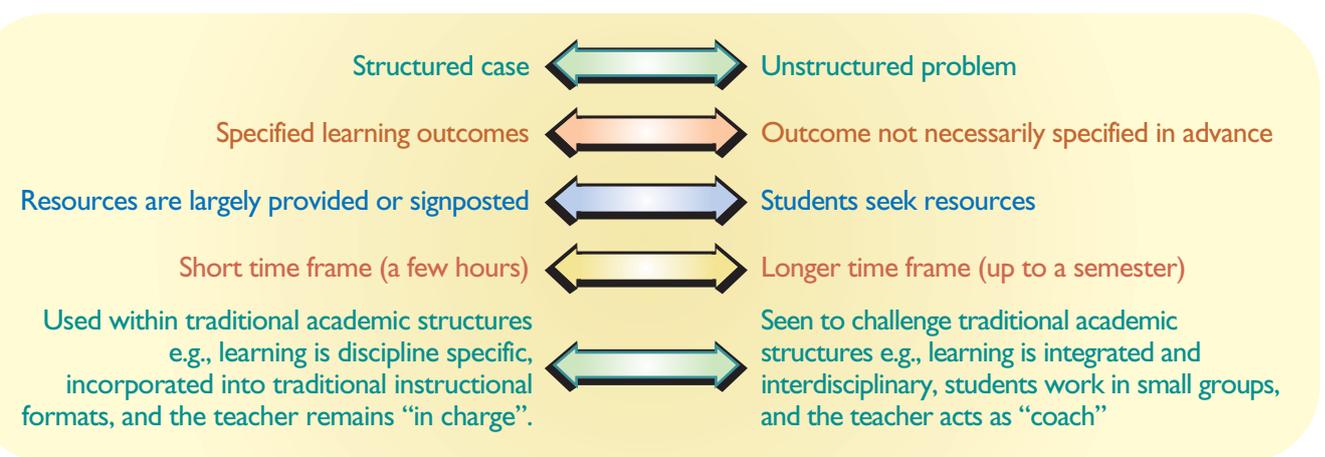
- Expose students to the messiness of real world issues and, in so doing, better prepare them for the world of work.
- Bridge the gap between theory and practice.
- Provide students with opportunities for developing generic and professional skills.
- Motivate students and heighten their interest in what they are learning.

## A Hybrid Approach

Over time, problem-based learning (PBL) and case-based learning (CBL) have been modified and hybridised from their pure or classical forms. Customarily, in CBL, the starting point was *the case* - a narrative that students discussed to achieve specific learning objectives; in PBL *an unstructured problem* compelled the learning process with students deciding what they needed to know and how to proceed with their learning. PBL and CBL now represent a multitude of different methods and the differences between them are sometimes difficult to ascertain.

## Multiple Pathways

Rather than think about CBL or PBL according to a set of rigid definitions, teachers may find it more helpful to think about their characteristics being situated along a range of continua:



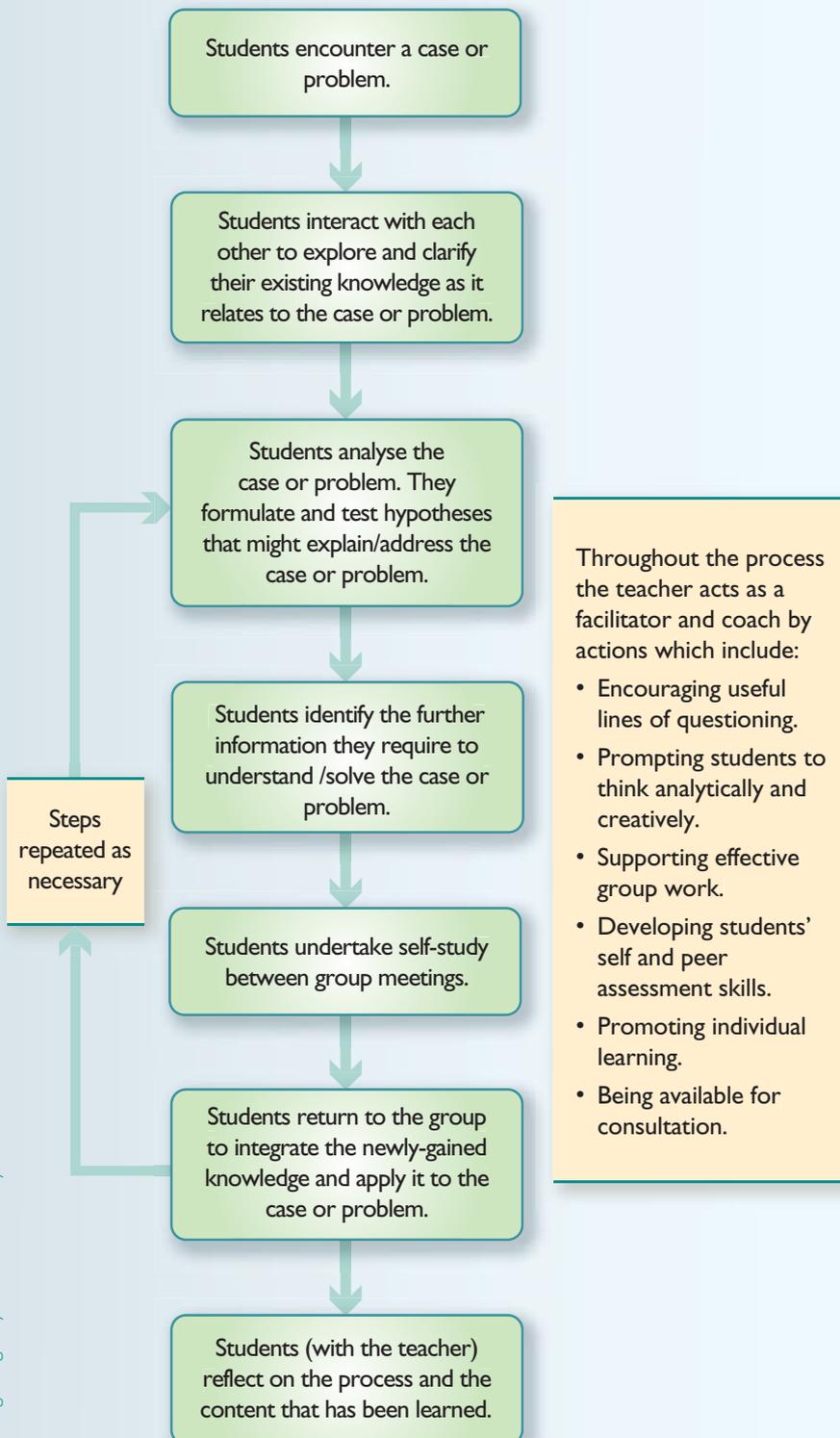
Based on: Hale, S. (2005). *Case Based Learning: Review of Good Practice*. University of Huddersfield  
[http://www.c-sap.bham.ac.uk/hottopic/FDTL/practice\\_review.pdf](http://www.c-sap.bham.ac.uk/hottopic/FDTL/practice_review.pdf)

As Hale posits, "[t]here is a limitless range of pathways between these points; being at a certain point on one continuum does not entail being at the same point on any other".

We hope these continua, the recommended resources, and the experiences that are shared in this Issue will be useful to you in determining appropriate pathways for the different groups of students you teach.

# A Learning Sequence for Cases & Problems: What Students & Teachers Might Do

Given the multitude of different ways that teachers use problems and cases with their students and the different amount of time given over to these tasks, it follows that there is no one set learning sequence. This chart indicates a possible flow of activities and what might be demanded of students and teachers along the way.



## Overcoming Barriers

**Q** I have tried to use cases and problems in my teaching but a good number of students complain through their Student Feedback Questionnaire (SFQ) that the work is too difficult and they would prefer to have lectures. Do you have any advice?

**A** Your situation is not uncommon. Penn State University offers the following tips for case assignments which may be helpful to you:

- Start with a simple case.
- Discuss the purpose and suggested methods rather than assume students will know these.
- Provide resources and opportunities to understand what is involved in working with teams.
- Allow sufficient class time to do at least some of the work.
- Encourage students to use technology for their discussions (particularly important when they find it difficult to meet face-to-face) and make sure they understand netiquette (because controversial cases may trigger emotional reactions).
- Reassure them that "messiness" is normal in this type of learning.
- Get feedback from students so you can iron out any problems.

**Read the full article:**

<http://tlt.its.psu.edu/suggestions/cases/foster.html>

As well, find out what other teachers do. **Maggie Liddle** from **PolyU** shares her experience later in this Issue. The Internet also provides some useful accounts. If you teach a large class, you might like to start with:

**But I Teach a Large Class** by **Linda Dion** from the **University of Delaware**

<http://www.udel.edu/pbl/cte/spr96-bisc2.html>

# Finding & Writing Cases & Problems

A "good" case or problem is essential but not always easy to come by. You can borrow and adapt from other sources including textbooks and the Internet, or write your own. Either way, there are some essential qualities that you should be seeking. Try these questions to guide your selection or writing:

Does this case/problem provide a good vehicle for the intended learning outcomes to be achieved?

Will the students find it interesting?

Is the case/problem easy to read (in terms of writing structure and the language used) and is the amount of background information appropriate (remembering that for cases and problems this is usually different)?

Is the level right for the students and will this case/problem entice them to further explore and examine the underpinning issues and theories?



Is the case/problem realistic and will students see the relevance to their future profession?

## Cases & Problems from Other Sources

The Internet has a mine of examples. Some may be useable as they are, or with a little adaptation. Don't forget to check copyright issues! Others might provide a springboard for writing your own. A worthwhile site to explore is:

- 1 **The National Center for Case Teaching in Science University at Buffalo, State University of New York**  
<http://ublib.buffalo.edu/libraries/projects/cases/case.html>

The Center's **Case Collection** provides examples in a wide variety of subjects from Food Science to Engineering. For each **Case**, there are **Teaching Notes**. Take two minutes to register by going to <http://www.sciencecases.org/register.asp> and, if you pass their verification test, you also get access to their **Answer Keys** and can join the **Case Studies in Science listserv** which announces new cases.

The **Home Page** links you to **Other Case Sites**, **Related Websites** and **Journals, Assessment** information, and details of upcoming **Conferences**.

- 2 **Problem-Based Learning Clearinghouse University of Delaware**  
<https://chico.nss.udel.edu/Pbl/index.jsp>

If your interest is more towards problems than cases, then you might like to explore the **PBL Clearinghouse** to view problems and articles. Once again, you'll need to apply for access.

## Writing Your Own Cases & Problems

Writing your own cases and problems, although time consuming, means that you will get exactly what you want.

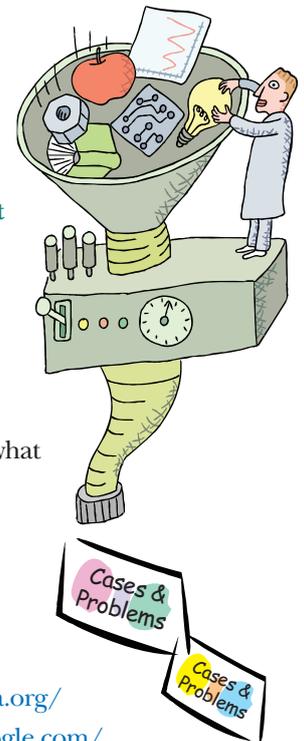
**Ideas for cases and problems might come from:**

**Students** ... based on their project work or WIE.

**External parties** ... what you hear from practitioners.

**Yourself and your colleagues** ... research interests, observations of what students have found difficult, and what you see as important to their future practice. Also, don't forget to keep an eye on:

- Newspapers and magazines
- Local events and exhibitions
- Wikipedia <http://www.wikipedia.org/>
- News links e.g., <http://news.google.com/>



## Writing and Design Guidance

These sites provide concrete writing suggestions:

1. **Writing Cases** from the **Centre for Public Health Practice, University of California, Berkeley**  
<http://ist-socrates.berkeley.edu/~cphpweb/writingcases.html>
2. **Guidelines for Case Writing** from **Penn State Schreyer Institute for Teaching Excellence**  
<http://www.schreyerinstitutione.psu.edu/pdf/CaseWritingGuidelines.pdf>
3. **Problem Writing Guide** by **Barbara Duch, University of Delaware**  
<http://www.udel.edu/pblc/problems/>

# Problem-based Learning in Practice

**Assistant Professor Maggie Liddle** from the **Department of Accounting and Finance** teaches law to first and second year students from her own department, and to third year translation students who are new to law. In her classes, she integrates problems as a vehicle for learning. Challenged by the process and convinced of the long-term benefits for students, Maggie offers suggestions about making this approach work.

## Come Up with a Good Problem

“It can be difficult and time consuming to come up with a real-life ‘ill-structured’ problem; a problem that may have multiple solutions but ones which don’t emerge until the students have made a significant effort to understand the problem and explore different concepts, rules and principles that will enable a solution. Once I have come up with a problem, I pass it to a colleague for feedback. The next step is to ensure that the problem can be broken down into different parts. Working in small groups, students discover they have different perspectives on exactly the same thing. From other groups they learn different aspects of the law. When groups work on different parts of a problem there is less opportunity for copying.

## Start Early

“First year students adapt easily to a problem-based approach because, when they start university, they expect something different. For students who meet this approach in their first year, there is a ‘knock-on’ effect in that they think more critically and creatively in their second year. But it can be a real shock to their system for students who don’t meet this approach until their third year. It takes them longer to adjust to the idea that you can generate five answers to one problem.

## Remember There Is More Than One Way to Embed Problems into Your Course

“With students who are new to this approach, I have started out using a traditional lecture and seminar format for the first month. For the remainder of that subject, I only give a brief lecture and students spend the majority of each class working on the problem I give them. For a class of students who have participated in problem-based teaching before, I may get them to create their own problems.

## Build Students’ Confidence

“This approach can be frightening at first and so I am very careful to explain to the students what problem-based learning is and what is required of them week-by-week. I also give written instructions so they don’t forget or misconstrue what I say. Checklists are also important because students can chart their progress and be confident that they are completing both the tasks I have set as well as the learning goals they set for themselves. While some students find it difficult that I expect them all to take their turn at leadership, I am convinced that this is beneficial to them.

## Teach Responsively

“With students determining their own learning goals, they also determine my input to a certain extent. A question may lead to a mini-lecture. As I move around during group work, I may ask a question or encourage them to narrow down their investigation. But I am careful to avoid directing them. If I come across conflict in a group, I may subtly step in and to some extent manipulate the situation so that the conflict is resolved. In doing so, I develop their conflict resolution skills.

## Give Students Time to Work Together in Class

“This approach demands a considerable amount of work outside of class and I know it is very often hard for students to fix meeting times. Different subjects have different seminar groups and extra-curricula classes don’t show on their timetables.

“Overall it’s very exciting. The students’ questions demand that I continuously update my own knowledge. Watching the students become more independent and creative are just two of the many outcomes I see.”



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- Issue 1 **The Active Classroom**
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- Issue 3 **Active Learning in Large Classes**
- Issue 4 **Active Learning in Small Classes**
- Issue 5 **Developing Active Independent Learners**
- Issue 6 **Active Learning in Practical Classes**
- Issue 7 **Active Learning in the Workplace**
- Issue 8 **Active Learning in Project Work**

## Thanks to ...

In this issue we would particularly like to thank Maggie Liddle (AF) for sharing her experiences in using problems with the students she teaches.

Read “Activate” Issue 9 online at:  
<http://edc.polyu.edu.hk/Activate/9.pdf>

## Further Information

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