

# **Problem-Based Learning in Higher Education**

**Module Handbook 2017**

**Dr Terry Barrett**



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## Staff Roles for Module in Problem-based Learning in Higher Education

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## Problem-based learning in Higher Education 7.5

<b>Subject Area:</b>	University Teaching and Learning
<b>Module ID:</b>	UTL40210
<b>Module Co-ordinator:</b>	Dr. Terry Barrett
<b>College:</b>	Teaching and Learning
<b>Level:</b>	4
<b>Module Type:</b>	Postgraduate Module (taught)
<b>Short Title:</b>	Problem-based learning
<b>Long Title:</b>	Problem-based learning in Higher Education
<b>School:</b>	Teaching and Learning
<b>Credits:</b>	7.5

### Module Description

Problem-based learning (PBL) has been described as one of the most important innovations in higher education. Problem-based learning involves students working in small teams on real-life problems. For part of the module participants will experience problem-based learning as PBL students. Participants will also engage in PBL workshops. A key focus of this module will be students designing a PBL initiative for their context. As this is a NQF Level 9 (Masters Level) module, students are expected to review research and other literature at the forefront of problem-based learning developments. This module will enable students to develop their leadership roles in PBL practice. The aim of this module is to empower students to design, facilitate and evaluate problem-based learning initiatives in ways that are informed by research, best international practice and students' understandings of their own education contexts together with the creativity of their curriculum teams.

For the Professional Certificate and Diploma in University Teaching and Learning, students can choose only **ONE** curriculum design module. The three curriculum design modules are

- 1) UTL 40210 Problem-based learning
- 2) UTL 40220 Embedding Research in Teaching
- 3) UTL 40200 Designing Engaging and Effective Modules

## Learning Outcomes:

Having successfully completed this module, you will have demonstrated the ability to:

- Make effective PBL curriculum decisions informed by research
- Design problem-based learning initiatives for your students drawing on your own experiences of being a PBL student
- Write authentic, engaging, creative, deliberately ill-structured problems/triggers/scenarios in a variety of media
- Critically review the philosophical, psychological and neuroscientific principles underpinning PBL
- Critique and adapt PBL processes for your own contexts

## Workload and FTE

**Seminars** 18 hours (Workshops, seminars and PBL tutorials)

**Practical** 10 hours

**Specified Learning Activities** 70 hours

**Autonomous Student Learning** 70 hours

**Total Workload** 168 hours

## Prior Learning

This is an in-service module for teachers in higher education. A condition of enrolment is that students have a significant teaching commitment during the academic year in which they undertake this module. (The definition of “significant teaching commitment” will vary with context; but, as a general rule, a minimum of 50 hours would be expected.)

## Requirements and Exclusions

You cannot take Designing Engaging and Effective Modules or Embedding Research in Teaching with this module as part of any University Teaching and Learning Programme.

## Assessment

Code	Description	Timing	In Bb?	Score by	% Final grade
	PBL project/paper	WK 12	Yes	Pass/Fail	Pass

## Re-sits and Remediation

If you fail this module you may be asked to repeat it in its entirety. In exceptional circumstances, you may be allowed to present substitute work as determined by the module tutor.

## Teaching and Learning Processes

For part of the module *participants will become problem-based learning students* and work on a problem in teams. There will be workshops on different aspects of PBL and team presentations.

## Timetable

Semester 1: 2017			
Problem-based Learning			
Date	Month	Time	Venue
Friday 15 <sup>th</sup>	September	10.00 – 13.00	232 O'Brien Centre for Science (North)
Friday 29 <sup>th</sup>	September	10.00 – 16.00	A003 Health Sciences Centre
Friday 13 <sup>th</sup>	October	10.00 – 13.00	E0.01 O'Brien Centre for Science (Eas
Friday 3 <sup>rd</sup>	November	10.00 – 13.00	H2.38 O'Brien Centre for Science (Hub)
Friday 17 <sup>th</sup>	November	10.00 – 13.00	H2.38 O'Brien Centre for Science (Hub)

## **The Problem-based Learning Tutorial**

### **1. Tutor and Student Roles in PBL Teams**

### **2. PBL Process Guide**



## **Tutor and student roles in the PBL process**

### ***The role of the tutor is to:***

- **Encourage a welcoming and challenging learning climate.**
- **Facilitate the PBL process, not to give a mini-lecture.**
- **Listen very attentively and actively to what students are saying and to observe the learning, difficulties, and fun that are taking place in the team.**
- **Intervene, where appropriate, with process interventions based on this listening and observation.**
- **Ask questions that encourage critical and creative thinking.**
- **Ask students to provide the evidence for their statements and to evaluate the resources that they used.**
- **Challenge students to link theory and practice.**
- **Stimulate debate about major issues.**
- **Expect students to be responsible to complete high quality independent learning.**
- **Facilitate students to reflect on their learning, the development of key skills, and the performance of the team.**
- **Facilitate the review section of the tutorial.**

### ***The role of the chair is to:***

- **Encourage the participation of all team members.**
- **Facilitate the team to make and work within agreed ground rules.**
- **Stop one person dominating the group and encourage quiet team members to contribute.**

- Not necessarily talk first and certainly not to talk at length.
- Encourage discussion of different viewpoints.
- Use the PBL process guide as a scaffold for the team to work on the problem.
- Ensure that someone summarises at the end of a tutorial.
- Check that everyone is clear what learning issues the team has decided to work on.
- Ensure that the team have a clear action plan.
- Co-ordinate the team to complete their action plan and the production of any products required for the work on the problem.

***The role of the scribe/recorder is to:***

- Record the ideas of the team on the whiteboard so that this information can be used as a shared learning environment.
- Write down the learning issues that the team decide to work on clearly.
- Work both verbally and visually on the whiteboard and invite other team members to write on the whiteboard if they want to illustrate a point.
- Summarise and synthesise the learning from the problem on the whiteboard as all team members contribute to this synthesis.
- Co-ordinate electronic team communications.

***The role of the reader is to:***

- Read the problem aloud at the start of the tutorial.

- Re-read the problem again when the team and/or the reader decides that this would be useful.
- Continue to read the problem by drawing the team's attention to key elements of the problem.

***The role of the timekeeper is to:***

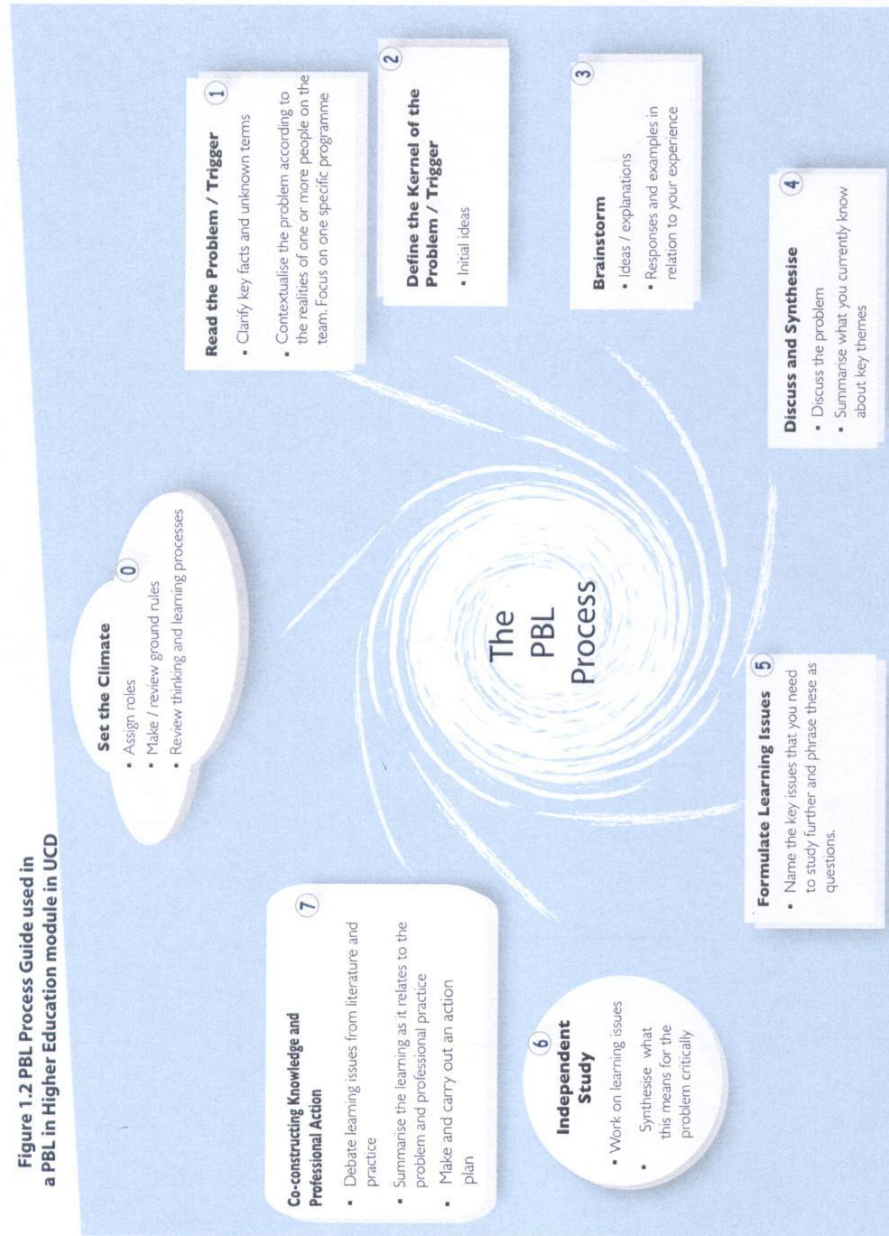
- Help the team to manage the time in tutorials.
- Remind the team at key stages about how much time is left in the tutorial.
- Make suggestions to the team about time management.

***The role of the observer is to:***

- Observe the workings of the team in terms of the learning process and team dynamics.
- Feedback these observations to the team.
- Make suggestions based on these observations.

Barrett T and Moore, S. (2010) An Introduction to problem-based learning  
 Barrett, T. and Moore, S. (Eds) *New Approaches to Problem-based Learning: Revitalising Your Practice in Higher Education*. New York: Routledge p.10-11.

Figure 1.2 PBL Process Guide used in a PBL in Higher Education module in UCD



© Barrett, O'Neill, Stanton and Culman 2007. Adapted from Barrows 1989 and Schmidt 1983

## Assessment

Assessment Strategies
<p>There is one summative assignments for this module:</p> <ol style="list-style-type: none"><li>1. An Individual Problem-based learning (PBL) project</li></ol> <p>It is marked on a pass/fail basis</p> <p>Students will be assessed formatively and summatively on the problem-based learning project.</p> <p><i>Formative Assessments</i></p> <p>Students will produce an action plan of the problem-based learning project. Later they will produce a draft problem-based learning project paper. Both will be peer-reviewed as formative assessments</p> <p><i>Summative Assessment</i></p> <p>Problem-based Learning Project.</p> <p>Using a specific module, programme or part of a programme and with reference to educational and discipline specific PBL and other literature together with a review of their current practice students will</p> <ol style="list-style-type: none"><li>1) Critically discuss the rationale for the problem-based learning initiative</li><li>2) Argue for the practice relevance of specific approaches to problem-based learning</li><li>3) Present a detailed design of the problem-based learning project implementation</li><li>4) Provide evidence that you have contributed assignment materials to your e-Portfolio<ul style="list-style-type: none"><li>• e.g. by providing a link, screenshot, pdf capture etc.</li></ul></li><li>5) Write a critical reflection of the work undertaken on the module in light of your professional development needs and plans<ul style="list-style-type: none"><li>• i.e. this may form an appendix to the module assignment, or be an independant piece.</li></ul></li></ol>

## Initial PBL Reading

Barrett, T. and Moore, S. (Eds) (2011) *New Approaches to Problem-based Learning: Revitalising Your Practice in Higher Education*. New York: Routledge

Barrett, T. and Cashman, D. (Eds) (2010) *A practitioner's Guide to Enquiry and Problem-based Learning*. Dublin: UCD Teaching and Learning

Available at <http://www.ucd.ie/t4cms/ucdtli0041.pdf>

Hung, W. (2016). All PBL Starts Here: The Problem. *Interdisciplinary Journal of Problem-Based Learning*, 10 (2).

Available at: <http://dx.doi.org/10.7771/1541-5015.1604>

Hmelo-Silver, C. (2004) "Problem-based Learning: What and How Do Students Learn?" *Education Psychology Review* 16 (3) 235-266

McMaster University Canada, where problem-based learning started

<http://cll.mcmaster.ca/resources/pbl.html>