

WHAT IS IT?

Problem-based learning (also known as PBL) is an enquiry-guided learning method characterised by active learning in small groups where solving interesting real-life problems is central to the learning process. The key focus of PBL is the process that students go through to reach a solution; for example, activating their prior knowledge, developing theories or hypotheses, working in teams, conducting research, and explaining findings. The problems posed to students are typically ill-defined, messy problems that they might encounter in authentic situations. PBL was first introduced in the disciplines of medical education and health sciences, but has expanded to other disciplines such as engineering and business (Ribeiro, 2011). [Maastricht University](#) in the Netherlands employs PBL in all of its educational programs.

WHY USE IT?

In PBL activities, students use 'triggers' derived from the problem or case to define their own learning outcomes/objectives. Triggers can be a photograph, a journal article, a newspaper clipping, statistics, or graphs. The key is not so much solving a problem, but the student's learning journey. The nature of PBL also presents opportunities to develop a range of generic skills and attitudes such as:

- teamwork
- leadership (chairing a group)
- critical evaluation of literature
- self directed learning and use of resources
- presentation skills
- listening
- recording
- cooperation
- respect for colleagues' views.

(Adapted from Wood, 2007)

HOW TO DO IT?

There are various ways to plan, design and implement PBL in your classroom. The following resources may suit your context:

- Wood (2007) identified a structure for [incorporating PBL into curriculum](#) and emphasises that PBL will only be successful if the scenarios developed are of high quality.
- Ganareo and Lyons (2015) outline key steps to [design, implement and assess](#) PBL to help develop twenty-first century skills such as teamwork, digital literacy, and problem solving.

SEVEN JUMP METHOD

The 'Seven Jump'[↗] method (Gijsselaers, 1995) used at Maastricht describes the key steps students go through to resolve a problem during PBL tutorial sessions:

'JUMP'	ACTIVITIES	TIMING
1	Clarify terms and concepts not readily comprehensible	First meeting
2	Define the problem	
3	Analyse the problem and offer tentative explanations	
4	Draw up an inventory of explanations	
5	Formulate learning objectives	
6	Collect further information through private study	Between meetings
7	Synthesise the new information and evaluate and test it against the original problem. Reflect on and consolidate learning.	Second meeting

CONSIDERATIONS

- Problem-based learning can be used as a key strategy for the flipped classroom with the expectation that students prepare before class and engage in active learning that challenges higher order thinking in collaboration with peers.
- Weimer (2009) outlines several **benefits and risks**[↗] of using problem-based learning for students, instructors, and institutions.

RESOURCES

- Schwartz, P., Mennin, S., & Webb, G. (2001). *Problem-Based Learning: Case Studies, Experience and Practice* (Eds.). London, UK: Kogan Page Limited.
- [Problem-Based Learning at Maastricht University](#)[↗] [video 4:38]
- [Speaking of Teaching](#)[↗], Stanford University, 2001
- Azer, S. A. (2007). Twelve tips for creating trigger images for problem-based learning cases. *Medical Teacher*, 29(2-3), 93-97. doi:10.1080/01421590701291444

REFERENCES

- Ganareo, V., & Lyons, R. (2015). *Problem-Based Learning: Six Steps to Design, Implement, and Assess*. Retrieved from <http://www.facultyfocus.com/articles/instructional-design/problem-based-learning-six-steps-to-design-implement-and-assess/>[↗]
- Gijsselaers, W. (1995). Perspectives on problem-based learning. In W. Gijsselaers, D. Tempelaar, P. Keizer, J. Blommaert, E. Benard, & H. Kasper (Eds.), *Educational Innovation in Economics and Business Administration* (pp. 39-52). Netherlands: Springer.
- Ribeiro, L. R. C. (2011). The Pros and Cons of Problem-Based Learning from the Teacher's Standpoint. *Journal of University Teaching and Learning Practice*, 8(1), 0-17. Retrieved from <http://ro.uow.edu.au/cgi/viewcontent.cgi?article=1149&context=jutlp>[↗]
- Weimer, M. (2009). *Problem-Based Learning: Benefits and Risks*. Retrieved from <http://www.facultyfocus.com/articles/effective-teaching-strategies/problem-based-learning-benefits-and-risks/>[↗]
- Wood, D. F. (2003). Problem based learning. *BMJ*, 326, 328-330. doi: 10.1136/bmj.326.7384.328

For further information see [UQ Flipped Classroom Problem-based learning](#)[↗]