

Unit 10 Assessing PBL



Introduction

The purposes of this unit is to give an overview to PBL facilitators on how they might assess this form of learning it will look at:

Lesson 1: The purposes of assessment and principles of assessing PBL

Lesson 2: Methods of assessing PBL

Lesson 3: Grade descriptors

Lesson 4: Assessment plan and assignment

Lesson 1: Assessment

Role of assessment

Traditionally assessment has been a method of ‘judging’ a student’s capability or competence to assure award standards. However, there are many other purposes of assessment. It can:

- Make learning explicit – learning is a cognitive process (takes place in the mind) the purpose of assessment is for the learner to demonstrate what they have learned by making it explicit so the tutor can provide feedback and enhance student performance.
- Motivate and enhance student performance. Learners are more likely to perform better if they are going to be measured. Also the feedback provided after assessment allows the learner to improve their learning strategies. ” The main purpose of formative assessment... is to determine the degree of mastery of a given learning task and to pinpoint the part of the task not mastered. ... The purpose is not to grade or certify the learner; it is to help both the learner and the teacher focus upon the particular learning necessary for movement towards master” (Bloom, 1971)
- Promote autonomous learning so learners are accountable for their own learning, for assessment the learner is required to conduct their own work or study. For example, before an exam a student studies on their own, for a project they work outside class hours etc.
- Assure the standard of awards or level of a competence for the purposes of grading, certification, transfer, evaluation of progress, or research on the effectiveness of a curriculum

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“The essential feature of a teaching system designed to emulate professional practice is that the crucial assessments should be performance-based, holistic, allowing plenty of scope for students to input their own decisions and solutions.”

(Biggs, 2003: 237)

Assessment should therefore reflect the professional contexts in which our students are likely to find themselves in the future, showing how they cope with acting and thinking like a professional and the lifelong learning skills needed to continue to develop in these changing professional areas

¹ Note the following text is taken largely from McDonald, R (2005) <http://www.aishe.org/readings/2005-2/chapter9.pdf>

If you want to work with a set of principles to guide you in assessing students in enquiry and Problem-based Learning, you might start with those developed by Macdonald and Savin-Baden (2004) and Woods (2000):

- Assessment should ideally be based in a practice context in which students will find themselves in the future - whether real or simulated e.g. solving problems, conducting an interview or improving a process
- Assessment is a judgement based on performance – not personalities.
- Assessment is a judgement based on evidence, not feelings. Whatever our intuition about a student's abilities, we need evidence.
- Assessment should be done for a purpose with clearly defined performance conditions.
- Assessment is a judgement done in the context of published goals, measurable criteria and pertinent, agreed-upon forms of evidence.
- Assessment should be based on multidimensional evidence: static and dynamic situations; small assignments and lengthy projects; academic, social and personal contexts; under a variety of performance conditions; formative and summative data and with different persons being the assessors.

Assessments methods should be developed prior to the start of a course and should be made clear to the students at the beginning of the course. It is important to consider:

- **Why are we assessing the students?** Our main focus should be on how well assessment promotes effective student learning.
- **What are we assessing?** Traditionally assessment has been about finding out how much students know, usually in terms of knowledge or content. Increasingly skills are seen as being important for students' future employability. However, in Problem-based Learning what we are really interested in is the students' ability to perform in a professional context. This recognises their need to acquire new knowledge and skills, and to view learning holistically.
- **When are we going to assess?** Experience has often shown that if we adopt the 'big bang' approach to assessment at the end of a course students will spend most of the class time trying to spot cues as to what they will be assessed on and, preferably, the answer that the lecturer wants.
- **Who is going to carry out the assessment?** *Should it be the individual themselves, the tutor or their peers? Or a combination of these?* Problem-based Learning should result in students becoming increasingly more autonomous and, as we are giving them greater responsibility for their own learning, then it makes sense for them to take more responsibility for judging whether they have achieved the learning goals. Similarly, given that they will be working with a number of different people in professional capacities it is important that their capability to do this will be demonstrated. As a result, the range of those involved in assessment and providing feedback needs to be extended.
- **How are we going to assess?** In the next lesson, we will look at a number of approaches used in Problem-based Learning.
- **How are we going to grade/mark?** We will look at the role of grade descriptors in marking in lesson 3
- **What feedback will students receive?** Too often students receive feedback either too late to help them improve their learning in the future or in a format which does not help them to make the improvements. To be of use, feedback has to be timely enough to help them learn and forward looking so as to help them move forward rather than just look back. Traditionally students have received little or no feedback on the major component of their assessment namely examinations. This adds to the pressure and performs even less of learning, and more of a measuring, purpose. Engaging with assessment criteria, and the use of self and peer assessment and feedback, will help improve the quality of feedback.

Lesson 2: Methods of assessing Problem based learning

This lesson outlines the various methods that can be used to assess problem based learning

1 Observation of practice

As you are seeking to assess the professional behaviour of a learner, observing them may be an appropriate method of assessment. Problem based learning largely takes place collaboratively in meetings. As a facilitator you will attend most of the initial meetings. Therefore, it is feasible for you to observe the professional practice of the learners. Using a list of criteria for observation may help

Haga helia university provide a checklist which is used for self-assessment purposes but could also be used to allow the facilitator to observe professional practice in face to face sessions

Criteria	Explanation
Level of motivation and preparedness.	<ul style="list-style-type: none">- Motivation to learn about the problem.- Exploring the sources during independent study.
Contribution to team knowledge construction in the tutorials.	<ul style="list-style-type: none">- Participation in team meetings- Active listening- Building on other people's ideas
Understanding the discussion and applying theory to the learning tasks and/or the project tasks	
Critical-thinking skills	idea generation, questioning, argumentation, categorization, problem-solving and other reasoning skills
Professional behaviour	<ul style="list-style-type: none">- respect towards peers- the team agreement- punctuality
Giving and receiving feedback among peers and learning from it.	Taking feedback constructively Attempts to improve one's ability based on feedback

Table 1: Observation criteria for PBL tutorial

These criteria can be graded on a scale (e.g. using a 0-5 anchored rating scale) or by providing evidence of how the learner satisfied each criteria.

2 Self-assessment

Self-assessment allows students to think more carefully about what they do and do not know, and what they additionally need to know to accomplish certain tasks

It involves students judging their own work. It may include essays, presentations, reports, and reflective diaries. One of the difficulties with self-assessment is the tendency to make judgments about what the students meant rather than what they actually achieved.

Boud has defined self-assessment as:

“The involvement of students ...making judgments about the extent to which they have met...criteria and standards (Boud, 1986:12).”

For problem based learning the asking the students to rate themselves the above checklist in table 1 is a method successfully used by Haga Helia University

Another method is by assessing the reflective learning done by the student. As part of PBL the learner is

required to reflect on certain aspects of the learnings of the course. Asking the learner to record these in a word document and submit for assessment is a method of encouraging reflective learning. In Units 8 and 9 we looked at reflective questions for PBL. Grading how the students answers these questions using the following criteria is an appropriate method of self-assessment.

- Are they aware of their strengths?
- Are they aware of their limitations and how to overcome them?
- Are they aware of how to apply PBL in other contexts?
- Are they aware of the process used to gather data and the limitations and successes of their approach and how the limitations can be overcome?
- Are they aware of their thought process behind making decisions and if they were effective or not and if not how they can be adapted
- Are they aware of how well they collaborate with others and if anything can be improved?
- Aware of ability to link concepts?

3 Written assessment/report or problem account

Another method of individual assessment is asking the learner to complete a written report or problem account of the PBL process. The learner could be asked to develop a summary of each step of the PBL process which is submitted after each stage e.g.

- Define the problem as you see it.
- what are the potential solutions and why are they appropriate?
- what is your preferred solution and why?
- what are the learning objectives you want to complete and why?
- what data did you gather to satisfy the learning objectives?
- what research methods did you use and why,
- Explain how you satisfied each learning objective,
- synthesise the information from the closing session into an action plan.

4 Group assessment (Presentation of skills)

As mentioned in Unit 9 you can ask a group of students to present the information they found during their self-study and how well it satisfies the learning objectives set out. This allows you to assess their communication skills. You can grade students using the following criteria

- How adequately the students have prepared
- How well the students engage their audience
- Proper attention to tone
- Anticipate questions and have answers prepared

When considering the method of delivery, it is important you use a combination of assessment methods and consider:

- What do you want your students to know and be able to do and how might they best demonstrate this?
- How can you evaluate the assessment methods used and your students' experiences of assessment to help you make further improvements?

How well each learner satisfied the business objectives and the individual learning objectives.

Lesson 3: Grade descriptors

Grade descriptors, marking guides and exemplars are generally accepted to have a positive impact in assisting students' understanding of assessment task requirements and standards

Grade descriptors, marking guides and exemplars have been introduced into the higher education sector with a view to increasing transparency of assessment standards and assisting students' understanding of assessment task requirements and standards

They describe what standard that the learner needs to obtain in order to achieve a particular grade. Table 2. Gives an example of grade descriptors. These are generic enough that you can amend to your assessments if you wish

Grade	Description
High grade	<p>Excellent performance, engaging profoundly, systematically and comprehensively with the assessment task, brilliantly demonstrating:</p> <ul style="list-style-type: none"> • a superlative mastery of the subject matter, richly supported by evidence and citation, reflecting deep and broad knowledge and understanding as well as extensive reading • an outstanding ability to organise, analyse and express ideas and arguments in an original, sophisticated and discriminating manner • an optimal capacity for critical analysis • excellent proficiency in skills, tools and processes • design/program/prototype satisfies and possibly exceed specifications completely • the student has displayed penetrative insight, originality and creativity • Solution well planned
High Mid-grade	<p>Reasonably Good performance, engaging substantially with the assessment task, demonstrating</p> <ul style="list-style-type: none"> ▪ strong grasp of the subject matter, well supported by evidence and relevant citation ▪ well-developed capacity to analyse issues, organise material, present arguments clearly and cogently ▪ solution partially planned ▪ reasonably good proficiency in skills, tools and processes ▪ design/program/prototype functions correctly in most situations ▪ parts of the specification are not implemented fully ▪ some original insights and capacity for creative and logical thinking
Low Mid-grade	<p>Fair performance in the assessment task:</p> <ul style="list-style-type: none"> ▪ basic grasp of subject matter, but somewhat lacking in focus and structure ▪ main points covered in answer, but lacking detail ▪ some effort to engage, but only a basic understanding of the topic portrayed ▪ some development of argument ▪ only some critical awareness displayed ▪ no evidence or relevant citation supplied ▪ fair proficiency in skills, tools and processes ▪ design/program/prototype not fully functional ▪ parts of the specification are not implemented fully ▪ poorly written ▪ lacking evidence of capacity for original and logical thinking
Low grade	<p>Barely Acceptable performance in the assessment task:</p> <ul style="list-style-type: none"> ▪ derivative and lacking evidence of capacity for logical thinking ▪ limited focus on question asked ▪ basic framework/structure of answer poorly developed ▪ evidence of unclear presentation of argument, random layout, with some omissions or inaccuracies in answer ▪ appearance of unsubstantiated statements, lacking in relevant citation ▪ descriptive rather than argumentative or analytical answer presented ▪ a lack of detailed explanation or critical reflection ▪ solution partially planned ▪ barely acceptable proficiency in skills, tools and processes ▪ design/program/prototype not functional <ul style="list-style-type: none"> • parts of the specification are not implemented fully • poorly written ▪ no real thought around program application

- an incomplete or rushed answer

Table 2: Sample generic grade descriptors.

When designing grading criteria, it is important that the tutor/facilitator gives an indicator of the grade and the criteria necessary to satisfy the grade.

Lesson 4: Assessment plan and assignment

Assessment 1	
Learning outcome to be assessed	<ul style="list-style-type: none"> • Complete each stage of the PBL process to address the identified PBL problem. • Search for and identify the relevant knowledge to enable them to complete the PBL process for a problem faced by business professionals. • Apply this knowledge to address the identified problem • Become an effective manager
Method of assessment	Written report
Details of assessment task	<p>The learner will be required to write a report detailing how they addressed each stage of the PBL</p> <ol style="list-style-type: none"> 1) Define the problem as you see it. 2) What are the potential solutions and why are they appropriate? 3) What is your preferred solution and why? 4) What are the learning objectives you want to complete and why? 5) What data did you gather to satisfy the learning objectives? 6) What research methods did you use and why, 7) Explain how you satisfied each learning objective, 8) Synthesise the information from the closing session into an action plan.
Submission	<p>The learner will be required to submit a written piece:</p> <ol style="list-style-type: none"> 1)Following the opening stage of the PBL (points 1- 4) 2)Following the closing stage of the PBL (points 4-8)
Grading descriptors	<p>Level 1: Student will show an excellent knowledge of each PBL step and successful approaches to completing each step. They will use extensive high quality sources to construct a comprehensive and implementable solution. They will show an excellent ability to think logically and innovatively and show an excellent ability to relate concepts and ideas in building a solution.</p> <p>Level 2.... The student...</p>

Grade/Weight	40% of overall marks
Assessment method 2	
Learning outcome (s) to be assessed	
Method of assessment	
Details of assessment task	
Submission	
Grading criteria	
Grade/Weight	

Assignment

Develop an assessment plan to assess your PBL students using a template similar to the above.

Detailing:

- 1)The learning outcomes to be assessed
- 2)Method of assessment
- 3)Details of assessment/task
- 4)The format the student will use to submit the assignment e.g. written report, oral presentation etc.
- 5)The grade descriptors for each grade e.g. A, B..etc
- 6)The weight given to each assignment