



TRAINING MODULE SERIES:
STUDENT-CENTERED LEARNING (SCL)
APPROACHES FOR INNOVATIVE TEACHING

Module 5: Approaches to Student-Centered Learning

Rogayah Jaafar, Faridah Abdul Rashid, Ahmad Fuad Abdul Rahim,
Hafiza Arzuman & Mohd Saiful Bahari Yusoff



Centre for Development of Academic Excellence (CDAE), USM



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Training Module Series: Student-Centered Learning (SCL) Approaches for Innovative Teaching

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MODULE 5: APPROACHES TO STUDENT-CENTERED LEARNING

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Preface

Students are expected to achieve 21st century skills, which inculcate life & career skills, learning & innovation and information & communication technology (ICT) skills. Consequently, it has become the unwavering responsibility of educators to ensure that these skills are sowed in students especially at higher education institutions (HEIs). As such new methods of teaching and learning (T&L) have been continuously identified to devise techniques which are relevant and suitable for the students of the net generation. Parallel to that perspective, Student-Centered Learning (SCL) has been promoted as a new approach in T&L to support the rapidly changing educational environment. The Centre for Development of Academic Excellence (CDAE) has published the Training Module Series: Student-Centered Learning (SCL) Approaches for Innovative Teaching which consists of Modules 1 to 6 that will provide the basis for a training programme for academic staffs to enhance their pedagogical knowledge and skills. The modules were authored by an array of experts in the area of T&L, who have provided an overview of SCL in terms of definition, methodology and application.

Module 1: Introduction serves as a foreword to the concept of SCL by: (1) introducing the vision and mission of the National Higher Education Strategic Plan 2 (NHESP 2) regarding T&L through the soft power approach at the regional and global levels; (2) describing the 21st century skills that are needed for today's society and (3) specifying the outcomes of T&L in the classroom. Module 2: Philosophy of Student-Centered Learning (SCL) provides an overview of SCL and introduces the underlying philosophies that support the student-centered approach to teaching. The content of this module also describes the key benefits of SCL for students and lecturers and student-centered pedagogy (i.e. characteristics of the learners and the nature of the learning environment in the student-centered setting).

Module 3: Learning Taxonomies revolves around the learning taxonomies used in T&L that are based on Anderson and Krathwohl's (2001) revised version of Bloom's Taxonomy and Buckwalter's Taxonomy for the Health and Medical Sciences (1981). This module illustrates the basic principles of the learning taxonomies used in education and the classification of educational objectives (i.e. three domains: cognitive, affective, and psychomotor). Module 4: The Constructivist Lecturer provides detailed methods that will assist the reader to become a constructivist lecturer via the application of constructivist approaches in T&L.

Module 5: Approaches to Student-Centered Learning (SCL) aims to offer teachers in higher education a variety of student-centered educational approaches. These learning approaches are presented in a straightforward manner, with opportunities for self-assessment and reflection to allow for the selection of the most appropriate SCL approach.

Module 6: Assessment in Student Centered Learning is a compilation of six individual units that includes the detailed description of assessment for the SCL approach which consists of definition, methodology and principles. This module also describes issues, benefits, and challenges of implementing assessment and best practices for assessing students in the in the SCL.

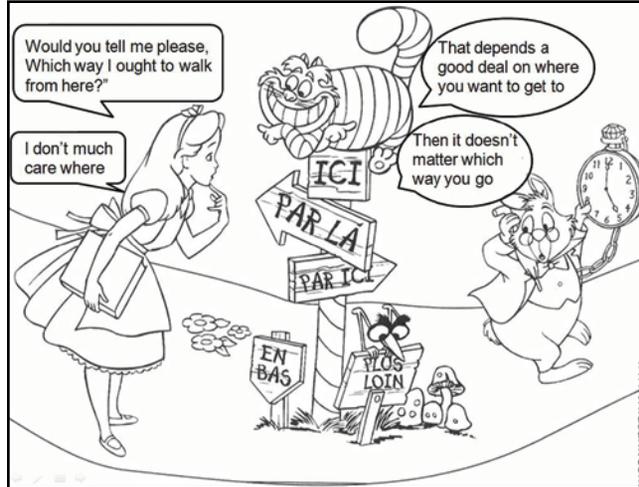
On the whole, the modules are projected to be beneficial to the reader in terms of T&L, upon the understanding and consequently the application of the SCL concept. Each module in this series will definitely aid in the improvement of the T&L environment in USM and thus is recommended for all the academic staff of Universiti Sains Malaysia (USM).

Professor Abd Karim Alias

Director

Centre for Development of Academic Excellence (CDAE), USM

Module Description



The above illustration, taken from 'Alice in Wonderland', reflects the varied ways in which learning takes place in higher education. While the main aim of teaching and learning in university is to produce workers with first-class knowledge, the job of preparing these graduates to enter the workforce is left to the whims and fancies of teachers who are ill-prepared to do the job of facilitating student learning and nurturing the lifelong learning process.

Thus, the main aim of this module is to offer teachers in higher education a variety of student-centered educational approaches. These learning approaches are presented in an easy and interactive way, with opportunities for self-assessment and reflection in order to help you select the most appropriate student-centered learning (SCL) approach(es) for your own course.

Module Outcomes

At the end of this module, users should be able to:

1. Present the basic and specific principles and concepts of SCL;
2. Introduce the various possible SCL approaches and processes that can be used in higher education;
3. Focus on the four major SCL methodologies/approaches commonly used at Universiti Sains Malaysia (Problem-Based Learning, Contract Learning, Learning Portfolio & Small Group Tutorial); and
4. Suggest further readings and references about the four major SCL methods described above.

Student-Centered Learning in Small Groups

Aim: To provide opportunities for participants to share practices in the small group teaching setting

Learning Objectives:

At the end of this section, users should be able to:

1. Apply a structured approach to teaching and learning activities;
2. Use strategies to involve students actively in their learning;
3. Know the role of the teacher within a small group learning setting; and
4. Identify the personal skills that can be developed through small group work.

Characteristics of small group teaching and learning

Cannon (1994) lists the following characteristics of small group teaching and learning:

1. Definite structure;
2. Time bound;
3. Active student participation (face-to-face contact);
4. Sharing of learning between all group members;
5. Non-threatening, non-critical environment;
6. Capitalises on individual group members' experiences;
7. Involves discussion;
8. Defines tasks and boundaries (purposeful activity);
9. Facilitator role of the teacher; and
10. Cooperative activity.

SCL in this small group setting can help develop the following:

1. Critical thinking;
2. Problem solving;
3. Effective communication;
4. Interpersonal skills;
5. Team work;
6. Leadership; and
7. Appropriate attitudes.

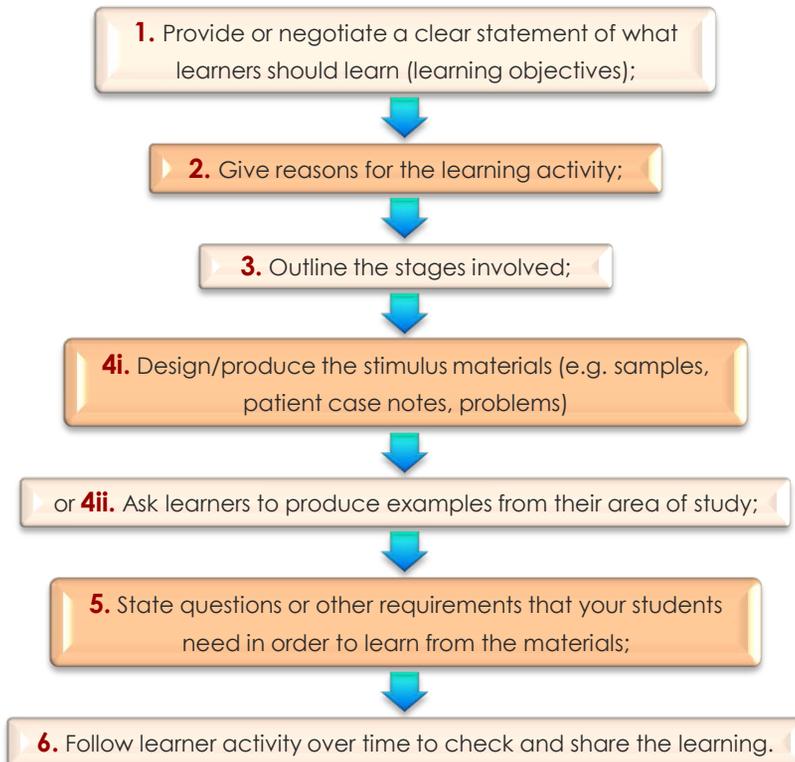
A possible sequence for small group SCL is as follows:

1. Explain the requirements of the activity;
2. Set time limits;
3. Provide a written or verbal brief;
4. Check understanding and progress with the activity;
5. Share results/progress in a plenary; and
6. Summarise key points.

Tutor roles in small group SCL are:

1. Planning;
2. Initiating;
3. Informing;
4. Permitting;
5. Managing;
6. Challenging;
7. Evaluating;
8. Summarising; and
9. Concluding.

Below are the steps for developing materials for learning in groups:



Section 1

1 Problem-Based Learning (PBL)

Learning Objectives

At the end of this section, users should be able to:

- Outline the concept of Problem-Based Learning (PBL);
- Outline the history of PBL;
- Outline the theoretical underpinnings of PBL;

Activation of prior knowledge

Learning in context

Construction of knowledge

Self-directed learning

Collaborative learning

Small group teaching

- Outline the requirements for PBL;

Faculty preparation and role

Student orientation and participation

Trigger development

Infrastructure requirements

- List the members of the PBL group and outline their roles;

The PBL tutor

The PBL chairperson

The scribe

The group members

- Enumerate the process of PBL;
- Outline the roles and methods of assessment in PBL; and
- Outline the advantages and shortcomings of PBL;

1.1 Introduction

As the name implies, PBL is a learning strategy whereby the student learns based on problems. It is a student-centered approach in which students are presented with a problem or problems (called triggers) that they try to analyse and explain. In the course of the analysis they encounter gaps in their present knowledge and are thus expected to fill this gap by researching the relevant material. The strategy promotes deep learning and acquisition of other learning and group skills.

Reflection Questions

What are your memories of your learning in primary and secondary school? Did you like it? Which parts do you still remember? Why do you think you still remember them?

Have you ever learned something after encountering a problem? What happened, what were the things you learned, and how did you learn them?

1.2 A Brief History of PBL

PBL is generally recognised as the work of medical educators, as it was first developed by Howard Barrows at McMasters University in Canada in the 1970s. It was conceived in response to students' disappointing clinical performance, which was thought to be the result of the emphasis on memorisation of knowledge in the traditional health science education. This traditional, teacher-centered approach failed to equip students with clinical problem solving and lifelong learning skills.

In the United States, PBL gained momentum after the publication of the GPEP report (Report of the Panel on the General Professional Education of the Physician and College Preparation for Medicine) by the Association of American Medical Colleges, which recommended changes in medical education such as promoting independent and problem-solving learning, reducing lecture hours, and evaluating the ability to learn independently. Since then, PBL has become a well-known educational method in medical schools and health-science-related programs throughout the world.

Beginning in the 1990s, PBL gradually expanded outside the medical field in higher education. It has been applied globally in a variety of professional schools, including architecture, business administration, chemical engineering, engineering studies, law schools, leadership education, social work, teacher education, and nursing. The general sciences have also begun to use PBL, and the humanistic and other disciplines have begun to follow suit.

Reflection Questions

You might have noticed that PBL started in the West. Do you think PBL can be successful among Asian students? If you are interested in finding out, Google the issue.

1.3 Theoretical Underpinnings of PBL

PBL is arguably one of the most researched learning strategies to date. Proponents of PBL have emphasised that this strategy is in line with many of the conditions shown by research to foster effective learning. These conditions are elaborated in many sections of this book and are summarised as follows:

i. Activation of prior knowledge

In order to understand new material, one needs to activate whatever knowledge is already present and relate it to the new material. In PBL, this is done by giving the students an unfamiliar problem at the beginning of the PBL session. In trying to understand and analyse the problem, students are forced to search their memory for what they already know about it.

ii. Learning in context

Learning material in the situation where it will be used has been shown to promote recall of the material as well as understanding. In PBL, the trigger introduces the area to be learned in the context of a medical problem. This also promotes **integrated learning**, where students can see the relevance of the various disciplines of knowledge in medicine instead of learning them in isolation and out of context. It also provides **motivation to learn**, another important pre-requisite for effective learning, as students can see the relevance of learning the material.

iii. Construction of knowledge

In constructivism, the active effort of a student to look at different types of information and determine how they relate to each other is given priority over memorising huge amounts of data without understanding. In PBL, the active process undertaken by each student to analyse the problem promotes this kind of learning. Several activities associated with constructive learning are built into the process of PBL, including *elaboration of learning*, which occurs when students ask questions, debate issues, or teach each other.

iv. Self-directed learning

Adult education is characterized by learners who determine their own learning needs and plans and who monitor and evaluate their own learning. This is in contrast to the typical school learning style in which students are force-fed material, which they might or might not know the relevance of, and which they proceed to regurgitate at the end of the learning period. In PBL, adult education principles are emphasised, as the main learning activities are done by students. Teachers are there to play a facilitatory role.

v. Collaborative learning

Learning to learn in teams and with each other goes beyond promoting active learning and elaboration of knowledge. It prepares the student to face the future, when their work and learning will take place in groups. In PBL, students tackle the problems in a group and distribute the work of analysing the problem among the group members. They also share knowledge and teach each other.

vi. Small group teaching

Current understanding of educational strategies supports the use of small groups as an effective method of teaching and learning. It encourages free communication between teachers and students and among students themselves. It also encourages students' active participation, helps them to explore subject matter, stimulates students' critical thinking, promotes students' problem solving, group, and communication skills, and encourages self-directed learning.

It also provides an important opportunity for social contact between peers and the teacher. This social contact helps students to resolve a range of issues indirectly associated with teaching as well as any social problems. Small group teaching is not ideal for disseminating information, but it is helpful for students to develop understanding of concepts and to improve strategies and approaches to problems. The number of members for an effective small group is not clear. Eight to twelve is accepted as the optimum number, but it may be up to twenty. The success of small group teaching depends more on the features displayed by the group rather than the number of participants.

Reflection Questions

'Some prefer it in the morning, some at night. Not too often, though; your heart might not take it well. Almost everyone can do it; the more experienced you are the better. Be careful if they are too cold; too hot will also cause problems. Using oil will help, but with expensive ones you can do without them.'

What is the paragraph above about? Go to the end of this section if you want to know. Which principles described above are involved in understanding this paragraph?

1.4

Requirements for PBL

i. Faculty preparation and role

To switch roles from a disseminator of information to a facilitator of learning can be challenging for new tutors. Those unfamiliar with the PBL process are uncertain about their roles in PBL. Therefore it is important for the tutor to understand the PBL process. Tutors should keep an appropriate balance between dominating the discussion on the one hand and detaching themselves from students' learning on the other hand. There are no hard and fast rules for PBL tutoring. The tasks of the tutor in PBL include:

- Climate setting: create an environment that is conducive for self-directed learning;
- Treating the students as adult learners;
- Fostering cooperation rather than competition in group work;
- Clarifying learning needs and helping students frame learning objectives and set goals;
- Designing a learning plan: help students with learning plans and strategies;
- Engaging in learning activities to ensure that students are on the right track: stimulating elaboration of information and ideas, directing the learning process, stimulating integration of knowledge, stimulating student's interaction and individual accountability, and facilitating information location; and
- Evaluating learning outcomes, which includes formative and summative evaluation.

ii. Student orientation

Adequate preparation in terms of the correct knowledge, attitude, and skills regarding PBL is necessary. It is important to emphasise to students the reasons and advantages for adopting such a learning strategy, as they might see it as a roundabout way of obtaining the necessary knowledge, especially if they are used to a more 'spoon-fed', teacher-centered teaching strategy. Ignorance of the principles and philosophy behind the method may also lead to students short-circuiting the PBL process, thus defeating the whole purpose of its implementation.

iii. Trigger development

The success of PBL is closely linked to the quality of the trigger problems used. The faculty should identify learning objectives in advance, and the trigger should make students want to look into those learning objectives. The trigger problem is the starting point of the PBL process. It is usually in the form of 5–6 text lines that provide the key information about the nature of the problem, including 3–4 key facts about the problem. Apart from text, other forms of information, such as images, newspaper clippings, video clips, or cartoons, can be used. To ensure students cover a predefined area of knowledge or learn a set of important concepts or ideas, the trigger problem for use in PBL must satisfy certain criteria. These criteria are outlined below:

Criteria to create effective PBL problem scenarios

- Learning objectives are clear and detailed and designed so that the expected learning objectives created by the students are consistent with the faculty-prepared objectives;
- The trigger problems are appropriate to the stage of the curriculum and the level of the students' understanding;
- The problems are designed in the context of the students' future work scenario;
- Basic sciences are presented in the context of an applied scenario to encourage integration of knowledge;
- The problem triggers contain enough cues to start discussion, and they are sufficiently open so that the 'answers' are not too apparent;
- Each problem may be addressed over 2–3 sessions per week; accordingly, additional information regarding the problem is gradually revealed in subsequent sessions;

- Each problem contains a tutor guide that is not given to students; and
- As outlined above, associated visual materials may accompany the problem.



Suggested further reading: Davis and Harden, 1998

Example of a trigger problem in medicine

Title: Difficulty in Breathing

A 7-year old boy with persistent cough for two months was referred to the paediatric outpatient clinic of Hospital Universiti Sains Malaysia by his general practitioner.

The cough was prominent in the early morning and sometimes associated with wheezing. It was mostly dry although on occasion there was scanty sputum, which was whitish and viscid. From afternoon onwards the cough seemed to be less frequent. The cough seemed to get worse when he played outdoor games.

Develop a paper-based PBL problem keeping in mind your students' level of understanding and the objectives of the session.

TASK

iv. Infrastructure requirements

The infrastructural requirements of PBL are perhaps high on the list of 'minus points' for its implementation. As it utilises a student-centered approach using small groups, preparatory and running costs can be higher compared to the normal lecture-based approach.

First on the line is the need for PBL tutors. The ideal number of group members should be kept small, at 8–12 students, to ensure optimal learning. Therefore, a batch of 100 students would require around 8–12 tutors. Training of these tutors, in the form of workshops or attachments, needs to be planned as well. The cost implications of training and the time spent by the tutors in the PBL sessions need to be taken into account.

The other obvious requirement is tutorial rooms. Most learning institutions have tutorial rooms, therefore the initial setup cost may not be as high as expected. To be effective, however, these tutorial rooms ideally should be dedicated to PBL sessions and not shared for any other purposes. These rooms also need to be equipped with proper equipment, such as a large whiteboard, chairs and tables, and basic amenities such as adequate lighting, ventilation, and temperature control. Newer trends in information technology also dictate amenities now considered basic, such as internet access and an LCD projector.

1.5

Members of PBL groups and their roles

i. *The PBL tutor*

The PBL tutor most often is a lecturer. He or she may not be a specialist in the particular area about which students are learning. Even if he or she is an expert, tutors are not supposed to provide students with answers that will shortcut the intended learning process that is supposed to occur in PBL. That is why they often are referred to as PBL facilitators. They are there to:

- a. Provide students with the triggers;
- b. Guide students in the general direction of the discussion;
- c. Guide students in maintaining the dynamics of the group; and
- d. Evaluate students' performance in the PBL for that particular week.

A more detailed discussion of the tutor's role has been described above.

ii. *The PBL chairperson*

This is most often a student from the group. There are some PBL tutors who prefer to facilitate directly and therefore do not elect a chairperson, but most PBL tutors allow a student chairperson to lead the discussion. The chairperson's main job is to:

- a. Lead the discussion;
- b. Maintain the focus of the discussion;
- c. Make sure the group functions as one;
- d. Make sure everyone has a fair chance in asking and discussing (including the PBL scribe); and
- e. Get consensus from the group when needed (see next section).

The chairperson is usually elected in a rotation (i.e. a different chairperson for different weeks). This is good practice, as it gives everyone a chance to lead the group.

iii. The PBL scribe

The PBL scribe also is most often a student from the group, although there are some tutors who encourage anyone who wants to contribute to come up to the whiteboard and write themselves. The roles of the scribe include:

- a. Listing the key issues;
- b. Maintaining the problems list;
- c. Noting down the discussion: This role can be shared by any group member who can come forward to the whiteboard and contribute to the discussion; and
- d. Listing the learning issues.

The PBL scribe, if selected, needs to be an alert person who is able to track the discussion of the group and is also good at making notes. The PBL scribe is also usually elected on a weekly basis.

iv. The group members

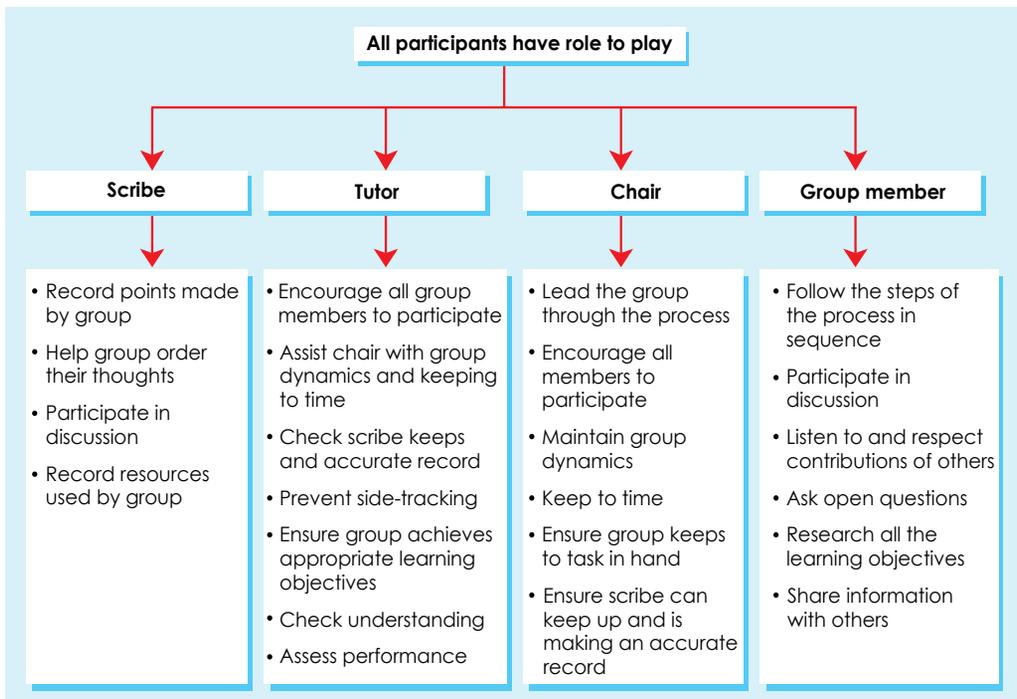
Group members are the rest of the students. As PBL is a student-centered teaching method, all members need to cooperate to ensure they get the maximum benefit from the PBL sessions. The roles of group members include:

- a. Paying attention to the discussion;
- b. Contributing to the discussion;
- c. Sharing what they know;
- d. Asking questions: they have to learn the art of asking questions;
- e. Doing research and reporting to the group: Their participation is vital for the benefit of everybody, including themselves. They need to develop a sense of responsibility for their group members; and
- f. Taking part in healthy debate and criticism. These also need to be learned to be done well.

Group members need to have positive adult attitudes to benefit from the PBL sessions. These attitudes include:

- a. Feeling responsible towards the group learning. This includes attending all sessions, participating as best as they can, doing the assigned work as well as they can, and keeping a positive atmosphere in the group;
- b. A positive self-regard and self-confidence; and
- c. A healthy critical mind-set. This means not accepting facts without knowing the sources and without testing the argument behind it. These also need practice but are essential skills.

Summary of roles in the PBL setting



Source: Schmidt HG and Moust JHC (2000).

1.6 The Process of PBL

As outlined previously, the principal idea behind PBL is that learners are given a problem, which they learn from while trying to analyse and solve it. Thus, a certain framework or approach needs to be utilized to ensure attainment of this central goal.



Suggested further reading: Davis and Harden, 1998 pages 5-6

The PBL trigger problem is usually approached using a series of general steps. Different institutions have developed different but overlapping steps consisting of 5–7 steps. The School of Medical Sciences, Universiti Sains Malaysia uses a 7-step approach modified from the steps used in the University of Maastricht medical school. The steps are described below:

i. **Clarify the problem/trigger**

After getting the trigger/problem from the tutor, the problem is read. Unclear phrases and concepts in the description of the problem should be clarified and explained. It is important for students to have a clear understanding of the scenario (i.e. what is making the patient come to see the doctor). To make sure nothing is missed, the trigger is read paragraph by paragraph. It is helpful to underline the key words. The PBL scribe can help by having a section on the whiteboard titled 'key words' and jotting down definitions, etc. Use of a dictionary in this step is acceptable for clarifying terms and other things. Only one person should have the dictionary, and he or she is the temporary resource for the whole group. The whole group should be involved. Everybody in the group should understand clearly everything described in the trigger. The group leader needs to be alert to group members regarding any questions or clarifications needed. If some terms or concepts are still not clear, the scribe, with the consensus of the group, should put it down in the learning issue list.

ii. **Define the problem**

In this step, the phenomena that have to be explained or understood are described. Once the group is clear on the terms and concepts, the next step is to analyse what it all means. At the end of this step, the group should agree about it and have a common understanding of the problem. If different group members come up with different problems, the group should discuss all of them and agree whether the problems are valid or not. The PBL scribe, with the consensus of the group, then lists them in the PBL problem list.

iii. **Brainstorm about the learning needs**

Using prior knowledge and common sense, students need to produce as many different explanations as possible. This step is important because students must trigger their prior knowledge in order to make the material relevant

and understandable to them personally. This makes students explore things from their memory store, look at them, and decide where best to link new information to their existing memory so that they make sense. At this stage the answer need not be detailed, and it need not be accurate; students need not explain everything in the first session. They should not guess what the real problem is. They need to try to use whatever knowledge they have to explain the new problem; this previous knowledge can be their first-year knowledge or personal experience. The PBL scribe should be alert enough to note down all discussions. Of course, he or she should be helped by the group leader and group members.

iv. ***Elaborate on the proposed explanations***

A detailed coherent personal 'theory' of the processes underlying the phenomena is constructed. By now the group has come up with some possible causes for the problems. Beginning with the possible initiating factor, students then work on the steps or processes and end with the production of the problems. A flowchart would be very helpful. For each 'arrow' in the flowchart, make sure the group can explain what is happening. This is where elaboration of knowledge happens most; therefore, at this step it is important that students ask questions, think critically, argue, teach, and debate until invariably they find that they need more information. The group deliberates on problems or issues to find out the limits of what they know about the issue. If there is more than one possible explanation for the problem, after discussing all of them the group should be able to prioritise the explanations from the most likely to the least likely. The role of the group leader is to manage the discussion and to make sure that everyone has their say and that everyone says it in an orderly fashion. Everyone must be tuned in to the discussion; no one should be 'lost' or involved in a mini-discussion with a sub-group of their own. The group members should help the leader keep a healthy discussion going. Can textbooks be used in the discussion? Generally, use of textbooks in PBL is discouraged unless the matters to be looked up are short and simple facts. Otherwise, textbooks disrupt the group dynamics because those reading will be out of the discussion. It takes time away from the group discussion. Furthermore, during the PBL session, the reading will often be superficial.

v. ***Formulate***

Create and organise learning issues for self-directed learning. In steps 3 and 4, students realise that they need to know more about certain things to discuss

the issue further. When that happens, it means that students have identified learning issues, which is one of the important steps in a PBL session. Learning issues should be as specific as possible; they should be focused, achievable, comprehensive, and appropriate. They should also be agreed upon by the group. It is up to the group to assign the learning issues in the way they think best. Some learning issues are important enough to be researched by everyone, whereas some can be assigned to one or more group members. Another way would be to ask everyone to research all learning issues and to combine what they found later.

vi. **Self-study**

Fill gaps in your knowledge. This is a critical part of PBL. This is where students learn to research and look up, select, and combine (synthesise) information. They also learn to evaluate the information that they have found. They develop critical thinking and reasoning. This skill is important for their future because self-directed study is important for their future development. The students should go to as many sources of information as possible. Nowadays there is a tendency to rely on the internet instead of the usual textbooks. Students should not forget that resource persons, such as lecturers, are also invaluable for increasing their understanding.

vii. **Share**

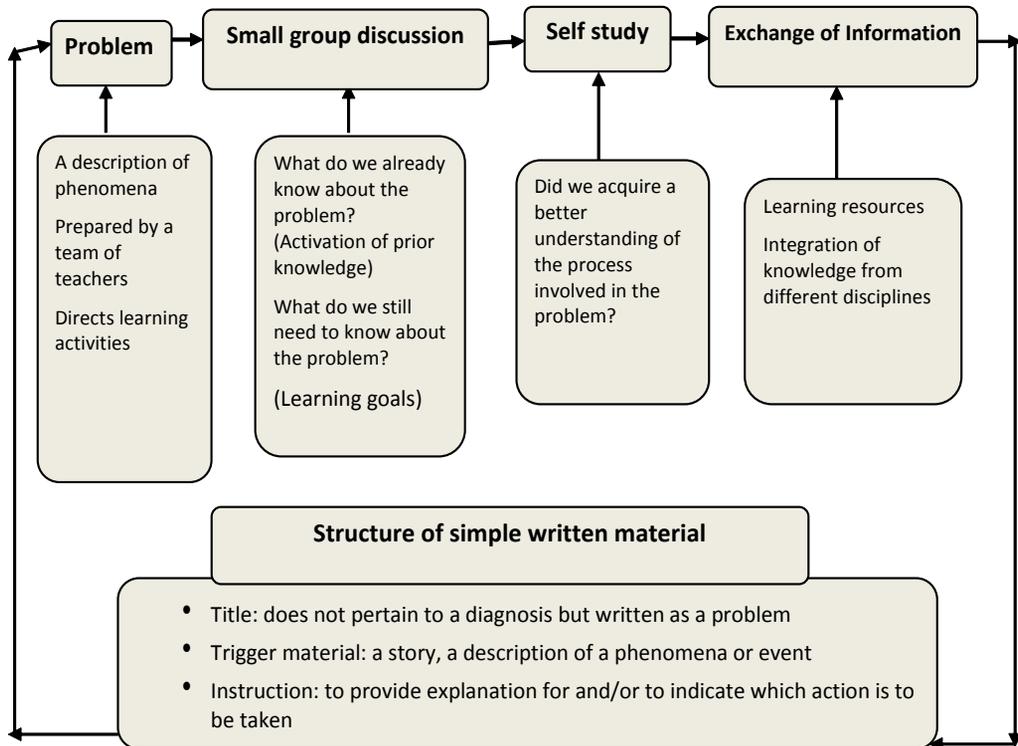
After researching their learning issues, students present findings in the group and try to integrate the acquired knowledge into a suitable explanation for the phenomena. They should check whether they know enough and also evaluate the process of knowledge acquisition. In this step students should present information using their own words and concepts. Making notes for group members is fine, but students are reminded not to just read them aloud. Explaining to other people using their own words make students check their personal understanding and improves memory. Those listening are asked to listen critically and ask questions. At the end, the students should see if they are able to explain or answer the questions they came up with in step 3. This step helps students improve their communication skills. They learn how to convey ideas so that people understand what they are trying to say. It is also a good opportunity for them to try to present in the English Language. Discussion of the process is as important as the content. Students become more skilled in PBL as they go along. Remember, PBL provides an opportunity for students to practice teamwork, critical evaluation of literature, chairing a group, self-

directed learning, usage of resources, listening, presentation skills, recording, cooperation, and respect for colleagues' views.

Based on the previous sections, try to come up with your own PBL process, keeping the basic principles intact.

TASK

A diagrammatic flowchart of the PBL process is provided below.



Source: Schmidt HG, 1983.

1.7 Assessment in PBL

Student assessment in a curriculum that utilizes PBL should be planned carefully. It should complement the philosophy of PBL, which generally is to foster deep learning. Both the process of PBL and the knowledge content acquisition should be assessed in a proper manner.

PBL process assessment includes a regular opportunity for feedback to all group members. Formative feedback should occur at the end of each tutorial. Assessing students' performances in PBL sessions mainly includes tutor assessment of students, self-assessment, and peer assessment. The main tool is usually a checklist that is used

to assess knowledge application, critical thinking, self-directed learning, and group work. The use of formative assessments to provide regular, informative, and detailed feedback to students on their progress and performance at various stages during a given course is an essential component of the PBL educational strategy. Such assessments will enable students, whenever necessary, to undertake effective and timely remedial action that is either self-initiated or upon the advice of the tutor.

Assessment methods for the acquisition of content suitable for a PBL curriculum include the Modified Essay Question (MEQ), in which a scenario involving a case or an authentic situation is given and the student is required to answer questions based on it. The scenario is revealed gradually and application of knowledge, instead of mere recall, is required to write the essay. More objective formats that are still able to test higher order thinking skills include the single-best answer and the extended matching multiple-choice question (MCQ).

1.8 Advantages and shortcomings of PBL

Despite the increasing use of PBL internationally, it is important to realise that it is not a panacea for all of the perceived educational ills associated with the so-called traditional methods of instruction. PBL is one of many methods of instruction and has both advantages and drawbacks. Similar to the use of other tools, we need to be aware of this to ensure its proper use. Most likely, a judicious combination of PBL with other methods is a wiser approach.

i. Advantages of PBL

- **Student centered:** It fosters active learning, improved understanding, improved retention, and development of lifelong learning skills;
- **Generic competencies:** Students develop generic skills and attitudes desirable for their future practice;
- **Relevance:** It helps to provide relevance to the curriculum content by structuring student learning around a common problem that will be faced by the students;
- **Identification of core:** Properly designed trigger problems focus the students' attention to core important material and avoids information overload;
- **Integration:** PBL facilitates an integrated core curriculum;
- **Motivation:** The PBL approach is preferred by students and faculty;

- **Deep learning:** PBL fosters deep learning (students interact with learning materials, relate concepts to everyday activities, and improve their understanding); and
- **Constructivist approach:** Students activate prior knowledge and build on existing conceptual knowledge frameworks

ii. **Disadvantages of PBL**

PBL can be intensive and sometimes can demoralise and demotivate teachers and students alike.

- **Threat to the traditional stereotype of teaching:** Tutors who enjoy passing on their own knowledge and understanding may find PBL facilitation difficult and frustrating;
- **Human resources:** More staff members have to take part in the tutoring process, and they require training and sometimes additional remuneration;
- **Other resources:** PBL requires properly equipped tutorial rooms. Students need to do research on their learning issues and therefore need a properly equipped library, internet resources, and other related amenities;
- **Role models:** Lecturing often exposes students to inspirational personalities, as opposed to PBL facilitation, where lecturers often act as 'a guide by the side';
- **Information overload:** Despite the claim that PBL reduces information overload, the opposite may happen when students are unsure to what extent they need to explore the problem and which information is relevant and useful; and
- **Unorganised knowledge:** Due to the group-learning nature of PBL, the information acquired may be poorly organised.



Suggested further reading: Davis and Harden, 1998

Summary

PBL is a student-centered learning strategy that uses small groups of students. It arose from dissatisfaction towards teacher-centered learning, which focuses on rote learning. In PBL, a faculty member presents trigger problems, which can be in various forms designed in such a way that students come up with learning issues that correlate with faculty objectives. Using recognised steps, students tackle the problems and in doing so utilise processes known to promote deep learning, such as activation of prior knowledge, learning in context, construction of knowledge, self-directed learning, and collaborative learning.

Before PBL is implemented, faculty needs to be trained in the PBL process and facilitation skills and students need to be oriented to the reasons for implementing it. Trigger development is another important component. Infrastructural requirements should also be considered, as PBL is intensive in both human and physical resources. Users also need to be aware of other possible drawbacks apart from the high implementation and maintenance requirements described above. This balanced view of the strengths and weaknesses of PBL promotes the wise and judicious utilization of this learning approach.

***Answer to the reflection question**

The paragraph refers to **frying eggs**. If you were confused, it could be that your prior knowledge of egg-frying was not activated. Therefore the sentences, even though the words were familiar to you, did not make sense.

Reflection - How much do you know about PBL?

(Adapted from Davis MH (2005: page 15), CD: 5 – Problem-Based Learning)

You have completed your reading and worked through this unit. Complete the following self-assessment exercise and test your understanding of the key points about PBL.

A faculty member from the Department of Medical Education has come up with a PBL guide and has developed two volumes for the guide, namely:

Catalogue A – Truths about PBL

Catalogue B – Myths about PBL

Unfortunately the items within the two volumes are mixed up. The author seeks your help to sort the items back into the original two volumes.

Statements	Catalogue (A or B)
1. PBL is fun for students.	
2. PBL is best if it follows an introductory session on the topic.	
3. PBL is appropriate only in the early years of a curriculum.	
4. Staff training is an essential part of PBL implementation.	
5. PBL contributes to defining the core curriculum.	
6. PBL is a new approach to learning.	
7. PBL is useful for multi-professional education.	
8. The main aim of PBL is to solve problems as stated in the introductory problem scenario.	
9. In PBL, students' learning builds on prior learning.	
10. PBL is a student-centered approach to learning.	
11. PBL requires extra resources for its implementation.	
12. PBL is an active form of learning.	
13. PBL suits the personal learning styles of all students.	
14. Small group activities are an integral part of PBL.	
15. PBL is only suitable for an integrated curriculum.	
16. Student assessment in PBL is regulated by principles similar to those used for the assessment of students more generally.	
17. In PBL, the teacher's role is basically facilitating the process rather than teaching.	
18. PBL is appropriate for both community- and hospital-based teaching.	
19. PBL must be implemented throughout the curriculum.	
20. PBL can be used with a large group of students.	

See next page(s) to check your answers.

Answers and feedback

1. **PBL is fun for students.**
 - A. A consistent finding from literature is that both students and tutors find PBL enjoyable (Davis and Harden, 1998, p. 7).

2. **PBL is best if it follows an introductory session on the topic.**
 - B. It is just one part of the PBL continuum. PBL is highly successful if it is implemented without an introductory session on the topic (Harden and Davis 1998, p. 20). However, introductory sessions must not be confused with orientation courses for students about the process of PBL. Such courses are required for the successful implementation of PBL.

3. **PBL is appropriate only in the early years of a curriculum.**
 - B. Task-based learning (Harden and Davis, 1998, p. 20) is a type of PBL that is specially applied in the clinical/practical years.

4. **Staff training is an essential part of PBL implementation.**
 - A. Staff development is necessary for PBL. The type of staff development was identified by Irby (1996). Also see Davis and Harden, 1998, p. 13.

5. **PBL contributes to defining the core curriculum.**
 - A. Through selection of suitable problem scenarios, the core curriculum can be defined (Davis and Harden, 1998, p. 7).

6. **PBL is a new approach to learning.**
 - B. It depends on your own definition of 'new'. PBL was introduced in the 1970s by Howard Barrows at McMaster University (Davis and Harden, 1998, p. 7).

7. **PBL is useful for multi-professional education.**
 - A. PBL is useful in multi-professional education (Davis and Harden, 1998, p. 20).

8. **The main aim of PBL is to solve the problem as stated in the introductory problem scenario.**
 - B. Solution of a problem is not an essential component of PBL. The problem scenario acts as a trigger or stimulus for student learning. Learning in association with the problem is the main issue in PBL (Davis and Harden, 1998, p. 7).

9. In PBL, students' learning builds on prior learning.

- A. PBL is a constructivist approach to learning. Students activate prior knowledge and build on existing conceptual knowledge frameworks (Wood, 2003; Davis and Harden, 1998, p. 7).

10. PBL is a student-centered approach to learning.

- A. PBL is a student-centered approach to learning. Students take more responsibility for their learning, which fosters active learning (Davis and Harden, 1998, p. 7).

11. PBL requires extra resources for its implementation.

- B & A.** Many authors have reported changes required to implement PBL as being neutral (Davis and Harden, 1998, p. 8; Albanese and Mitchell, 1993, p. 64). Some authors, however, reported it as being resource intensive when it involves implementing a whole new PBL curriculum (Wood, 2003).

12. PBL is an active form of learning.

- A. PBL fosters active learning, which is stressed in many of the definitions and criteria of PBL (Davis and Harden, 1998, p. 4–6).

13. PBL suits the personal learning styles of all students.

- B. All students do not flourish in the same way in PBL (Albanese and Mitchell, 1993, p. 64).

14. Small group activities are an integral part of PBL.

- A. It is a must and is the most essential part of a PBL process (Davis and Harden, 1998, p. 21).

15. PBL is only suitable for an integrated curriculum.

- B. Even though PBL offers an effective approach for integrating student learning, it may also be employed in discipline-based courses.

16. Student assessment in PBL is regulated by principles similar to those used for the assessment of students more generally.

- A. Student assessment in PBL uses the same principles applied to assessment in general (Davis, 2005, p. 12).

17. The teacher's role is basically facilitating the process rather than teaching.

- A. Yes. For further reading, see Davis and Harden, 1998, p. 12–13.

18. PBL is appropriate for both community- and hospital-based teaching.

- A. The task-based learning version of PBL can be used in the hospital and in the community (Davis and Harden, 1998, p. 22).

19. PBL must be implemented throughout the curriculum.

- B. A school can have a complete version of PBL, or it can be incorporated at certain stages of the curriculum (Davis and Harden, 1998, p. 8).

20. PBL can be used with a large group of students.

- A. It can be used with a large group of students by subdividing them into small groups (Davis and Harden, 1998, p. 12–13).

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Section 2

2 Contract Learning (CL)

At the end of this section, users should be able to:

1. Define the term 'contract learning';
2. Use contract learning as a tool for self-directed learning;
3. State the benefits of contract learning in higher education;
4. Prescribe contract learning for any student for any course;
5. Develop skills of self-directed learning;
6. Identify learning needs of students and draw up specific learning objectives;
7. Deploy contract learning by utilizing existing resources;
8. Furnish evidence(s) of accomplishment of students' learning goals under contract learning;
9. Draw up a substantive, specific, manageable, and focused learning contract that adds value to students' self-directed learning; and
10. Negotiate a learning contract with students and reach an agreement for its content, implementation, and assessment.



2.1 Introduction

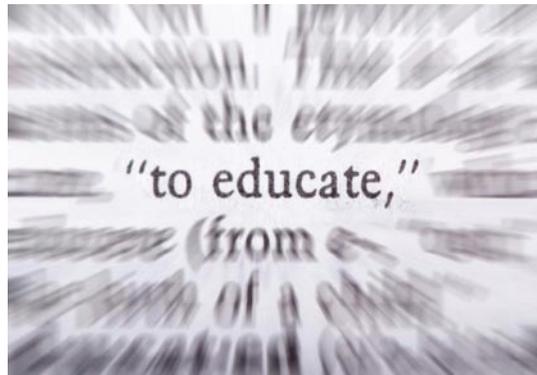
The concept of contract learning was first introduced by Malcolm Knowles in 1986 as a means of student-centered and self-directed learning (SDL). It is a process in which learners take the initiative in diagnosing their learning needs, formulating learning goals, identifying resources for their learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes.

2.2 Strengths of self-directed learning (SDL)

People who take the initiative in learning learn more things and learn better than people who are passive learners. This learning approach is more in tune with our own natural process of psychological development. An essential aspect of maturing is developing the ability to take increasing responsibility for our own lives to become increasingly self directing. Many new developments in education put a heavy responsibility on the learners to take a good deal of initiative for their own learning. Students who do not have the skills of self-directed inquiry will experience anxiety, frustration, and often failure. Self-directed learners will go on acquiring new knowledge easily and skilfully for the rest of their lives. Thus, learning contracts are increasingly used in higher education to encourage and nurture self-directed learning.

2.3 What is a learning contract?

A learning contract is basically a negotiated agreement between the learner and his/her teacher about the learning goals that he/she will achieve in a specific course or educational programme. The learner will be free to identify his/her own learning objectives and how these objectives will be implemented and assessed. As Knowles (1991, p. 39) stated, 'Contract learning is, in essence, an alternative way of structuring a learning experience: It replaces a content plan with a process plan.'



The learning contract is utilized to:

- i. Improve relevance and meaning of the learning process, as the students can ensure that what they learn will be of real value to themselves;
- ii. Allow innovation, as students are encouraged to do things on their own; and
- iii. Encourage continuing lifelong learning and self-assessment, as the students are encouraged to identify their own learning needs and resolve those needs themselves.

2.4 How to write a contract?

To write a learning contract, start by identifying a small number of specific learning needs in a particular course. Your teacher will welcome an opportunity to advise you in this process. By all means, write these learning needs down, but go no further until you have been in the course for a while. Here are the steps that should be taken:

- i. Read the content outline of the whole course;
- ii. Familiarize yourself with the core topics to be formally covered;
- iii. Get a feel for how busy you are going to be during the actual course; and
- iv. Identify a specific subject that you would like to explore in greater depth;

What you will inevitably learn during the course should be excluded from your contract (i.e. exclude core topics and purely theoretical objectives). In light of your workload, convert your learning needs into a few learning goals (objectives). Make them clear, specific, manageable, and written in such a way that it will be possible for you to know when you have achieved them. With help from your teacher, write down the specific ways you are going to achieve your learning goals. This will include your resources and strategies as well as the feedback or assessment you or your teacher will use to determine attainment of your goals. Be as innovative as you wish in implementing your learning strategies as well as in eliciting feedback or assessment of your learning contract.

2.5 Points to remember

- The contract must be of real value to you;
- It is a commitment first to yourself;
- Keep it manageable and specific;
- It is a focusing device, intended more as a learning process and not as an assessment per se;
- It provides you with a time framework to attain your learning objectives, so target dates for showing evidence of accomplishment will need to be stated; and
- It should be negotiated and agreed upon by you as the student and your teacher; thus, signature of both parties on the contract is encouraged.

2.6 Why write it down?

The process of identifying and remedying learning needs and objectives is what is important, and writing it down will frequently crystallise your thoughts. Writing it down also reinforces the systematic process of setting learning goals and devising methods of accomplishing them. It is a commitment in writing to achieve competence in selected and significant elements of your field of study, and it is the mastery of this process that is vital for future continuous professional development. Learning contracts may be short, consisting of a paragraph, or quite lengthy, as in the form of a flowchart to a more complex model outlining learning goals, resources, strategies, and evidences of accomplishment, signed by both the learner and the responsible teacher. An example of a learning contract from the Community and Family Case Study Programme of the School of Medical Sciences is shown later in section 5.2.8 (ii).

2.7 Components of a typical learning contract

i. Learning objectives

- a. These describe what the learner will know and/or what he/she will be able to do and/or what attitude or behaviour he/she will be able to demonstrate in order to fulfil his/her learning needs (a learning need is a discrepancy between present knowledge or competence and what is desired).
- b. A learning objective must be clearly stated, specific, and achievable/ manageable.

ii. Learning resources and strategies

- a. These describe the tools and resources to be utilized to achieve the learning needs. Thus, they have to be clearly stated and directly related to the specific learning objectives.

iii. Evidence of accomplishment

- a. This describes the proof of attainment of the learning goals. It must be clearly written and congruent to the appropriate learning objectives.

TYPES OF OBJECTIVES	EXAMPLE OF EVIDENCE OF ACCOMPLISHMENT
Knowledge	<i>Reports of information/data acquired by students (e.g., essays, oral and audiovisual presentation)</i>
Understanding	<i>Examples of utilising knowledge by students in undertaking projects with conclusions and recommendations based on findings and solving problems related to the subject matter</i>
Skills	<i>Demonstration by the student of a technique (displayed or performed and rated or assessed by observers, e.g. using a simple medical instrument such as an inhaler for an asthmatic patient)</i>
Attitude	<i>Behaviour of a student in a real situation or a simulated environment (to be observed and rated by the teacher using an attitudinal rating scale)</i>

iv. Criteria and means for validating evidence

- a. This describes the final assessment/judgment of your evidence of achievement. These criteria must be appropriate. For each objective, the proposed criteria must be specified based on the evidence to be judged. The criteria will vary according to the types of learning objectives you started with.

Type of Objective	Example of Criteria
1. Knowledge	<i>Comprehensiveness, depth, precision, clarity, usefulness</i>
2. Skills	<i>Poise, speed, flexibility, precision, imaginativeness</i>
3. Attitude	<i>Appropriateness, assertiveness, empathy, interest, being on time</i>

2.8 Assessment of a learning contract

It is very important to realise that a learning contract is primarily a learning tool. Assessment is therefore not the prime intention. However, a learning contract is deemed unsatisfactory if the contract is not written and submitted on the target date agreed upon by the learner and his/her teacher.

Different learning objectives may have different forms of evidences of accomplishment and different methods of assessment. The evidences of accomplishment of the learning objectives in the contract may take the form of a report, presentation, fixed-learning module, audio or video recording, health education materials, or field trip (home visits, site visit, health /educational camps).

i. Scoring and giving weight to evidences

As with the contract writing process, the learner and teacher must negotiate to decide on the weight to be given to the evidence for each learning objective. For each form of assessment, the proportion of the score given to the content, applied knowledge, style of presentation etc. should be flexible and open to negotiation between the teacher and learner. However, this process depends on the learner's initial learning needs and objectives and not directly on the teacher's independent assessment. Other assessors may be incorporated to score the student's accomplishments, such as peers and patients or community leaders.

- ii. **Example of a case study for contract learning used in the School of Medical Sciences, Universiti Sains Malaysia, Community and Family Case Study Programme.** *Source: Rogayah Jaafar and Mohd. Hashim Mohd. Hassan (1990).*

Case summary

Puan Fatimah, a 37-year-old housewife, gravid 12 Para 10+1, was admitted on 1/7/2010 for per vaginal bleeding. Ultrasound confirmed a diagnosis of placenta praevia major (type 4). An emergency LSCS was performed at 31/52 weeks gestation. Bilateral tubal ligation was also done. Her recovery post-op was uneventful.

Significant Past History

Puan Fatimah was diagnosed as having mitral valve prolapse in March 2009.

Obstetric history

Puan Fatimah's first six children were delivered at home with no complications. Her seventh child was delivered in hospital while her eighth to tenth children were delivered at home. Her eleventh pregnancy ended in abortion at the 5th week of gestation.

(continued)

Case summary of baby

Name: Siti Nor Azween

Sex: Female

Birth Weight: 1.8 kg

The baby was admitted to the Neonatal Intensive Care Unit upon delivery. She was born premature (31/52) with respiratory distress syndrome and jaundice. Phototherapy was instituted for 3 days and the baby's condition improved. The baby was discharged after spending 19 days in the hospital.

Problem list

1. For the mother:

- Grand multiparity
- Heart condition (mitral valve prolapse)
- Elective LSCS and bilateral tubal ligation
- Possible problems with recuperating
- Poor educational and socioeconomic status

2. For baby:

- Prematurity and its complications
- Potential problems with dietary requirements and normal growth

iii. Example of a learning contract for Puan Fatimah and her baby

Learning Objectives	Resources & Strategies	Evidences	Criteria
<p>1. To develop an understanding of the dietary requirements of a premature baby and to explain this to the mother in simple terms</p>	<p>i) Read books on premature babies ii) Find learning resources about diet for premature babies iii) Seek paediatrician's and nutritionist's advice iv) Regular home visits to check on the feeding protocol for the baby</p>	<p>1. To show a favourable weight gain on baby's growth chart 2. Diet booklet for mother on feeding regime for baby</p> <p>Target Date: </p>	<p>Class presentation to be assessed by peers, paediatrician and nutritionist on: i) Content 80% ii) Style 20%</p>
<p>2. To appreciate and understand the reasons for practicing traditional diet pattern during the patient's postnatal period</p>	<p>i) Read literature on food taboos during pregnancy and post delivery ii) Schedule home visits to discuss and observe family's beliefs</p>	<p>1. A written report on food taboos practiced by Malay mothers after child delivery, inclusive of a write-up of this patient's taboo practice</p> <p>Target Date: </p>	<p>Report to be graded by supervisor on: i) Content 60% ii) Clarity of 30% report iii) Style 10%</p>
<p>3. (a) To explain to patient about bilateral tubal ligation (b) To study the patient's attitude towards returning to daily activity after the BTL surgery</p>	<p>i) Read surgery textbooks on bilateral tubal ligation ii) Review literature and seek psychiatrist's viewpoints on post operative problems iii) Discussion with patient about her views and thoughts on her operation</p>	<p>1. Supervisor's home visit to: i) interview patient about her views and understanding of the BTL performed on her ii) Observe extent of daily work resumed by patient</p> <p>Target Date: </p>	<p>The interview will be conducted and graded by supervisor on: i) Clarity of thought ii) Accuracy of patient's feedback iii) Match between the interview data and observed activities</p>

Task

In the table below, write a learning contract that you will use to accomplish a few specific learning needs in your area of teaching.

LEARNING OBJECTIVES	RESOURCES & STRATEGIES	EVIDENCES	CRITERIA
1.			
2.			
3.			

Take Home Messages

- i. Contract learning is a student-centered approach to learning and assessment in higher education;
- ii. The learning contract must be of real value for and a commitment from your students to themselves;
- iii. The learning contract needs to be specific and manageable and should act as a focusing device for your student's learning; and
- iv. You will have an opportunity to negotiate and reach an agreement with your student about what and how they are going to learn and what and how they will be assessed at the end of the course.

Summary

This section examined the use of contract learning as a tool for self-directed learning. It explored the benefits of learning contracts, especially for students in higher education institutions where the emphasis is on student-centered learning. Students at colleges and universities must be actively involved in the process of education and become more independent and responsible for their own learning. They must develop skills of self-directed inquiry. Using learning contracts allows students to identify their own learning needs, translate them into specific learning objectives, institute strategies and utilize resources to achieve these learning objectives, and finally provide evidence(s) of accomplishment of their learning goals with the assistance and agreement of their teachers/supervisors.

The learning contract must be of real value to your students and represent a commitment to themselves. Thus, they need to keep it specific and manageable and use it as a focusing device intended for their own learning. You will have an opportunity to negotiate and reach an agreement with your students about what and how they are going to learn and what and how they are going to be assessed as part of their learning process.

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Section 3

3 The Learning Portfolio

At the end of this section, users should be able to:

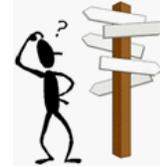
1. Define the term 'learning portfolio';
2. Discuss the educational rationale for using a learning portfolio;
3. Discuss two types of portfolio and their characteristics;
4. Explain the content and structure of a learning portfolio;
5. Describe the educational effects of a learning portfolio on student learning;
6. Explain on how to assess a learning portfolio;
7. Discuss issues or challenges in using a learning portfolio;
8. Develop a learning portfolio; and
9. Guide other learners to develop a learning portfolio.

3.1 Introduction

Portfolios were first introduced to visual art students in the 1970s with the aim of stimulating a sense of self-control over their learning and to encourage reflective thinking (Parboosingh & McLaughlin, 1996). Therefore, documenting evidence of one's work in a portfolio is not something new; it has been done for years by artists, writers, and architects (Parboosingh & McLaughlin, 1996; Challis, 1999; Newble & Cannon, 2001; Amin & Eng, 2003; Dent & Harden, 2009). Moreover, a substantial amount of evidences show that portfolios have been introduced successfully into a range of educational and professional learning contexts (Challis, 1996; Newble & Cannon, 2001; Amin & Eng, 2003; Dent & Harden, 2009; Cantilon & Wood, 2010).

Can you discuss other purposes of developing a learning portfolio?

- 1.
- 2.
- 3.



Can you name a few courses that you are aware of that use portfolio as a learning tool?

Reflection

3.2 Definition of a learning portfolio

There are various definitions of a learning portfolio in the literature (Amin & Eng, 2003; Brown cited by Parboosingh & McLaughlin, 1996; Dent & Harden, 2009; Hall cited by Challis, 1996; Newble & Cannon, 2001; Paulson et al., 1991; Zubizarreta, 2004). The following four essential elements can be extracted from these definitions to define a learning portfolio:

- 1) Goal-setting (i.e., self-directed goal-setting or purposes that need to be guided by someone who is in a position to guide, such as a mentor);
- 2) Evidence of continuous learning (i.e., to demonstrate the continuous process of acquisition of knowledge, skills, attitude, and professional development);
- 3) Self-reflection (i.e., through this process, retrospective reflection and analysis of past learning experiences are synthesised into: i) a meaningful learning experience that will influence future changes in practice, and ii) the identification of individual needs that will result in a learning plan);
- 4) Documentation (i.e., systematic compilation of evidence depending on the goal-setting or purposes for which it is to be used).

Quiz

Which is the best definition for a learning portfolio?

1. A collection of student work, which provides evidence of the achievement of knowledge, skills, appropriate attitudes, and professional growth through a process of self-reflection over a period of time.
2. A flexible, evidence-based process that combines reflection and documentation. It engages students in ongoing, reflective, and collaborative analysis of learning. It focuses on purposeful, selective outcomes for both improving and assessing learning.
3. A collection of evidence demonstrates the continuing acquisition of knowledge, skills, attitudes, understanding and achievement... reflecting the current stages of development and activity of the individual.
4. A purposeful collection of student's work that exhibits the student's efforts, progress, and achievements in one or more areas. The collection must include student participation in selecting contents, the criteria for selection, the criteria for judging merit, and evidence of student self-reflection.

3.3

Educational rationale for using a learning portfolio

As soon as secondary school students enter tertiary education centres (i.e., universities) as fresh undergraduate students, they find themselves in an environment in which they are set upon a specific career path. They are no longer children, as they have passed the stage of adolescence and are becoming adults. We as teachers or educators are teaching and working with young adults, and this should be taken into account in the ways we facilitate learning among them.

In 1970, Knowles introduced an adult learning (andragogy) model in which adults are self-directed and are expected to take responsibility for their decisions. There are several key areas of the model that should be taken into account when facilitating

learning among undergraduate students (cited by Challis, 1999; Newble & Cannon, 2001; Yusoff & Rahim, 2010):

1. They tend to be self-directed, meaning that they themselves decide what to learn;
2. They have a rich reservoir of experience that can serve as a resource for learning;
3. They are motivated to learn by their needs, such as their future career roles;
4. They tend to learn based on problems in which they expect their learning will be immediately useful as opposed to a subject matter orientation.

The implications of adult learning characteristics are significant when considering how students in training might most effectively engage in their own learning development and how teachers might most effectively facilitate learning of their students. Thus, teaching techniques that encourage learners to be self-directed, to apply knowledge immediately in their jobs, and to reflect upon their experiences and needs will consolidate their understanding of the subjects learned.

The learning portfolio encapsulates the principles of adult learning, the deep learning approach, experiential learning, reflective learning, and lifelong learning, but at the same time it offers an effective method not only of facilitating and recording, learning and valuing unique experience of the learners, but also of reviewing, monitoring, and assessing the learning (Parboosingh & McLaughlin, 1996; Challis, 1999; Newble & Cannon, 2001; Amin & Eng, 2003; Dent & Harden, 2009; Cantilon & Wood, 2010)

Can you discuss rationales for using the learning portfolio in relation to these principles?

1. Learning approaches

2. Kolb's experiential learning

3. Reflection

4. Lifelong learning



Further reading: Marton and Saljo (1997), Kolb (1984), Challis (1999), and Kirby et al., (2010).

The use of portfolios provides an opportunity for educators to assess the following (Dent & Harden, 2009):

1. The learner's work and the relevant documentation;
2. The learner's attitudes through materials that the learner has selected for his or her learning portfolios;
3. The learner's learning experience and progression of learning during the course. Through the use of reflective descriptions of the learning experience, teachers can evaluate, explore, and discuss the learner's learning progression; and
4. The learner's performance through the evidence of learning that the learner has selected for his or her learning portfolio.

3.4 Types of portfolio

Portfolios are categorized into learning and assessment portfolios. Moya and O'Malley (1994, p. 2) clearly distinguish a learning portfolio and an assessment portfolio as follows:

A portfolio is a collection of a student's work, experiences, exhibitions, self-ratings (i.e., data), whereas portfolio assessment is the procedure used to plan, collect, and analyse the multiple sources of data maintained in the portfolio. A portfolio that is based on a systematic assessment procedure can provide accurate information about the depth and breadth of a student's capabilities in many domains of learning.



Further reading for comparison of learning and assessment portfolios: Dent & Harden, 2009, page 350.

Paulsen et al. (1991) emphasised that portfolios become an integral part of learning and assessment if properly brought together. Together, learning and assessment provide more benefits and values to encourage self-directed learning than either could provide separately (Paulson et al., 1991).

A learning portfolio developed for the purposes of documenting a wide range of materials, which is not to be reviewed, assessed, or evaluated by anyone else, may be relatively unstructured (Challis, 1999; Dent & Harden, 2009). However, if the portfolio is to be reviewed or assessed, then there are some general guidelines related to content and structure that will make it easier for learners and reviewers to ensure that the portfolio meets its purposes. There is no right answer about how to structure and organise the contents of a portfolio. However, to facilitate development of a learning portfolio, the general structure and content guidelines shown in Table 1 may be useful.

Table 1. General structure of a learning portfolio (Challis, 1999; Zubizarreta, 2004)

Structure	Description of content
Title page	Learners may include their name, post, year of training, and name of supervisors.
Contents page	Learners should list what is in the portfolio with page references.
Learning objectives	Learners should state clearly the learning goals and objectives in a list to reflect evidence in the portfolio claims to take place.
A short reflective overview	Learners should provide a narrative reflection on their learning process and summarise the learning that has taken place since the last portfolio review. They should also indicate which items of evidence relate to which learning goals and objectives.
Evidence	Learners should classify selected material as evidence of learning into themes according to intended learning objectives (e.g., achievement of learning (awards, transcripts), continuous learning (critical essays, research articles), assessment of learning (instructor feedback, examination scores), and relevance of learning (leadership, volunteerism).

Based on this section, try to figure out your own learning portfolio structure and its contents.

TASK

Based on a recent systematic review (Buckley et al., 2009), portfolio use generally has positive educational impacts on student learning, such as on their knowledge and understanding, skills, attitudes, and behaviours (Figure 1, adapted from Buckley et al., 2009).

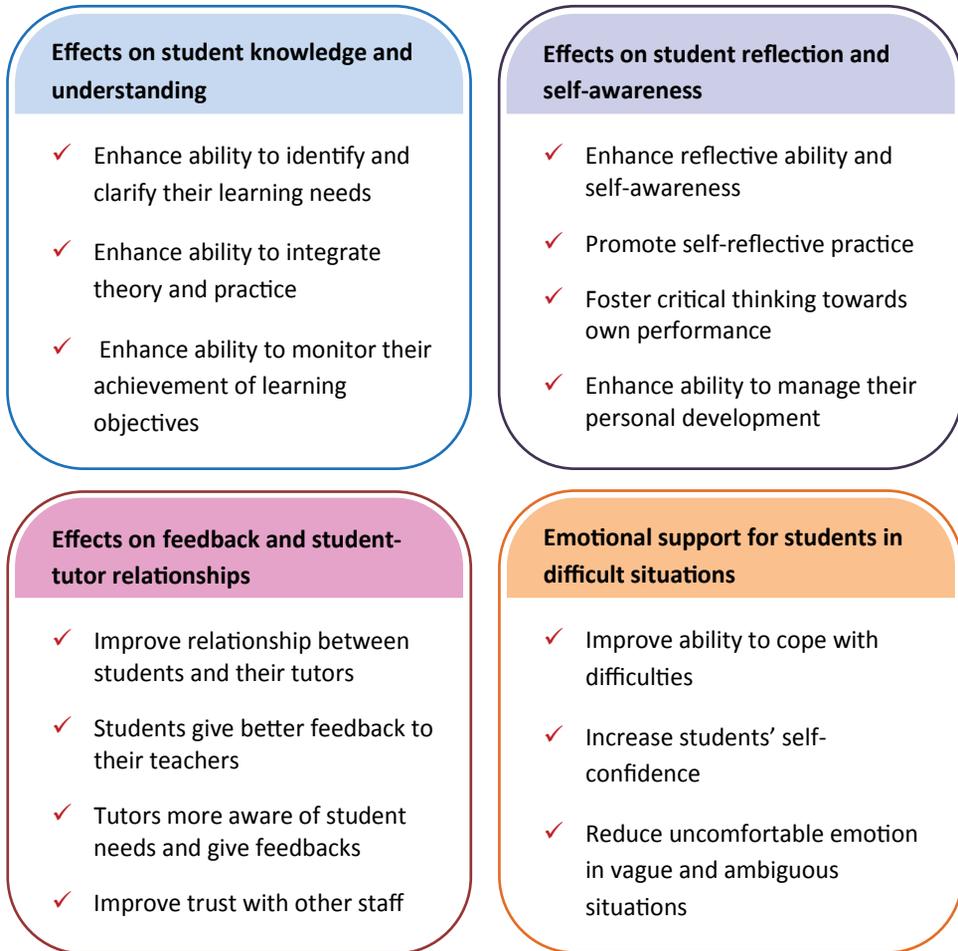


Figure 1. Educational effects of portfolios on student learning

BEWARE!

Despite the encouraging impacts portfolios have had on several important areas related to student learning, Buckley et al. (2009) stated that most of the articles published have been based on student perceptions of the effect of portfolio use on their learning rather than on direct measurement of changes in skills, attitudes, or behaviours. Therefore, the effects should be interpreted within these limitations; much work remains to be done to explore the direct effects of portfolios on student learning and performance.

3.7 Assessing the learning portfolio

Assessment or evaluation is an important element in any educational process. To facilitate the process of assessing a portfolio, it is worth highlighting several important reasons why we do assessments (Challis, 1999; Dent & Harden, 2009):

1. To provide feedback to learners so that they can learn from mistakes and build on achievements;
2. To build a connection between learning and assessment;
3. To motivate learners and focus their sense of achievement;
4. To improve learning outcomes through the provision of feedback;
5. To enable learners to correct errors and remedy deficiencies;
6. To consolidate learners' learning experiences;
7. To help learners integrate theory and practice;
8. To estimate students' potential to progress to the next level of training;
9. To provide feedback to teachers about how effective they are at promoting learning; and
10. To provide quality assurance about learners' competency and abilities to internal and external agencies who are in a position to employ them.

There is no clear cut assessment method to evaluate a learning portfolio. Therefore, to assess it, teachers must tolerate and accept the subjectivity of the work that is presented. The following guidelines might be useful for educators when developing an assessment framework for portfolios (Challis, 1999):

1. Assessment is carried out within a criterion-reference (based on how a learner performs against the intended learning outcomes (e.g., number of learning achievements)) rather than a norm-reference (based on how a learner performs against others who did the portfolio (e.g., rank or grade)); grading learning portfolios uses a rigidity of format that is counter-productive to the learner-centered principles that underpin the use of the learning portfolios.
2. The criteria of assessment for a learning portfolio should be explicit and known to the learners and assessors.
3. Criteria should tie to the intended learning outcomes set by either learners or assessors, which should be written in such a way that the evidence of their achievements can be assessed.
4. The evidence of learning should be backed up by a verbal or written reflective description of why each piece of evidence has been included and the roles it has played in the progression of the learner's thought and practice.
5. Evidence must be ascertainable as either by or about the learner (authentic), be appropriate to demonstrate the learning claim (valid), and be adequate for the assessor to infer that the learning has taken place.



Further reading on examples of portfolio assessment framework: Challis (1999), Dent & Harden (2009)

Despite encouraging effects of portfolio use on student learning, there are certain issues that should be adequately addressed at the beginning of designing and implementing any learning portfolio. These include (Challis, 1999; Dent & Harden, 2009; Buckley et al., 2009):

1. **Student attitude towards learning portfolios:** Most students find the process of developing a proper learning portfolio demanding and strenuous, particularly in the early stage.
2. **Proper coaching and mentoring:** This is important for successful use of a learning portfolio by students.
3. **Learning portfolios are highly personal:** Mentors or reviewers should avoid any effort to impose or dictate what will count as 'appropriate' evidence of learning. Instead, they should support the learning approach taken by the learner and try to recognise the learning that has taken place. They should be aware of the learner's learning preferences and pressures of work that might affect his or her effort and consistency toward the learning process.
4. **Quality of evidence rather than quantity or appearance of evidence:** There is no need for learning portfolios to be physically thick and huge documents. Several examples of reflective learning in practice documents may be far more valuable than numerous repetitions of a task that does not demonstrate the learning claim. The quality of the evidence should be reviewed rather than the artistic impression of the evidence; as the saying goes, 'Don't judge a book by its cover'.

Can you offer other possible issues or challenges in using learning portfolios as learning tools?

TASK

The main message here is that prior to introducing a learning portfolio as a learning tool in order to enhance the student learning experience, educators should consider these issues so that the learning portfolio can be developed and implemented effectively and efficiently.



Further reading on issues and challenges in using learning portfolios as learning tools: Challis (1999), Dent & Harden, (2009), Buckley et al (2009).

A. The 12 questions to be addressed

Developing and implementing a learning portfolio is not without challenges. Therefore, if you are considering this method as a learning tool for your students, it might be helpful to consider the following 12 questions (adapted from Challis, 1999):

1. Can you identify your projected learner group?
2. Is a learning portfolio an appropriate learning process for your learners in their context?
3. How will you introduce the learning portfolio to your learners?
4. Do you want to prepare standardised documentation for the learning portfolio?
5. Are you intending the learning portfolio to be a public or private document?
6. Will it need to demonstrate that the learner has reached some predetermined learning outcomes?
7. Will these learning outcomes and criteria of assessment be negotiated as part of a learning plan, or are they predetermined by another body?
8. How will the learner be supported during the learning portfolio development process?
9. Who will undertake the review of the learning portfolio with the learner?
10. What training is available to prepare the reviewer/assessor/supervisor/mentor/coach to carry out this role?
11. Who else needs to know what you are proposing to do?
12. What will their role be in developing/supporting/addressing the learning portfolio?

Based on the 12 questions previously stated, do you think a learning portfolio can be implemented in your set up?

**TASK**

B. The stages of portfolio development and implementation

Below are the stages of portfolio development and implementation; this can be used as a guide for educators to develop a learning portfolio.

What to do?
Develop a framework and documentation for a learning portfolio.
Establish resources for supporting the learners during learning portfolio development.
Introduce the learning portfolio to learners.
Develop an individual action plan.
Identify sources of evidence of learning that are appropriate to the identified learning needs.
Gather and document evidence of learning.
Monitor progress.
Assess/review the learning portfolio.
Report results to relevant bodies.



Further reading on “How to do?” and “Who will do?” for each stage: Challis (1999), p. 384.

It should be noted that some stages will be appropriate for only certain types of portfolio depending on the purposes of its development. For development of a learning portfolio, most of the stages are relevant and appropriate.

C. What should learners include in a learning portfolio?

There are several questions that can help learners decide which materials should be included in the learning portfolio (adapted from Zubizarreta, 2004):

1. How will your learning portfolio be used?
2. Who is the audience for your learning portfolio?
3. What is the role of the audience?
4. How do you discover your learning needs?
5. What have you learned about the subject that you did not previously know?
6. What are the best examples of your work to demonstrate your learning achievements?

7. How do these examples of your work demonstrate your learning strengths and weaknesses and threats or opportunities for future development?
8. What and how do the documents in your learning portfolio justify your learning achievements and progressions?
9. What new learning strategies have you adopted as a result of the learning portfolio process? How do these strategies help you to improve your learning process?
10. How does your reflective explanation or narration in the learning portfolio demonstrate your attainment of the intended learning outcomes?

By addressing the questions above, learners can decide which materials are appropriate to be included in their learning portfolios to demonstrate their learning achievements.

Based on the questions posed, try to figure out types of materials that can be included in a student's learning portfolio.

TASK

Besides knowing what kind of material is appropriate to be placed in the learning portfolio, the long-lasting effects of learning portfolios on improving student learning reside in engaging students in reflection about their learning experience by addressing several essential questions that may lead to systematic inquiry (adapted from Zubizarreta, 2004):

1. Why did I learn?
2. What have I learned?
3. When have I learned?
4. Under what circumstances and conditions have I learned?
5. How have I learned?
6. Do I know what kind of learner I am?
7. How does what I have learned fit into a comprehensive and continual plan for learning?
8. What difference has the learning made on my intellectual, personal, and professional development?
9. In which is it valuable to learn what I have learned?
10. How can I apply what I have learned to real life?

Can you offer other reflective questions that may probe or facilitate reflective learning among your students?

TASK

Proper documentation of what has been learned is another important component that should not be ignored. Below is an example of how to document evidences in the learning portfolio (adapted from Zubizarreta, 2004).

Goals	Themes	Evidence
Continuous learning	Philosophy of learning, reflective commentaries and learning needs	Journals, emails, statement of goals, supervisors' feedback
Assessment of learning	Continuous examination, summative examination, formative assessment, mastery of contents	Examination scores, supervisor examination reports, essay marks, quiz marks
Achievement of learning	Past achievement, current achievement	Award, recognition, transcripts, certificates
Relevance of learning	Field experience, application of knowledge, leadership, volunteerism	Letter of appreciation, certificate of participation, letter of appointment, research article published

This example illustrates a way that learners can document their relevant materials in learning portfolios according to goals (to represent a learning outcome domain), themes (to represent a cluster of evidence), and evidence (to verify achievement of the learning outcomes).

Can you offer other methods to document evidence of learning that has taken place in a learning portfolio?

TASK

Take Home Messages

In summary, the key messages that we have learned from this section are:

1. Learning portfolios are not new; they have been used for decades.
2. A learning portfolio encapsulates principles of adult learning, learning approaches, experiential learning, learning through reflection, and lifelong learning, including self-directed learning, reflective learning, collaborative learning, and continuous improvement of learning.
3. A learning portfolio demonstrates encouraging effects on several important areas related to student learning, such as increased knowledge and understanding, skills, attitudes, and behaviours.
4. A learning portfolio is all about goal-setting negotiation between a learner and a supervisor or mentor, demonstrating evidence of continuous learning, and undergoing self-reflection; these serve as vehicles to enhance the learning experience supported by proper documentation of selected materials as evidence.
5. A portfolio is an integral part of learning and assessment.
6. Content and organisation of a learning portfolio depend greatly on its purpose for development and implementation.
7. The assessment framework for a learning portfolio should be formulated based on criterion-reference rather than norm-reference.
8. Obviously, there are several issues or challenges that should be addressed before the development and implementation of a learning portfolio as a learning tool.

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Section 4

4 Tutorials

At the end of this section, users should be able to:

1. Define the term 'tutorial';
2. Define the term 'small group tutorial';
3. Define the term 'small group discussion' (SGD);
4. Understand and be able to manage the logistics for SGD;
5. Understand the aims, uses, benefits, outcome, and limitations of SGD;
6. Know how to prepare a module and tutor guide for SGD;
7. Understand the purpose of facilitation in SGD, student activities, dynamics, and needs and be able to be a good facilitator
8. Being able to be a good facilitator and conduct an effective SGD;
9. Know how to effectively and successfully evaluate SGD;
10. Understand when/when not to deploy SGD for a course; and
11. Appreciate the needs and role of tutorials/SGDs in today's plethora of liberal open distant mobile electronic global education.

4.1 Introduction

A tutorial is a formal or informal gathering to tutor or teach face-to-face, giving attention to each student's learning abilities and performance, within a small to large group of students who are attending the same or similar course. A tutorial group can be small or big, from as few as 5 to 10 students to as many as 20 to 50 students. There are also tutorials for classes as big as 150 students! However, the smaller the group, the more effective a tutorial becomes, as each student gets better attention from the instructors or facilitators. Lecturers of a particular course double up as instructors or facilitators for tutorials.

While the term 'tutorial' does not necessarily refer to a small group, 'small group discussion' (SGD) or 'small group tutorial' does allude to a tutorial for a small group of students. A small group tutorial may be conducted differently by different lecturers, trainee lecturers, or facilitators. The tutorial described herein is just a rough

guide to give some insight about tutorials for SGD. The actual structure may be different, and the conduct of a tutorial within any group can be varied.

4.2 Description

This section describes the details of a SGD tutorial that occurs at the School of Medical Sciences, Universiti Sains Malaysia (USM). The medical school has used the SGD technique mostly for teaching its first-year disciplines, namely Anatomy, Biochemistry, and Physiology. These didactic big class lectures need to be supplemented with additional more personal coaching or teaching. SGD is highly useful, but it is not easy to implement and requires proper training or exposure so that it can be executed properly. This section should provide some insights to help you conduct SGD for your own course(s). You are free to modify the structure and process for SGD as you wish.

4.3 What is a SGD or tutorial?

A SGD is a small group of up to 10–15 students who gather in a tutorial room for group discussion for approximately 1–2 hours. The SGD is held following a few lectures on related topics. The SGD topic is mentioned in the class timetable and the SGD material is given to the students a week ahead of the scheduled meeting. Students are assigned to a SGD group at the start of an academic session, and they stay with that group throughout the academic session. There are several SGDs in an academic session.

4.4 Role of the Academic Office in SGD

The Academic Office is the key to coordinating SGD activities. It must print the SGD topic and indicate its duration in the class time table so that both lecturers and students know which SGD is scheduled. It is also responsible for finding and block-booking the tutorial rooms for each SGD topic so that overlapping of SGDs and room clashes or double-booking do not occur.

i. Tutorial Rooms

The same tutorial rooms are used for PBL and SGD. Tutorial rooms are small rooms that have a seating capacity of a maximum of 20 students. They should have 20 portable tables and comfortable chairs plus one extra for the lecturer. The rooms should have a whiteboard and Wifi access. Marker pens and erasers are provided by the Academic Office. A cluster of tutorial rooms should have other facilities nearby, such as a students' lounge, water coolers, prayer rooms, and toilets.

ii. Preparing the SGD material

The SGD material must be carefully prepared well ahead of lectures and the SGD. Preparing the SGD material may take a few days to a week for experienced lecturers, whereas it may take many weeks for new lecturers. The SGD material consists of a set of questions about various topics for a given area, discipline, or broader topic of interest that have been taught. The questions are gathered from lecturers who teach on related topics in the lecture hall. The questions can vary in difficulty from easy to difficult (not too difficult). Probing questions that make the students think and search for answers are the best to use in SGD. Simple recall questions are not meant for SGD, as they are better asked as multiple-choice questions (MCQs) in online assessment. Essay-type questions can be asked in SGD. Diagrams, flowcharts, and outlines can also be used in SGD. Moreover, argumentative questions and explanations are useful in SGD. For the USM medical school, the SGD focuses on "normal functions" for the first-year students. Successive medical years focus on pathophysiology (aetiology or cause) of a diagnosis or some salient features noticeable in a patient, and these are covered in another mode called Problem-Based Learning (PBL).

4.5 The aim of SGD

The complexity of SGD questions must be adjusted to suit the students' level of understanding. The SGD questions are meant to help the students learn, not to confuse them. SGDs are aimed at making students think of different possibilities when arriving at answers rather than performing pure guesswork, which is possible in MCQs. Students are supposed to prepare their answers and then come prepared to discuss them at the SGD. Student preparedness is the key for SGD to be beneficial. Students who come unprepared do not benefit much from SGD and may find that the SGD drags on too long and is quite boring.

4.6 Preparing the tutor guide

The tutor guide is prepared once the SGD material is ready. The tutor guide contains answers to the SGD questions, and it is meant for tutors and must not be handed to the students. Giving away the tutor guide by mistake or leaving it on the table while the lecturer takes leave is no excuse and can be considered as negligence. The tutor guide is photocopied and passed on to all lecturers who will be involved in the SGD. No extra copies should be made to curb its transfer to students. Giving the tutor guide to the lecturers a week before a SGD will give them sufficient time to study the answers and prepare for the SGD. Lecturers may want to prepare

additional references and materials to help them facilitate discussion and guide their students during SGD.

4.7 Role of the lecturer in SGD and dynamics of SGD

The role of the lecturers is to facilitate student discussion and to help students when they are stuck and when discussion starts to die down or discontinue. Sometimes the students' discussion picks up speed and remains active with all students actively participating throughout the SGD. In this case, the SGD often is meaningful to everyone. However, if the SGD topic at hand is difficult and students did not have sufficient time to prepare, there often is only a brief discussion, which dies instantly. In this case the SGD may not be meaningful at all. When playing the role of facilitator, the lecturer may not be an expert on the SGD topic, but at least he or she would have garnered sufficient knowledge about the topic to guide the students' discussion.

4.8 Goals for better facilitation of SGD

Timeline: Consciously try to stick to your timeline. You may be surprised by how much time everything takes in a 1-hour discussion. There are some things that can possibly be done only in a 2-hour discussion compared to a 1-hour discussion. Know the limitations and accept them. Work within the time constraint.

Short breaks: Rarely does any SGD ever reach 2 hours without short breaks. You will soon realise that conversations may go on for too long and the discussion eventually hits a brick wall. Be careful not to let a discussion die down.

Ask questions: Be on guard and listen for clues that a discussion is dying. Speak up if you need to keep a discussion alive. You can ask a question or two at random to see if everyone is awake and contributing.

Students have a say: Students should contribute because they have something to say, not just because you are there physically and they must say something, especially if their conversation is graded for group dynamics.

Be a scribe: Write down all of the students' ideas and questions on the board (or paper) during the discussion. It is a mistake not to jot down what students ask. Students' queries are valuable for directing lecturers on how to proceed for the next 5–10 minutes. It is better to evaluate students' ideas and questions rather than their answers. Never reject any answers from students. If their answers are incorrect, thank the student but draw attention to what is correct factually. Alert students to how and why variations in answers exist, if any.

Be grateful: A word of gratitude to students means the world and is a good motivational move for them to perform better at the next SGD. Failing to thank students has a negative impact on the students' hearts. Students learn by impression, and some impressions linger until students graduate. Saying thank you at your first encounter during a student's discussion is a good way to set him or her off on the right track.

Re-think: It is worth trying a new teaching method (like a tutorial), but sometimes you will not feel great after the first session is over. The first is always the most difficult. However, once you get the feel for how to lead a small group tutorial (or SGD) you will become better at it. With time, you will shine, but you need to improve your skills if you expect to do a better job at a future session. Think of ideas for how to improve your tutorial or SGD.

Kaizen (Japanese for "improvement"): Try to improve each session until you get very good at conducting a tutorial or SGD. This means that you have to correct mistakes made at previous sessions. Try not to repeat your mistakes in future sessions, instead aim to avoid them and avoid getting trapped into tight situations when handling students. Remember, students have watchful eyes and sharp ears. They can detect a slight inefficiency on the teacher's part. Thus, read up and come prepared for all tutorials; do not take them for granted. The best lecturers are those who put a lot of effort into their teaching practice, especially for face-to-face sessions with students. Take your sessions seriously.

Here is a rough guide to better facilitate a SGD or tutorial:

- Stick to your time line;
- Take short breaks to interact with students;
- Strategise and ask with deliberate intent;
- Ask if you are doing alright;
- Proceed if students say your facilitation works alright;
- Get a scribe (a person to write);
- Try not to miss out on students' discussion;
- Look interested and enthusiastic;
- Project an aura that invites students to discuss;
- Do not coax students to discuss;

- Silent students will need help before they will speak;
- Motivate students to speak;
- Accept, appreciate, and thank students for all of their answers;
- Never reject outwardly any answers from students;
- Provide instant feedback to students before class ends;
- Genuinely thank students for their participation; and
- Students can/do not have to thank their lecturer or facilitator.

4.9 Role of students in SGD

The students should receive the SGD material well ahead of the SGD so that they have ample time to read the questions and prepare some rough answers or outlines prior to the session. They can make note of what they know or do not know. They can expect to obtain additional answers and further clarification during the SGD. What they should not expect is verbatim answers from the tutor guide. Students should never request the tutor guide from their lecturers for any SGD: It is considered rude and unethical for students to ask for it. If the students are after the tutor guide, they should be reprimanded and advised to do their own learning.

4.10 Before and after SGD

Students may have a lot of questions before a SGD, and these should be cleared up by the time the SGD ends. However, slower students may find it difficult to understand everything during the SGD and may need extra time to digest everything after a SGD. In this case, the lecturer who led the SGD session must be prepared for additional questions from his/her students even after SGD. Although most students are able to understand SGD questions fully once a SGD ends, they can strengthen what they already know through further reading. Students can also gather more questions or queries and add them to the existing SGD material. In this way they accumulate more knowledge than what was discussed during the SGD.

4.11 Evaluation of the tutorial

Evaluation of a tutorial can proceed either through an informal or a formal process. In the former, careful reflection about what happened during your time with the group is crucial. You may be interested in the distribution of discussion among the group members, the quality of each member's contribution, the amount of time you talked, whether the purpose of the tutorial was achieved, and so on. Of course,

your own reflections may be quite biased and you may wish to seek confirmation by questioning your students in the group from time to time.

In the formal evaluation process, an evaluation discussion can be used to review the progress of your tutorial group both in regards to the teaching-learning process and the material your group is covering. Students can be asked to write a 1–2 page evaluation of the group's work, focusing on the reactions to the processes of teaching and what your students are learning. Alternatively, a standard questionnaire can be used to seek students' responses to a set number of questions. An example of a structured questionnaire is shown in Figure 2.

1.	The workload for the tutorials was....	Very Heavy		Reasonable			Very Light		Not Applicable
		7	6	5	4	3	2	1	X
		Strongly Agree			Undecided		Strongly Disagree		Not Applicable
2.	The tutorials were relevant to the aims of the subject	7	6	5	4	3	2	1	X
3.	The tutorials were well organised	7	6	5	4	3	2	1	X
4.	The number of students in the classroom was appropriate for effective participation	7	6	5	4	3	2	1	X
5.	The lectures, tutorials, and clinical sessions were appropriately linked	7	6	5	4	3	2	1	X
6.	The tutorials were valuable for my understanding of the subject	7	6	5	4	3	2	1	X
7.	The tutorials stimulated my interest in the subject	7	6	5	4	3	2	1	X
8.	The tutorial work could be completed within the allocated time	7	6	5	4	3	2	1	X
9.	More guidance should have been provided on how to work in a group	7	6	5	4	3	2	1	X
10.	The assessment of the tutorial work was fair	7	6	5	4	3	2	1	X
11.	The teacher's expectations were made clear	7	6	5	4	3	2	1	X
12.	I received adequate feedback on my work	7	6	5	4	3	2	1	X
13.	I was able to discuss my progress	7	6	5	4	3	2	1	X
14.	The recommended textbook was valuable for my understanding of the subject	7	6	5	4	3	2	1	X
15.	Resource materials were readily available	7	6	5	4	3	2	1	X
16.	My involvement in the tutorials was high	7	6	5	4	3	2	1	X
17.	I have developed more confidence in myself	7	6	5	4	3	2	1	X
18.	I have developed skills needed by professionals in this field	7	6	5	4	3	2	1	X
19.	What changes should be made to the tutorials, and why?								
20. What changes should be made to the assessment procedures, and why? If you would like to make further comments on this subject, please do so below. Thank you for answering this questionnaire.								

Figure 2. Example of a tutorial questionnaire. (Source: Advisory Centre for University Education, Adelaide University, 1991.)

4.12 Benefits and limitations of SGD

i. Benefits of SGD

SGD is a good way for close monitoring of students for 1–2 hours. Lecturers can get an instant feel for their students' interest in the SGD. They can obtain feedback about their students' understanding of certain topics within the SGD and their overall comprehension of the SGD topic. For the students, it is a good means for asking what they wish or need to know and for clarifying difficult concepts or confusion pertaining to a topic. Students can cross-check their knowledge and understanding with their peers. Should they feel they are lacking knowledge in a certain area, they can make up for it by extra reading. This sets them on the path of lifelong learning.

ii. Limitations of SGD

SGD is not a standalone teaching and learning mode, and it needs to coexist with other teaching and learning modes, preferably lectures and practicals. SGD is an essential component in blended learning in which many teaching modes are used to create an interesting education programme and environment. Students often have a better learning experience with blended learning.

4.13 Liberal education in SGD

SGD is only one type of teaching and learning activity. In today's world, SGD alone is insufficient. It should be packaged together with liberal education (Chrucky, 2003; Sanford 2007; Brian, 2011; Madrid Teacher, 2011; Sanford 2011). A student must be let free to study in his or her own way, and a set of guidelines is all that is needed (Greer, 2006). There is enough technology today that a lot can be studied effectively both solo and in a group. Thus, what we need are space and time.

SUGGESTED READING

This website is immensely fun to read and rewarding. You may want to try a few links at the website and see for yourself!

<http://www.fabermazlish.com/>

REFLECTION 1

**“The ones who say you can’t and you won’t,
are the ones who are most scared that you will”**

THERE ARE MANY GUIDEBOOKS that teach you how to become a good teacher from scratch. For example, “... for Dummies” and also, “How to talk so kids can learn” by Adele Faber and Elaine Mazlish. However, it is you who finally pay the tab. Because you will be paying for your own book and you have no idea whether a printed book is going to be helpful, it is better to try and read a few books and blogs online. In this way, you can decide what types of books motivate you most for teaching SGD. Purchase such books for a reason.

YOU CANNOT ACTUALLY BECOME A GOOD TEACHER WITHOUT FIRST BECOMING A TEACHER YOURSELF. A teacher must be equipped with teaching skills, and that comes mainly from experience (i.e. not just having knowledge). A lecturer who has generously taught and left an impression in the hearts of her/his students is a better teacher than one who is struggling to teach on her/his first day. Even if you successfully purchased a book to help you become a better teacher or facilitator at SGD, I would not suggest trying to read the whole book quickly and then setting it aside hoping that its wisdom infuses into your life. Rather, I would suggest reading just one chapter and then go about trying out a few of the strategies.

SGD IS A GOOD PLATFORM TO TRY once you have your newly acquired skills. Monitor your interactions by journaling and/or blogging (e.g., Blogger, Facebook, and Twitter are good for both novices and experienced teachers); of course, the strategies for managing such activities can be contrastingly different. Once you have got it down, read more and try out other strategies. By the time you complete a motivational teaching guidebook, you will be skilful enough and even be able to write **YOUR OWN TEACHING GUIDEBOOK** for others.

REFLECTION 2

“Don’t judge my journey until you’ve walked my path...”

THINK ABOUT WHEN YOU WERE SMALL. How did you learn then? How old were you when you first started learning? Did you learn from anyone? Who taught you to say “Papa” and “Mama”? Who taught you the alphabets? When were you able to recite the alphabet? Did you learn the Jawi alphabet first or the Latinised alphabet? Who first taught you to write your name?

WHEN DID YOU FIRST WRITE YOUR OWN NAME? Were you successful at attempting to write your own name? Do you think you would be able to read now if you had not learned the alphabet in your first year at school? Did you have good teachers? Do you still remember your teachers’ names and what each teacher taught you? Why did you forget their names? Is it easy to forget their names? Can you remember their faces? Can you describe them?

REFLECTION 3

There is going to be a time in your life when someone says you can’t do it.

That’s when you turn around and say ‘Watch me!’

Reflect on your own skills and teaching. Which of the following have you incorporated into your daily teaching activities? (Tick (√) those that apply.)

- Find interesting topics to teach
- Innovate a dull topic to make learning interesting
- Let students discuss a topic in small groups
- Let students present findings from their own learning
- Match students’ knowledge and learning to your teaching and expectations
- Ask students whether they liked your lecture at the end of it
- Encourage students to learn in small groups
- Inform students of the benefits of learning in small groups
- Obtain feedback of failed small group learning and put it back on track

REFLECTION 4

Adapted from: Sanford, SV (2011) "Introduction to Liberal Education." Retrieved 21 November 2011, from: <http://bit.ly/skBfSf>



What do I know and how do I learn?

1. Read: Plato's 'Allegory of the Cave' http://en.wikipedia.org/wiki/Allegory_of_the_Cave
2. Short argument: Respond to one of these two statements:
 - (a) Plato's allegory challenges us to think of how the 'reality' we see may not be 'true'.
 - (b) The allegory challenges us to think of the ways in which we are living lives of diminished prospects, matching content with our knowledge, failing to ask the right questions.

If you agree with the statement, provide reasons and evidence for your agreement.

If you disagree, provide reasons and evidence for your disagreement.

If you have time, watch the movie *The Matrix* on YouTube. If you watch the movie, you can create a short argument in response to the question: Should I take the blue pill or the red pill (and why)? Be sure to incorporate thinking from the Allegory of the Cave into your argument.

LIST OF TASKS

TASK 1

This task is about **'HOW DO WE TEACH MALAYSIANS TO KEEP MALAYSIA CLEAN'**. Get students to work in groups. Think of topics or catchy phrases that we can post on our community bulletin boards and other places where we think people will read and comply. Here are some possibly catchy phrases. You can create new ones. Work on a small budget to get them printed. Find out the cost and time needed for printing them. Distribute the stickers to a given area by dividing the work among group members. Allow a week for this task to be completed.

'Please do not litter or we will suffer' – make a sticker for cars

'Throw it in the bin' – post at all places in the city

'Watch your waste' – make a car sticker

'Pick up your litter as no one else will' – post on bulletin boards, make sticker for cars

'No tissues. No issues' – make door sticker for public toilets

'No waste. No haste' – a sticker for cars

TASK 2

This task is for students **TO DESIGN BIRD HOUSES FOR USE IN HOME GARDENS**. Read the instructions to the students. They are to work in groups and come out with some designs for a bird house. Give them some time and get each group to present. Let each group describe their designs. Remember, there are no wrong designs for a bird house, but you can limit the amount of wooden and metal parts and paint that they can use for a bird house. Let them put their plans up for the other groups to assess (peer review) and give their comments. Get a scribe to note down all pros and cons for each design.

TASK 3

In this task, each group is given a small garden plot. The aim is for each group to discuss **HOW TO TURN A BARE GARDEN PLOT INTO A BEAUTIFUL ENERGY-SAVING 'GREEN GARDEN' PLOT**. Limit the materials and tools that they can use. Let students discuss and come up with their group plans. When all groups are done, grade each group's submission. A neat low cost energy-saving garden wins this task.

TASK 4

Antibiotics are needed but are often abused. Discuss the **PROS AND CONS OF ANTIBIOTICS USAGE TODAY**. Write about their appropriate and inappropriate usage.

TASK 5

We all have bones. Bones are live tissues and need proper care. Discuss **BONE DEVELOPMENT AND BONE CARE** for different age groups. Each group of students takes one age group to discuss. Discuss what factors increase the risk of osteomalacia and osteoporosis. Discuss preventive care for bones. Draw up a community handbook for bone care.

TASK 6

We are all familiar with the addiction to **SWEETNESS AND SWEET FOODS** and their unhealthy outcomes. Discuss the following in groups: types of sweet foods, effects of sugar on health, why sugar is considered 'poison' and not food, and tips for reducing intake of sugary foods.

TASK 7

Hearing is one of the five senses. Unfortunately, there are many who cannot hear and have not done anything much about their **HEARING PROBLEMS**. Discuss the following in groups: hearing problems in children, hearing problems among schoolchildren, screening for hearing problems among schoolchildren and working adults, factors that cause reduced hearing, and types of intervention for the different age groups with hearing problems.

TASK 8

ORAL HYGIENE is very important for everyone. Discuss the following in groups: oral hygiene for schoolchildren, oral hygiene for working adults, available dental services and access, advantages and disadvantages of dental services today, feedback from dental patients, and are we providing optimum dental care and services to our society?

TASK 9

'EYES FOR 2020'. We need eyesight for assessing and knowing things around us. Discuss the following in groups: importance of healthy eyes, sources of eye injury, eye care, "looking dangerously glamorous", proper eye care, optometry, and ophthalmology services today.

TASK 10

Everyone reaches **OLD AGE**. Discuss the following in groups: definition of old age, ageing gracefully, health of the elderly, making the elderly happy, dying before death, and general problems when dealing with the elderly.

TASK 11

HYPERTENSION generally accompanies old age but today is commonly seen among people of the younger age group too. With medication, it generally can be controlled. Discuss the following in groups: causes of hypertension, detection of hypertension – myths and facts ("Do people die from hypertension?" and "Is hypertension inherited?"), choices of medicines and herbs, what works and what doesn't, and outcomes of hypertension therapy.

TASK 12

You are a health counsellor at your workplace. You are a concerned parent and have always wondered about **TEEN PREGNANCY**. One fine day, out of the blues, an elderly couple presents to you a girl aged 12. You investigate and find the girl to be pregnant. Discuss the following in groups: rape, safety for young girls (pre-teens), today's technology for vigilance, heinous crimes, and the Hudud law.

TASK 13

SWINDLING OF PUBLIC FUNDS keeps increasing and is a big concern for institutions and the general public. Discuss the following in groups: the basis for the urge to swindle large sums of money, psychology of today's young people and the ever spiralling cost of living, what we can/cannot steal from public funds, security of public funds, and fair spending by government staff.

TASK 14

Are we **A COUNTRY WITHOUT WRITTEN HISTORY**? Malaysia has existed since 1963. It had many names before eventually becoming Malaysia. Discuss the following in groups: history of Tanah Melayu before colonisation, the Portuguese era 1511, the Dutch era 1641, the British era 1876, freedom and free voice, whether we should preserve colonial buildings and other artefacts to remind us of our past, whether we should just tear down all things that remind us of our colonial past, should we be proud of our colonial past or get rid of it?

TASK 15

The university has offered **DISTANCE LEARNING** for some time. It uses both printed modules as well as online modules to facilitate learning. You are interested in improving the distance learning program but have a small budget. Discuss the following in groups: institutions that offer online modules, online modules per se, effectiveness of online modules, conduct an assessment of online modules and provide some feedback, and concerns of online modules.

TASK 16

Why must we **RUN THE UNIVERSITY AND MAKE A BUSINESS** of what we do (teaching) at the university? Refer to Rice (2002), Russo (2007), and NCSA Cybereducation (2010). Discuss the following in groups: the need for universities to be money generators, which should get priority – educating the students or making money for the university, which should get priority – treatment of patients or research funding, who should run the university – lecturers or VCs, why do politics govern the lives of university lecturers, what is the role of lecturers in the university today - professors of fortunes vs. professors of wisdom, burnt out syndrome and burning money syndrome among university lecturers, wiring the university and deploying Wifi for YouTube, Skype, Facebook, and Twitter and getting a 'Fatal Error' message, the university's Broadband, Wiki Leaks, and university politics.

TASK 17

'PHILOSOPHY IS TO FALSFAH AS FIRASAT IS TO KHURAFAT': Refer to Aminah Ayob (2005). Discuss the following in groups: the meaning of philosophy, why we need a philosophy for teaching, USM's philosophy on teaching and learning, deploying USM's philosophy in daily teaching, do we follow or innovate each time we teach, the role of kaizen in daily teaching duties, escaping teaching duties with medical certificates – is it ethical, is teaching still a cherished occupation or has it lost its glory, is lecturing teaching, does teaching mean lecturing, where are the university lecturers today, a university is treasured for the quality and number of graduates it churns out but not the professors it retains, a professor is like a pea whose pineal gland is valued most by the coroner, the push and pull factors encircling university academics and best shots and hot spots in the university.

TASK 18

'MODERN KILLING METHODS – TORTURE TO DEATH': Discuss the following in groups: modern death penalties, how the rules are drawn, how they are executed, and the pros and cons of the death penalty. Present all group findings. What do you think is meant by 'THE CRUELLEST FORM OF DEATH IS DYING' and 'DEATH IS NEVER ENDING'?

TASK 19

'DANGERS OF HUMAN AND DRUG TRAFFICKING': Discuss the following in groups: human trafficking and offenders, drug trafficking and offenders, protective measures and their present states, rules and regulations governing trafficking, whether the population at large fully understands the implications of trafficking, what should we do with offenders, will trafficking end, and practical means to end trafficking. Present all group findings.

TASK 20

'WAR AND WAR CRIMES': Discuss the following in groups: the present state of the world and wars that exist today, the outcomes of the recent wars, war tribunals and their functions, recent trials of war crimes, compensation for war and war crimes, is there such a thing as a 'safe war', who has the right to take life (kill), who gave the 'other men' the right to shoot, can we ever say 'excuse me, can I shoot you?', must we resort to killing just to make this world a safer and better place, when Gaza becomes a museum what's next, what must we teach our students about wars, and do we need to teach about war and war survival. Present all group findings.

SELECTED READING

Modified from: San Jose State University <http://bit.ly/skBfSf> Retrieved 21 November 2011

What Do We Know and How Do We Learn: A Doctor's Case

Selected readings from *Complications: A Surgeon's Notes on an Imperfect Science*, Atul Gawande.

Short link: <http://amzn.to/9vGiIT>

Group 1 - *Read:* 'Education of a Knife.' *Writing:* a) List three aspects of a surgeon's 'learning curve' described in the chapter; b) Consider each in relationship to the profession you are considering.

Group 2 - *Read:* 'The Case of the Red Leg.' *Writing:* a) List three aspects of 'uncertainty' in the surgical profession; b) Consider each in relationship to the profession you are considering.

Summary

Learning activities for difficult topics are best done in small groups if there is a large number of students to handle (e.g., more than 300 students in first-year medicine). Tutoring is best conducted with the intention to share knowledge rather than hoarding knowledge. Both tutors (facilitators or instructors) and students must be well prepared for the students to benefit. There are simple guides for new lecturers to follow and they are doable. The term 'tutorial' is used interchangeably with 'small group tutorial' and 'small group discussion (SGD)'. SGD is a special type of tutorial carried out at the USM Medical School, mainly for its first-year medical students. This section provides new lecturers with plenty of help with arranging, creating, implementing, and conducting SGD. Logistical matters are also discussed so that lecturers can take note of what can possibly fail and spoil SGD. SGD is beneficial only if its aims, benefits, outcomes, limitations, and needs can be identified, especially for difficult topics (as in first-year medicine). SGD is demanding, and lecturers need to know this before deciding to implement this learning tool. They must know how to prepare the module and tutor guide for SGD and keep them out of reach of students before the SGD meets. Lecturers must know that they play a pivotal role in SGD – the success or failure of a particular SGD depends on them and the students. There are practical ways of facilitating the SGD session, but nothing beats courage, hard work, preparedness, and wisdom. Students can be properly managed in SGD as in PBL. Evaluation of SGD is rarely done, but any evaluation tool can be suitably modified towards this end. In light of the many teaching-learning modes that exist today, SGD is slowly giving way to more practical modes such as large class tutorial and e-learning. Because students prefer self-directed learning, we should know when/when not to deploy SGD, as it is very time consuming and very demanding on the lecturers. Only dedicated lecturers prefer SGD despite knowing its nature. Others may think of other means to conduct face-to-face teaching-learning activities. Like it or not, lectures and SGD are the mainstay of first-year medicine; lectures and PBL are the mainstay of second and third year medicine.

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Section 5

5 Other SCL Approaches

At the end of this section, users should be able to:

1. Define the term 'buzz group';
2. Define the term 'brainstorming';
3. Define the term 'snowballing';
4. Define the term 'case studies';
5. Define the term 'role play';
6. Define the term 'skills practice';
7. Define the term 'group tasks';
8. Define the term 'fishbowl';
9. Participate actively in any of the strategies listed above; and
10. Select the most appropriate strategy for a given group task.

Introduction

There are many other modes of teaching-learning that are used in higher education. These strategies are specific and are used for specific reasons. Thus, it is good to know what they are and to possibly consider them for use in teaching-learning activities. A lecturer should be able to choose the most appropriate strategy or combination of strategies for any task that he/she is given.

Description

There are eight other methods, techniques, strategies, or approaches that are at our disposal for teaching-learning activities. There are commonalities between some of them, and some are more effective when certain conditions are met. Some are expensive approaches while others need no budget at all.

Other small group tasks and strategies

(Extracted from A Handbook for Medical Teachers by David Newble and Robert Cannon, p.42-50 3rd Edition, 1994, Boston: Kluwer Academic Publishers)

5.1 Buzz Group

In a buzz group, pairs of group members discuss or exchange views on a specific issue. It should be fairly brief (2–5 minutes). It is usually used prior to sharing views in the whole group.

5.2 Brainstorming

All group members contribute ideas, opinions, or solutions. Brainstorming is used to generate the maximum number of contributions, which are recorded. This is followed by discussion and evaluation of the contributions. It is important to ensure that no evaluation occurs during the contribution stage.

5.3 Snowballing

The tutor gives students an issue or problem to be discussed in pairs. The results of the discussion are shared and combined with another pair (in foursomes), following which the results are shared in the whole group.

5.4 Case studies

A scenario of an issue or a work problem is provided, accompanied by questions to structure and direct the students' effort. Students work in sub-groups (3–4), followed by sharing solutions in the whole group. It is useful to give students the chance to think about a problem prior to meeting in a small group.

5.5 Role play

Students are allocated roles. This is often done by providing a written brief about the person they play and the context. It can be used to develop the student's empathy by experiencing things from another person's point of view (e.g. role of a patient), their approaches to issues, and attitude formation. It is important at the end of the session to help participants to get out of their roles. This can be done by asking them to say who they are and where they each work or live.

In the nursing course, intuition and tacit knowledge can be obtained from tacit practice, which can be role modelled and displayed. In the medical course and in actual practice, intuition and knowledge are needed in cases in which ethical dilemmas are presented, as in medico-legal cases (Moule and Goodman, 2009).

5.6 Skills practice

This involves a safe environment in which to teach skills before the students undertake the tasks in an actual clinical setting. If mannequins are available, they are especially useful for teaching invasive clinical skills.

5.7 Group tasks

This method uses artefacts, specimens, or problems accompanied by a briefing on their purposes and how the group should use them for learning. A plenary is needed to share group findings.

5.8 Fishbowl

A small number of group members (2–3) undertake a task, discussion, or role play while the remainder forms a semi-circle or circle around and observe the activity. This is followed by a debriefing, feedback, or discussion session.

REFLECTION 1

Of the many teaching-learning methodologies/techniques/strategies/approaches you have tried or experienced, which ones did you like and which ones did you dislike? Explain why. Which one(s) gave you the maximum learning experience? Explain how.

TASK

Carefully study each methodology/technique/strategy/approach and make a note about how and when they can be used in your teaching plan. Use the following circles to map your ideas.



Small Group Tasks and Strategies

(Based on A Handbook for Medical Teachers by David Newble and Robert Cannon, 3rd Edition, 1994, Kluwer Academic Publishers, p.42-50)

READING & TASK

- Read:**
- 1) 'The grid that bridges the gap' (Knight, Moule, Desbottes, 2000),
 - 2) 'Fundamental ways of knowing' (Carper, 1975), and 'Fundamental patterns of knowing in nursing' (Carper, 1978).

Task: What are the aesthetic, personal and ethical sources of knowledge for acquisition of skill? Design a 'Skill Grid' for your course.

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