Problem Based Learning: A New Method of Medical Education in Sudan [Part 2]  
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Introduction
The last decade has witnessed a rapid expansion of medical education in Sudan. Many of the new faculties of medicine have shifted away from the traditional discipline (didactic) teaching towards problem-based learning (PBL). This shift has been justified by studies showing that PBL improves reasoning and communication while being associated with few if any detectable knowledge deficits.

Introduction of PBL in medical schools has been faced with many obstacles. Almost all the staff members of the new faculties (educators) were trained in the old traditional schools; they needed motivation and training (which has been to the minimum) to adopt the new fashion. Large groups of students had defeated the aim of problem based learning in many occasions.

A common illusion is to consider a system based integrated curriculum as a problem based. Such a curriculum can be taught in the traditional lecture and tutorial. PBL is a way of active learning that fits better in a system integrated curriculum, but can also be applied, at least partly to an old traditional (subject based) curriculum.

This article discusses the main features, the advantages, and the drawbacks of PBL in medical education.

What is problem based learning?
PBL is a student centered way of learning in which the student is an active learner rather than a passive recipient of information. In this type of teaching students use a problem case to define their own learning objectives. The tutor role is a facilitator rather than a teacher. Subsequently students independently go for self directed study before returning to the group to discuss and refine their acquired knowledge. Thus, in PBL students use appropriate problems as a trigger to stimulate active learning rather than being used to clarify already gathered information as in the traditional curriculum. Presentation of clinical material as the stimulus for learning enables students to understand the relevance of underlying scientific knowledge and principles in clinical practice.

Group learning also facilitates several other desirable skills, such as communication, teamwork, problem solving, independent responsibility for learning and sharing information.

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The role of PBL in curriculum designing:
PBL may be used either as the mainstay of an entire curriculum or for the delivery of individual courses.

In practice, PBL is usually part of an integrated curriculum using a systems based approach, with non-clinical material delivered in the context of clinical practice. A module or short course can be designed to include mixed teaching methods including PBL (hybrid curriculum) to achieve the learning outcomes in knowledge, skills, and attitudes. A small number of lectures may be desirable to introduce topics or provide an overview of difficult subject material in conjunction with the PBL scenarios. Sufficient time should be allowed each week for students to do the self directed learning required for PBL.

The conduct of problem based tutorial:
A group of students (usually 5 to 8) and a tutor are needed. The group needs to be together long enough to allow development of good group dynamics.

The trigger of the study is either a written case scenario or a real patient in a ward or a clinic who is assessed clinically by the students. The group elects a leader for each PBL scenario and a scribe to record the discussion.

Discussion in tutorials progresses in well defined steps which may need to be modified according to the needs of specific course

Step1: Clarification of unfamiliar terms presented in the scenario.
Step 2: Definition of the problem or problems to be discussed.
Step 3: Discuss the problem(s) based on prior knowledge (brain storming of the session). Areas of incomplete knowledge are identified and recorded.
Step 4: The group learning objectives are formulated. The tutor ensures that these objectives are appropriate, comprehensive and achievable.
Step 5: Private study by all students to gather information in relation to the agreed learning objectives. Literature appropriate to the problem is suggested by the tutor.
Step 6: The results of the private study is shared by the group. The tutor checks that the preset learning objectives are achieved and he may assess the group at this point.
The tutor in PBL:

The tutor here is a facilitator of the group learning activities and needs to have experience in the process of learning. He is not an information dispenser and need not be an experienced in the subject area. He should ensure that students progress satisfactorily through the problem.

The tutor must not dominate a session with content specific questions and answers that convert it into a tutor led seminar. There are two main ways for the tutor to intervene; firstly to ensure that students approach the problem appropriately and secondly, by challenging student’s assumptions, to ensure that they justify their assertions. At the end they close each session by enabling reflection on the dynamics of the group and what has been learnt. In addition to understanding the essence of PBL and work within small groups, the tutor must be skilled in facilitation, active listening, motivating learning and critical reflection.

Case study for modules:

Learning objectives of the module to be studied should be identified in advance. Case studies are better being in the form of a live patient who is selected carefully to achieve the objectives of the module. The inconsistency of presentation of clinical cases to all groups of students is a problem that can be compensated for by paper based key scenarios which ensure that all students are exposed to the same problem.

The scenario should lead students to a particular area of study to achieve those learning objectives.

When creating a PBL scenario the followings should be considered
1) After studying the scenario students are likely to define learning objectives that match with the faculty learning objectives
2) Problems should be appropriate to the stage of the curriculum
3) Scenarios should be relevant to the future clinical practice.
4) Basic science should be presented in the context of a clinical scenario to encourage integration of knowledge
5) Scenarios should encourage students to seek explanations for the issues presented
6) The problem should be sufficiently open, so that discussion is not curtailed too early in the process

Differences between students of PBL and traditional learners:

PBL learner is a self directed one who is motivated after being exposed to a certain experience. The experience needs to be oriented to life rather than a subject. The traditional learner is a dependent person where the teacher has full responsibility to decide what should be learnt. Learners are subject oriented.

Motivation to learn in PBL is internal usually for a better quality of life and self confidence, although external motivations do exist. Traditional learners are motivated by external pressures while PBL learners are ready to learn whenever the experience needs. Traditional learners study in order to become advanced to a higher grade.

Advantages of PBL:

In 1993, three systematic reviews of PBL in undergraduate medical education were published. These reviews, spanning 20 years, were cautiously optimistic about the short term and long term outcomes of this way of teaching compared with traditional approaches. They found that the results for students' evaluation of the program; students' attendance, mood, and clinical performance; and faculty attitudes were better for PBL even allowing for different definitions, curricular context, costs, and study design in the evidence base. However, evidence about the coverage of basic science and curricular costs is conflicting.

PBL students are motivated active learners and the process requires all students to be engaged in the learning process. It upgrades the student’s learning to that of the group. Students interact with learning materials, relate concepts to everyday activities, and improve their understanding, and retention of learned material and development of life long skills.

Although PBL is a way of active learning that can be applied to all or part of different types of curricula, it facilitates an integrated core curriculum. It also allows students to develop generic skills and attitudes desirable in their future practice such as leading groups, team work, cooperation, critical evaluation of data, self directed learning and use of resources and presentation skills.

Drawbacks of PBL:

More staff has to take part in the tutoring process. It may be difficult to get adequate number of motivated and trained staff for the large numbers of students enrolled in the faculties adopting the PBL in their curricula. It needs more financing and application of regular training courses and workshops to generate understanding, motivated and dedicated PBL tutors.
Tutors enjoy passing on their own knowledge and understanding so may find PBL facilitation difficult and frustrating, they may interfere with the process of active learning. This attitude should be inhibited as much as possible. Occasionally students may be deprived access to a particular inspirational teacher who in a traditional curriculum would deliver lectures to a large group, yet there can be a place for this in curricula adopting the PBL as a method of learning.

Students may be unsure how much self-directed study to do and what information is relevant and useful. Knowledge is expanding faster than anyone to retain it. This reality means that the material presented to students must be carefully selected by focusing the learning on a clinical problem, PBL may have a role in performing this function.

During group sessions students often do not identify and learn what is needed to tackle the case presented properly. The suitability of such an approach probably requires a maturity that the young Sudan certificate students may not have. For the uncertain and unconfident undergraduate student it can boost the traditional authoritarian teaching as it upgrades student’s active learning skills.

There is an urgent need to test whether the current reforms in training of medical students are the right answer to the shortcomings of traditional training.

References