Problem based learning (PBL) is a relatively new term of educating medical students. In its own right, it claims to reform the face of medical education. The paradigm shift of medical education towards PBL has closely paralleled with the timing of information explosion in 21st century. It is a learning system design that incorporates several educational strategies to optimize student – centered learning outcomes beyond just knowledge acquisition. It has now spread widely across the world and is now being adopted globally. Its adoption in a country with meager resources and with a large number of students in each year of medical school is a difficult task. It needs a cautious beginning after deliberating on all its positive and negative outcomes.

Problem based learning finds its roots in the Structuralism and Pragmatism schools of philosophy. On the basis of these philosophical concepts, the three main requirements of PBL are learning by doing, learning in context and focusing on students. In our conventional teaching methods, the teacher has got the pivotal place. But, PBL shifts the teaching methodologies from teacher – centered learning methodologies (for example, lectures in large auditoriums) to student – centered learning strategies (for example, active discussions and problem solving by students in small groups under the guidance of faculty members). Delivery of instructions in PBL involves active peer- teaching – learning in an open communication style.

PBL implicates fostering of self- directed learning and its prospects deal with depth and retention of knowledge and clinical reasoning skills. Problems are used to define learning goals and to stimulate students’ interest (brain - storming) in various aspects of an item, rather than just for problem solving. PBL has the potential to prepare students effectively for future learning because it is based on four modern insights into learning: constructive, self-directed, collaborative and contextual. The enhanced work environment for students and faculty that has been consistently found in PBL is also a worthwhile goal.

In PBL teacher plays a role that is different from the role of a teacher in a conventional teaching format. PBL, out rightly seems to be student – centered. In the small group tutorials of a PBL curriculum, the teacher is assigned to facilitate the process of self – directed learning, and needs not necessarily be a subject matter expert. Teacher is supposed to stimulate the discussion, self- learning and to detect gaps in understanding. Teacher should be proficient in asking probing questions, encouraging students to pursue learning errors and then to share his experiences in objective evidence based manner.

Even though opinions differ as to whether lecturing is compatible with PBL or not, lectures are still a common form of instruction in PBL curricula, and with proper awareness of possible drawbacks of the large format, lectures can be used as valuable tool for learning also in PBL curriculum.

Students of the problem – based learning curriculum found learning to be “more stimulating and more humane” and “engaging, difficult, and useful”, where as students of the conventional curriculum found learning to be “non- relevant, passive and boring”. Students who use the PBL method showed better interpersonal skills and psychological knowledge, as well as better attitude towards patients. Students using the conventional model, however, performed better in basic sciences examinations. PBL students had increased scores on the National Medical License Exams. Data suggest that the PBL curricula encourage an inquisitive style of learning in their students as opposed to the rote memorization and short – term learning strategies induced by conventional medical education.

In Pakistan, PBL is introduced in a few medical colleges. The results from these centers showed a significant improvement in analytical performance and thought process after PBL sessions. PBL received significantly higher student ratings than Lecture Based Learning (LBL) in self- study time,
number of books and computers consulted, enthusiasm for the topic, group discussion, depth of knowledge and interest taken in the teaching format. The material taught by LBL was retained more (though not significantly) than that taught by PBL, although by the students own assessment, retention by PBL was thought to be significantly higher than by conventional methods \((p= 0.001)^{17}\). There was a discrepancy between the students’ self-assessment of retention of knowledge and that elicited by MCQs. Thus traditional MCQs cannot be used as a sole evaluation tool for knowledge by PBL. Majority of students were motivated (82%) towards self learning. They were convinced that PBL helped them in building up communication skills, interpersonal relationship and problem solving capacity. The study of effects on problem based learning in basic medical sciences shows that the basic sciences knowledge is applicable and can easily be correlated with the clinical knowledge. The sessions helped them to internalize habit of giving evidence based answers and enabled them to acquire habit of positive criticism in group discussions and to tolerate it patiently. But in basic sciences, a combined application of PBL and traditional learning should be implemented. Huda A (1999) concludes that it is too early to determine the outcome, and follow up studies are needed to evaluate the effectiveness by determining the performance of students in small group sessions.

PBL is afflicted with certain limitations. In spite of its exciting philosophy and an increased input of students’ and teachers’ time, the superiority of PBL as a mode of learning still needs a convincing demonstration, either in terms of acquisition of knowledge or in clinical performance. In some PBL tutorials, indifference towards the group discussion is encountered, including individual quietness or dominant behaviour and incomplete attendance. At times tutors are too directive, problems are too structured and tutorials groups face the problem of dysfunction. To cope with dysfunctional problems, efforts are recommended aiming to increase PBL tutors’ and students’ understanding of the group process. Despite a perceived overall benefit to students learning, symptoms of superficial discussions by students have been observed. This can be due to poor case design. Other problems included are “silent tutors” and increased faculty workload.

There is inconclusive debate within the literature as to whether the best problem-based learning tutors should be subject experts or not. There are frequent problems in PBL programmes related to difficulty in providing expert tutors. Students in PBL tutorials may fear they are unable to get sufficient guidance from tutors in terms of learning the issues they should research. Moreover PBL case writers fear their cases are less effective, because non-expert tutors may misdirect students in the step I tutorial discussion. Students in PBL curricula, in many instances are skeptic to perceive lecturers as facilitators, role models and counselors.

National culture influences the flexibility of medical schools in terms of their propensity to adopt integrated and PBL curricula. Cultural reticence and improper proficiency in English language can pose problems in some Asian Medical Colleges. Delivery of instruction in PBL involves active peer teaching – learning in an open communication style. Consequently this may pose an apparent conflict with the Asian communication style generally dominated by a cultural reticence. As PBL is a highly resource-intensive pedagogy, medical colleges in developing counties need to have a clear understanding of the PBL process, philosophy and practice in order to optimize the educational outcomes that can be derived from a PBL curriculum.

PBL graduates tend to engage in background reasoning rather than the forward reasoning experts engage in, and there appeared to be gaps in their cognitive knowledge base that could affect practice outcomes. In spite of the stated goals of promoting self-directed learning students in these medical schools were driven by the nature of examinations and focused mainly on clinical contents rather than the process of learning. The cost of PBL may slow its implementation in schools with class size larger than hundred. Caution needs to be exercised in making comprehensive, curriculum - wide conversion to PBL until more is learned about the extent to which faculty should direct students throughout medical training, PBL methods that are less costly, cognitive – processing weakness shown by PBL students, and the apparent high resource utilization by PBL graduates.

Cohen – Schotanus et al studied longitudinal effects of problem-based learning and conventional learning relating to students’ appreciation of the curriculum, self-assessment of general competencies, summative assessment of clinical competence and indicators of career development. Contrary to expectation, graduates of PBL curriculum did not show more appreciation of their curriculum than graduates of the conventional curriculum. No
differences were found for scientific activities such as reading scientific articles and publishing in peer-reviewed journals.

Although the two curricula encourage different ways of learning, a convincing superiority of the one over the other still has to be ascertained. A combination of both the conventional and newer curricula may provide the most effective training for undergraduate medical students. It is not inappropriate to reemphasize that, what ever so is the format of teaching, conventional or non – conventional, lecture based learning or problem based learning, integrated or preclinical and clinical segregations, the basic aim remains the same. All methodologies have a common objective; to impart ‘quality knowledge and learning’ to produce ‘quality doctors’ which at the end should be competent enough to ensure ‘quality management’ of their patients. Lest not the forest be lost in the trees, not moon to overshadow the stars and not the contents be sacrificed over style and cosmetics. And , then a word of caution from Paulo Coelho, the master story teller of human journey from unknown to known, so as from known to unknown:

“There may be quicker or easier methods – that does not matter. What matters is that the tradition remains unchanged. Tradition that requires experience and practice. Practicing without guidance is dangerous, inadvisable, unnecessary and can greatly hinder the search for excellence”

References

27. Albanese M. Problem - base learning: why curricula are likely to show little effect on knowledge and clinical skills. Med Educ, 2000; 34(9): 729 – 38
28. Cohen –Schotanus J, Muijttjens AM, Schonrock – Adema J, Geertsma J, van der Vleuten CP. Effects of conventional and