



Asia-Pacific  
Association on PBL in  
Health Sciences



**UNIVERSITI**  
**MALAYA**  
KUALA LUMPUR

**ABSTRACTS**  
**of**  
**6<sup>th</sup> Biennial Conference**  
**of**  
**the Asia-Pacific Association**  
**on Problem-Based Learning**  
**in Health Sciences**

**Theme**

**PBL: Challenges & Opportunities**

**Workshops: 13-14 October 2008**

**Conference: 15-16 October, 2008**

**Eastin Hotel, Petaling Jaya, Selangor, Malaysia**

## **ABTRACTS**

### **Workshop B**

#### **E-Portfolio: Supporting PBL and Continuing Professional Development (Charles Juwah)**

#### **e-PORTFOLIO: SUPPORTING PBL AND CONTINUING PROFESSIONAL DEVELOPMENT**

Charles Juwah

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Problem based Learning (PBL) is underpinned by iterative, socio –cultural processes, which support and promote transformative learning. Portfolios have been identified as robust tools, which support the integration of teaching, learning and assessment processes and evidencing of transformative learning. Recently in higher education and professional practice, more emphasis is being placed on lifelong learning and continuing professional development (CPD). Also, evidencing the outcomes of CPD learning is critical in maintaining good professional standing and enhancing reflective practice. With the evolution of web social technologies and sound pedagogic principles, ePortfolios provide a dynamic and significant tool for supporting personal development planning and organisational processes. (The National Health Service (NHS) in Scotland has recently piloted an NHS ePortfolio for Junior Doctors. It is intended that the programme be rolled out in the near future to other doctors and may be adopted by other medical related and health allied professions).

This workshop/seminar will:

- introduce participants to the concept of ePortfolios
- enable participants to explore/use the functionalities and features of the ePortfolio for skills audit, as a tool for supporting teaching, individual and collaborative learning, evidencing and recording competences, promoting self regulation and reflective practice.

## **Workshop E**

### **Standard Setting**

**(Ramesh Jutti and Francis I Achike)**

#### **PASS OR FAIL, WHOSE YARDSTICK? SETTING THE STANDARD IN ASSESSMENT**

Francis I. Achike & Ramesh Chandra Jutti

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The sole purpose of the educational enterprise (formal and informal) is learning. Learning is incremental and in the formal setting often needs to be measured with quantum ascribed for the purpose of passing a judgment of 'fail' or 'pass.' The instrument of assessment must be valid, reliable and fair to ensure acceptability by stake-holders- students, teachers and all those who fund or depend on services provided by products of the educational enterprise- such as the government, parents and industry. In the particular case of professional courses, such as Medicine, an increasingly informed public is demanding higher standards of practice (competence) from graduates. This has been one of the major reasons for the drive towards outcome-based curriculum in many a medical school and the compelling need to define the minimally competent graduate. Under this scenario, the challenge to the medical teacher is in being able to define the minimally competent and to develop instruments, processes and procedures for identifying same. Various medical schools come up with various 'pass marks' in professional examinations, often in the range of 50 - 80% of total score obtainable. Are students from a medical school with 80% pass mark superior to those from a school with 50% pass mark? In this workshop we shall discuss the concept of assessment (formative and summative) and the process of determining the minimally competent student and thus the pass mark using well-tested approaches, such as the Angoff and the Hofstee techniques.

## **Workshop F**

### **The Assessment of Clinical Competence**

**(Vanessa Burch)**

#### **ASSESSMENT OF CLINICAL COMPETENCE**

Vanessa Burch

University of Cape Town

Cape Town, South Africa

This workshop will be reflecting on current assessment practices with relevance to the participants' practice in their own settings. A series of structured activities will work through the various components of a critical appraisal of assessment practices.

## **KEYNOTE ADDRESS**

### **PLANNING AND SUPPORTING QUALITY LEARNING IN MEDICINE**

Ann Sefton

Faculty of Medicine and Dentistry, University of Sydney

Modern medical programs require teachers to be professional in fulfilling a range of diverse roles: professionalism, understanding of evidence-based teaching, developing and supporting students' learning so that they become effective independent learners. In order to fulfil the roles, staff need to understand the methods of selection and the characteristics of the students who are admitted. The focus has moved from teaching to supporting active learning, and to develop the students' independence. The explicit and implicit messages given by teachers to students must be consistent and progressive, implying that staff development is essential.

In developing a curriculum, it is essential to ensure consistency and clarity in the overall design, avoiding mixed messages and conflicting expectations. Defining outcomes for graduates – including knowledge, skills and understanding – can provide a framework for progressive development of knowledge, skills and behaviours. Key skills include communication, collaboration and skills with modern technologies, in particular, information technologies.

Staff need to be professional in their approaches: developing their own personal skills and progressively building knowledge of modern medical educational principles and design. The capacity to collaborate is important, to ensure consistency across the curriculum. Staff need support to develop and enhance skills and knowledge through access to relevant scientific and professional journals, online information, evidence-based medicine resources, workshops and conferences relevant to the subject. Interprofessional education is increasing, encouraging the diverse contributors to share their approaches and understand different professional roles. They need to understand ethical issues in clinical settings. Less experienced teachers benefit from the support of mentors, and student feedback can be valuable in highlighting strengths and any weaknesses. Of particular value is the development of a culture of shared research in medical education, including access to best evidence medical education resources.

Students need to experience a variety of learning strategies in a range of settings. They respond well to early clinical contact, but must be well prepared, aware of ethical and sensitive issues including confidentiality, offered practise before clinical encounters. Teachers need support and resources in order to access up-to-date information – both to update subject matter and to support modern educational practices.

## **PLENARY 1**

### **DOES PBL WORK? AND HOW CAN WE MAKE IT WORK BETTER?**

Geoff Norman

McMaster University, Hamilton, Canada

Several recent systematic reviews of PBL have concluded that, while PBL may be more effective than "conventional" curriculum approaches in enhancing communication and interpersonal skills, the evidence that it can result in better knowledge and cognitive outcomes (transfer, problem-solving) is equivocal. Since PBL would appear to have some characteristics that enhance learning – active learning, learning in context, self-directed learning, it is not clear why PBL does not lead to substantial gains. Developments in cognitive theory provide some insight. Cognitive Load Theory (Sweller, 1982, 1983) shows that "open discovery" approaches where the student is given little guidance, are likely to result in poorer learning because of the load they impose on working memory, whereas "guided discovery", where the student is given considerable guidance about what is to be learned, can lead to real learning gains. In this talk I review the evidence about PBL outcomes, describe cognitive load theory and its implications for PBL, and make specific suggestions about how we can change the curriculum to maximize learning.

## **PLENARY 2**

### **ASSESSMENT AS AN EDUCATIONAL TOOL**

Vanessa Burch

University of Cape Town, South Africa

The learning role of assessment is frequently not adequately addressed in health professions training programmes. This session will focus on the educational value of assessment, that is, the critical role feedback plays in health professions education. The plenary also will explore ways in which the gap between current practice or competence and desired practice or competence can be closed by the process of feedback. A number of effective strategies for effective feedback will be discussed.

## **PLENARY 3**

### **ASSESSING THE EVIDENCE FOR INTERPROFESSIONAL EDUCATION**

John Gilbert  
University of British Columbia  
Vancouver, BC, Canada

In this presentation I shall address the following challenge: what is understood about the evidence that has been collected and reported on the impact of interprofessional education?

Interprofessional education (IPE)\* is gaining credence, as one of the key strategies that may mitigate some of the health human resource challenges facing healthcare systems. In the past 40 years, many university institutions, educators, healthcare professionals and policymakers throughout e.g. Canada, the UK, the USA, Australia and Europe have been working together to move IPE forward. A body of quantitative and qualitative scientific evidence linking interprofessional education with more collaborative practice and ultimately better patient care now exists. However, the language used to describe interprofessional education is primarily written for an academic audience and is not easily understood outside the existing core group of advocates.

As Canada's national authority on interprofessional education, the Canadian Interprofessional Health Collaborative (CIHC) has received numerous requests from health system planners seeking evidence-based, succinct and compelling information to support them when introducing interprofessional education in resourcing and program decisions. It is now clear that in order for interprofessional education to become embedded in healthcare systems, it must be translated into language and concepts that are accessible to a broader audience. Many health human resource planners and decision-makers in government and health administration have come to realize that appropriate IPE may be a key strategy in managing some of the health human resource shortages currently facing our health care system. Unfortunately, while there is some evidence for how IPE can positively impact the health care system, much of the evidence has been collected using different measurements in short-term or pilot projects. In order to truly advance IPE as a potential solution for the health care system, supporters need to be able to present decision-makers with evidence that demonstrates the effectiveness of IPE.

Over the past 10 years there have been a number of academic reviews about IPE and its outcomes. To get a better sense of what evidence is available and how it can best be used, in this presentation I shall address the following questions: 1) What has been learned about the quality of evidence on IPE? 2) What has been learned about how IPE is viewed? 3) What is needed to strengthen the evidence base for IPE?

\* "Interprofessional Education (IPE) occurs when two or more professions learn with, from and about each other in order to improve collaboration and the quality of care"\*.  
Centre for the Advancement of Interprofessional Education (UK) 2002

## **PLENARY 4**

### **THE ROLE OF PBL IN A HYBRID CURRICULUM**

Winning TA

School of Dentistry, The University of Adelaide, South Australia 5005

Since the introduction of PBL into medical education in the 60s, various models have been described and implemented. One model that commonly has been referred to is 'hybrid PBL'. Just as there are various ways PBL is conceived and implemented, there are different versions of hybrid PBL curricula noted in the literature. These range from conventional curricula with one module or subject that uses a PBL approach to curricula that are reorganized around key themes where PBL has an organising function across the themes and is supported by more conventional learning activities.

Despite variations in hybrid PBL, the aim of PBL in these curricula is to achieve the key educational aims of PBL, namely development of an integrated knowledge base within context, learning to think and act as practitioners, and development of independent learning and teamwork skills. However, the extent of achieving these goals will vary and is reliant on alignment of these outcomes with assessment.

To enable key educational goals of PBL to be realised, various features of PBL tend to be retained in hybrid PBL curricula. These include: encountering the case/situation prior to formal learning; integrating learning across topics, though this may not address all concurrent topics; and as noted, students identify their own learning needs related to these situations, learn through individual and collaborative activities in small groups, with staff acting as facilitators.

Evaluation of outcomes from hybrid PBL curricula have been reported, with demonstration of positive outcomes for some PBL goals and consistent with PBL curricula, mixed reports on knowledge. Other studies have provided key lessons related to implementing hybrid curricula, eg, the need for well-developed induction sessions for students. But as has been noted by several authors, specifics about how an educational approach is implemented are not always clearly defined in these reports making interpretation and application of outcomes from educational interventions difficult. Therefore, as noted by Dolmans et al (2005; *Med Educ* 39: 732-741) we need more research into how and why PBL works, informed by contemporary learning theories, and when it does not, to better understand how our contexts and implementation influence our students' outcomes.

## GUEST LECTURE

### INCREMENTAL PBL, A USEFUL LEARNING METHOD FOR ASIAN-PACIFIC MEDICAL STUDENTS

Tadahiko Koze

Tokyo Women's Medical University School of Medicine, Tokyo, Japan

Incremental PBL means that there are gradual incremental shifts of emphasis on learning. The learning foci are stepping upward in an incremental way as follows.

*The first stage* is a preparatory step to PBL. Students may identify anything what they “want to know” from the case scenarios. Students are asked to think independently, to discuss with fellow students, to feel dynamics in the group. There are no specific content objectives, only aiming for self-directed group learning, individual independent learning, exchange of what have been learnt, reconstruction of the results of learning, learning on reflection, etc. The case scenarios are not necessarily of medical fields, but also of basic sciences, liberal arts, societies and environment. The learning process is important, and specific content objectives are not predetermined.

*The second stage* is the step for “need to know” and “how to learn.” In this stage, students should identify the learning issues as “problems for me/us” who will become capable good physicians. Problems are not confined to the particular patient, but broadened and generalized in relevant fields of basic sciences, and basic/clinical medicine. In this step, the clinical reasoning and decision-making on the particular patient in the scenario are not of primary importance.

*The third stage* is the “outreach individual learning”. The learning issues may be identified individually by the needs of each student. Problems are extracted not from the case scenario, but widely from the current block's objectives. This may be a kind of rehearsals of the forthcoming individualized life-long learning after graduation.

*The fourth stage* is incremental to “problem-solving in clinical medicine” upon the bases of the second and the third stages. Here the “problems of this particular paper patient” will be identified and management of this patient care will be learned. Students are requested to learn both patient care for this paper-patient and the relevant in-depth learning. Such duplicated learning strategies will be easier when the students have in advance trodden the incremental paths in the previous stages.

*The fifth stage* is the continuum of the fourth stage, i.e. PBL with the actual patients in the clinical clerkships in the wards at the fifth and sixth academic years.

This incremental PBL has solved many of the issues in the former versions of PBL, and has been well accepted by the students and the tutors. However, the effectiveness of the incremental PBL was not yet satisfyingly proved. Appropriate systematic program evaluation will be needed.

## **SYMPOSIUM 1 SUSTAINABILITY OF PBL**

### **APA-PHS country representatives**

#### **Australia: Greg Tan**

##### **SUSTAINABILITY OF PBL: THE UNIVERSITY OF NOTRE DAME AUSTRALIA SCHOOL OF MEDICINE EXPERIENCE**

Greg Tan & Adrian Bower\*

Schools of Health Sciences and \*Medicine, The University of Notre Dame Australia,  
Fremantle, Australia

MBBS at the University of Notre Dame Australia is a four-year graduate entry program. Central to the year 1 and 2 curriculum is problem-based learning (PBL) which defines the learning objectives of the medical curriculum and drives student learning. Lectures, tutorials, practicals, clinical skills and the debriefing sessions are resources to support the PBL curriculum. Consequently there are no major challenges in sustaining the interest of PBL amongst the students. In institutions where migration to either a PBL or a hybrid curriculum occurs, the major challenges to PBL remain with the faculty. Until the faculty sees the relevance and understands its role in the curriculum, the students will have difficulties embracing it. The concept of “learning from scratch” by some basic scientists and the lack of belief or interest by some faculty members in giving students total responsibility for their learning are further issues. The latter produces resistance to reduction of lecture load (1). Maintaining a balance between teaching and research is another challenge. The School of Medicine at Notre Dame is fortunate to have adopted the PBL curriculum right from the very onset and the Faculty are well inculcated with the concept and philosophy of PBL. All PBL facilitators must undergo the PBL training session conducted by the School. The dependence on sessional staff however remains a concern as the funding structure generally supports few full-time. This workforce issue is also seen at Monash University. The decision by the School to employ only staff with medical qualifications for the year 2 PBL creates a further constraint in sustainability as practitioners have to weigh the “loss of income” versus “the value of academic activities”. PBL is successful in our curriculum mainly because of the Faculty’s and student’s enthusiasm, its central role in the curriculum, continuous evaluation and feedbacks and the oversight by the School domains to ensure currency and alignment.

(1) B. Jolly, Monash University, personal communication, September 5, 2008.

**Hong Kong: Philip S.L. Beh**

**SUSTAINING PBL AT HKU**  
Philip SL Beh  
University of Hong Kong, Hong Kong

The sustainability of PBL is unquestioned at the Li Ka Shing Faculty of Medicine at HKU. The reason for this is simple but fundamental. The move to PBL was made after a difficult but transparent process of curriculum reform. PBL was therefore a core learning process embedded in the reformed medical curriculum. This does not mean that sustaining the quality of student learning through PBL is a given. It requires a systematic and continuous monitoring, evaluation and development process. At HKU, in response to students and facilitators queries and comments, we developed “Survival guides” for students as well as for facilitators. Students are regularly evaluated on their performance on set and transparent criteria throughout their PBL modules. Facilitators too are evaluated by students and problems identified discussed by a PBL-Committee and recommendations made where appropriate. PBL cases are renewed regularly and new cases evaluated rigorously both by students and by facilitators. Problems identified will lead to revisions or rewriting of the case. All facilitators have to undergo PBL Tutor Training organized in-house prior to becoming a PBL Facilitator. Faculty meets with students regularly to address any concerns and often to soothe anxieties. Sustaining PBL demands an active engagement of staff and students and is not a given.

**Indonesia: N. Margarita Rehatta,**

**THE SUSTAINABILITY OF PBL: WHAT WE ARE DOING IN THE  
FACULTY OF MEDICINE, THE AIRLANGGA UNIVERSITY, INDONESIA**

Nancy Margarita Rehatta  
Faculty of Medicine, The Airlangga University, Surabaya, Indonesia.

There have been a lot of changes in Medical Education in Indonesia since we had “The APA PHS Conference” in Surabaya, Indonesia 2006. Today, we totally have 53 State and Private Medical Faculties throughout Indonesia. The quality standardization is carried out by drawing up the standard of education and standard of competence. It is determined that the curriculum be based on competence with spices approach, meanwhile the PBL should be the learning strategy (not as a problem based curriculum). Medical Education is expected to produce Primary Care Physician with the 7 formulated competences.

In 2006, The Medical Faculty of the Airlangga University which has been using the Hybrid Model since 1999 made a change to reconcile the content of the module and the achievement purpose of the Primary Care Doctors’ competence. In the learning strategy, we do, not only integrated lecture, but also PBL tutorial.

**What obstacles to get rid of?**

- Running 20 tutorial classes at the same time takes an orderly and controllable system since it has something to do with the student, tutor and room management as well as other educational facilities.

- Maintaining the tutors consistency to let the students study actively and independently according to the PBL spirit.

**How to maintain the well-running of PBL?**

- We need to prove the benefit of PBL to grab the support of the academic community. In connection with this matter, we have done a study tracer on the opinion of our graduates and their users. The result is very supporting because it recommends that the PBL strategy should go on. A qualitative research on the competence of clinical reasoning in professional levels is still in progress and expected to contribute more objective input concerning the benefit of PBL.
- Besides, the sustainability really depends on the tutors, the backbone of the tutorial process. The tutors' opportunity to give a feedback and to be involved in the program planning seems to motivate them to stay in the team.

**Philippines: Marita Reyes**

**SUSTAINABILITY OF THE PROBLEM-BASED APPROACH IN MEDICAL  
EDUCATION:  
THE PHILIPPINE EXPERIENCE**

Marita VT Reyes

University of the Philippines Manila Philippines

At present, there are thirty-five medical schools in the Philippines, thirteen of which implement problem-based curricula. Out of these thirteen institutions, four are government-supported (public) schools while the rest are privately financed. Six schools started with a problem-based curriculum upon their establishment (one in the early 1980's, most after 1995), while seven schools converted to PBL from an originally traditional program.

Three other older established schools shifted to PBL in the late 1990's but had to revert, either completely or partially, back to traditional methods.

Common and contrasting characteristics are identified among the PBL-based and traditional schools. The problems encountered by those schools that had to revert back to the traditional curriculum are also presented. The insights gathered regarding sustainability of a PBL curriculum in the Philippines are discussed.

**Japan: Osamu Matsuo**

**THE PRESENT STATUS OF PBL IN JAPAN**

Osamu Matsuo.

Medical Education Research Center

Kinki University School of Medicine, Osaka, Japan

The present mode for PBL in Japan seems stable superficially. More than 80% of medical schools (total 80 medical schools in Japan) have been introducing PBL (data from Deans' meeting published in 2007). This figure is increasing annually since 1995. In Kinki University, we have implemented PBL to Year 1 students in 1993. In 1997, PBL was introduced in all courses in medical education. The activity of our students gave big influence to another medical schools, which promoted to introduce PBL. In 2001, the recommendation from Committee in the government declares to "reform Medical Faculty", which causes strongly motivation for implementation of PBL. In 2004, the government decided legally to enroll 2 years residency program after graduation from medical schools. The matching between the residents and hospitals has been manipulated by computer system. Then, most of young graduates select rather big hospitals located in the big cities. This new program impaired residents' recruitment in the University hospitals. Therefore, the shortage in human resource is main issue in all medical schools. All doctors in University hospital complaint of extremely fatigue and exhausted due to too much work: even after full night duty, they have to work next day as usual. Thus, it pushes back PBL due to poor resource as tutors. In Aug, 2008, the government requested to increase the number of the freshmen in April, 2009 in all medical schools, which may increase further duty to medical staff. Now, adverse wind may attack PBL in Japan.

**Taiwan: Tsann-Long Hwang**

**THE SITUATION OF PROBLEM-BASED LEARNING IN TAIWAN**

Tsann-Long Hwang

School of Medicine, Chang Gung University, Taipei, Taiwan

The new pathway medical educational changes using Problem-based-learning (PBL) new curriculum in Taiwan started since 1993. Among our eleven medical schools, the School of Medicine of National Taiwan University started the PBL curriculum at first. Up to 2004, all the eleven medical schools used various types of PBL curriculum in their new pathway of medical educational system. Most of them used hybrid PBL program, only one medical school, Fu-Jen University, chose pure integrated PBL new curriculum since 2002.

For maintaining good standards in medical schools, the good curriculums and instruction methods as well as regular medical accreditation are very important. Let students take more humanistic courses during their premedical years, and arrange good training and evaluation of clinical skills are also important for maintaining standards during the clerkship. PBL is a new curriculum for the improvement of medical education. The new pathway either integrated or hybrid PBL program has individual advantages during the new curriculum development in eleven medical schools of Taiwan. We have found that the graduated students from Fu-Jen

University, which was the only one to use pure PBL integrated curriculum had better active learning and discussion than the students from medical schools during internship.

The use of hybrid PBL new curriculum for new pathway medical education in school of medicine, Chang Gung University started from 1999. With the experience and success of new pathway medical education in clerkship, we started the PBL new curriculum in basic medical education from 2002. The staffs in clinical departments help the faculties in basic medicine to design the case materials and share the tutors' requirement. The integrated system based PBL courses was also started in 2004, most students satisfied with the new course.

We conclude that different types of PBL curriculum in eleven medical schools in Taiwan had their individual characteristics. Most of teachers recognized that PBL had many advantages and is one of good methods for learning and teaching.

## **SYMPOSIUM 2**

### **PBL IN PHARMACY AND NURSING**

**Vishna Devi V. Nadarajah, IMU, Malaysia**

#### **JOINING THE BANDWAGON: IMPLEMENTING PBL IN A PHARMACY SCHOOL**

Nadarajah VD<sup>1</sup>, Ong CE<sup>2</sup> and Fang KBL<sup>3</sup>

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The School of Pharmacy at the International Medical University introduced its B.Pharm programme in 2004. It is an outcome based curriculum and PBL was chosen amongst various learning tools to help achieve the programme outcome of graduating pharmacists who are communicators, critical thinkers and team players.

PBL is only delivered in systems based modules for 5 semesters (total semesters are 8), with 2 to 3 PBL triggers discussed in a module. PBL is delivered in 2 sessions; session 1 includes brainstorming and generating learning issues while session 2 includes presentation and discussion on the information gathered. The PBL process is assessed summatively and contributes 5-10% of a modules assessment. Students are assessed on 6 criteria: communication skills, team-work, cognitive skills, demonstration of knowledge, presentation mode and professionalism & attitude. Students who score low for this assessment will be counseled by their tutors for further improvement.

Student evaluation of PBL sessions in the BPharm modules has been positive. For example in modules Cancer Chemotherapy, Musculoskeletal and Toxicology delivered in Semester 6 (response rate 82-89%), students agreed that they learnt from PBL, communicated well with group members, received continuous feedback from facilitators, covered the learning objectives and the PBL trigger stimulated their interest. Interestingly, students also found the PBL process assessment useful. Students also had positive perceptions towards their facilitators as the mean overall ratings for the facilitators were 7.90 (rating scale 0-10).

One issue of concern is that while students' perception towards PBL maybe positive, the IMU-REEM [an educational environment measure, based on DREEM (Roff, 1997)] scores from the pharmacy students suggest that BPharm students have low academic and social self perception. Low REEM scores are suggestive of a traditional curriculum rather than a student centred curriculum (Roff, 2005). Since the BPharm utilizes various types of teaching and learning methods, during curriculum review, careful consideration should be given to increasing learning methods which promote self-directed and independent learning methods favoured by the students.

**Rasnah Abdul Rahman**

**PROBLEM-BASED LEARNING IN NURSING EDUCATION,**

Rasnah Binti Abdul Rahman

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In the contemporary health care environment which is characterized by rapidly changing developments and persistently increasing knowledge, the possession of critical thinking is essential for nurses to make sound judgment when solving clinical problems. The traditional lecture method as in passive listening and memorization in nursing education has caused students' critical thinking development to be stifled. A review of the literature shows that problem-based learning (PBL) leads to the best results for the development of critical thinking and hence is becoming increasingly popular in nurse education settings. PBL not only supports effective critical and clinical reasoning skills among nurses but it also supports the principle of adult and student centered learning in professional nursing education. PBL too provides an environment with structures that empower students to effectively develop autonomous professional practice skills. However, its efficacy in accomplishing these objectives is widely debated. It is arguable whether PBL environment really provide students with greater access to information, support, resources, flexible approaches to learning, collaborative learning activities and opportunities for self development. One may ask to what extent students who have had PBL in their nursing education demonstrate growth in critical thinking ability. By virtue it is expected there would be an increase in the ability or assume that it would enhance the students' ability.

PBL can be challenging to a nurse educator. It takes great courage to move from a classroom-based approach to a new teaching-learning methodology. It requires a belief in the methodology and trust in students' ability and their enthusiasm for learning. The students need to work through the group dynamics with only facilitation from the faculty. PBL requires students to explore and analyze information and to identify what they needed to learn. However, it is not easily achieved without the precise interventions on the part of the teacher.

The focus of PBL is on the acquisition of knowledge and the process through which that knowledge is applied. In other words, the goal of this kind of learning is not only to gain knowledge but the ability to apply it and this might be difficult and a challenge to the teacher. The dynamic process of PBL is most effective when both learners and the faculty know how to play their roles during the process. Problems or triggers that are too well-structured, dysfunctional tutorial groups, a non-cohesive group of students, small library resources, large classes, limited facilitators with expertise seems to be a few problems encountered with this approach of learning.

As a conclusion, if problem solving, engagement, applying, active questioning have been recognized as the keys to motivation and effective kind of learning, why is it that we must still go back to traditional lecture? Faculty has to make hard decision and get to the essentials. It is yet to find empirical evidence on the implied relationship between PBL and students' critical thinking in contemporary nursing education.

**Samsiah Mat**

**PROBLEM-BASED LEARNING IN NURSING – UKM EXPERIENCE**

Samsiah Mat

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Kuala Lumpur, Malaysia.

**Introduction:**

The Department of Nursing, UKM, was started in July 1996 with the first intake of 116 diploma students. During that time PBL was introduced to the nursing Department without any exposure of the lecturers to this method. Some of us felt confused and disliked it because of the amount of time needed for the be conduct of PBL. Slowly the lecturers inculcated this method as one of the teaching-learning strategies and felt proud of this method. At present time is still some resistance to PBL by some lecturers, as not all can get adapted to it.

**Why the Nursing Department uses PBL**

The Head of Department believes that paradigm shift in teaching-learning method from teacher-centered to student-centered is appropriate with the program conducted in higher learning institutions because of the facilities and adequate number of academic staff to conduct the PBL sessions. We hope that our department will produce graduates who are flexible, adaptable, and will become a good problem solvers (Ousev, 2003).

**Designing the packages**

A committee of PBL was set up and was involved in designing the packages based on the topics, which were identified during curriculum review. For the each body system there will be one PBL topic for A&P and adult nursing subjects.

**Process and activities of PBL**

Department of Nursing, UKM, adapted the concept of PBL which is a combination of process and activities by Wilkerson & Feletti (1989), and Stepien, et.al (1993).

There are three steps in PBL: encountering the problem, self-directed learning, and back to the problem. Each of the steps has different activities that the students have to undergo.

**i) Encountering the problem**

The first step is started with the ice-breaking by the facilitator, whereby the members of the group will introduce themselves, so that, they will get to know to each other. The next step is distribution of the trigger by facilitator and allowing the students to digest the problem. The first discussion will be explaining or defining the words which the group members do not understand, followed by brainstorming and students will probe for the information about patient in the trigger. The group members analyze the lists of learning needs after one of them has summarized the problems. The leader will then divide their duties to search for the information. The '**must know**' subjects will be searched by every group members and the '**nice to know**' will be searched by 'named student'. All the decisions are made by the group members.

**ii) Self-directed learning.**

During the self-directed learning session the students will go to library, clinical areas and laboratories to search for the materials related to the given problem. After they have obtained the information they will discuss among themselves and share their finding and prepare for the presentation with the facilitator.

**iii) Back to the problem**

During this session they will present on the pathophysiology, and relate it to the signs and symptoms of the disease. They also present the investigations, medications, nursing diagnoses and interventions given. At the end of the presentation they will evaluate their performance and findings. If the diseases are complex they will be given another trigger (trigger II).

**Conclusions:**

The process of PBL will enable the students to develop problem solving, decision-making, critical thinking, and communication skills, which is very important in the nursing profession.

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### **SYMPOSIUM 3**

## **CHALLENGES IN INTER-PROFESSIONAL LEARNING**

### **CHALLENGES IN INTERPROFESSIONAL LEARNING**

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The inter-professional learning is defined as a process by which 2 or more professions learn from and about each other in order to improve collaboration and quality of care. Working in a multidisciplinary team is becoming important in the delivery of health care. The doctors, nurses, pharmacists and other healthcare providers are expected to work together in managing patients be it in the hospitals or in the community. However, the traditional undergraduate curricular of medical, nursing and pharmacy did not address the challenges faced by these healthcare professionals in delivering the healthcare as a team. Therefore the inter-professional learning (IPL) was introduced to provide opportunity for students to practice working in inter-professional teams. It is hope that the IPL not only improves collaboration but also promotes development of adaptable and flexible inter-personal dynamic of working teams. The Faculty of Medicine and Faculty of Pharmacy University Kebangsaan Malaysia introduced IPL in their undergraduate programmes. This programme involved 45 second year Medical students and 40 third year Pharmacy students taking a 2-credit Comprehensive Healthcare Module in second semester of 2007/2008 session. Students worked in a mixed group of 5-6, whereby they conducted family case study, presented the case and written a family case report. The challenges faced in implementing this module began with problem in subscription of the module by pharmacy students followed by time-tabling and other logistic problems. Steps taken to address these problems in this cohort as well as in future implementation will be discussed.

## **SYMPOSIUM 4 INNOVATION IN EARLY CLINICAL EXPOSURE**

**Francis I Achike**

### **BRINGING INTEGRATION ALIVE IN A PBL CURRICULUM: THE PIVOTAL ROLE OF THE CLINICAL SKILLS UNIT**

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The impact of time on the curriculum remains the spark that gives soul to the PBL paradigm which therefore will continue to be relevant irrespective of acceptance or denial of its truism. Integrating clinical and basic medical sciences from the early days of the medical curriculum is an essential feature of the PBL paradigm which also extols community orientation and self-directed life-long learning. The establishment of an administrative unit (clinical skills unit- CSU) dedicated to the teaching / learning of clinical skills, including early clinical exposure (ECE), is essential to the goal of integrating clinical and basic medical sciences from the early days of a PBL curriculum.

This paper defines clinical skills and establishes its pivotal role in a PBL curriculum. It compares the traditional opportunistic approach to skills teaching with the structured approach offered by a CSU in a truly innovative PBL curriculum. The three major administrative structures for teaching skills, including the multidisciplinary all-comers clinical skills laboratory (CSL) are highlighted. The practical challenges to skills teaching and the students' need/cry for standardisation are analysed. Innovative skills-assessment by way of the objective structured clinical examination (OSCE) is discussed. Its advantages (including validity, reliability and fairness) over the traditional long and short cases are highlighted. The need for more physician scientists to enhance the integration of basic and clinical sciences is highlighted. We express the view that the teaching of skills in the undergraduate medical curriculum of the future will be more the responsibility of the generalist (with holistic attitude) than of the specialist doctor (with narrow organ-based focus) who is more suited to postgraduate training. There is good reason to recommend that the teaching of clinical skills develops into an academic discipline (medical specialty) of its own.

**Christina Tan**

**EARLY CLINICAL EXPOSURE OF STUDENTS**

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The traditional medical curriculum places an emphasis on gaining knowledge. In the training programmes of many medical schools, students still often do not have contact with patients until the third or fourth years of their training.

Over one hundred years ago, Sir William Osler, a superb clinician and great teacher, insisted that students learned from seeing and talking to patients, rather than just from dry didactic lectures as was the traditional teaching method of the time. In *Tomorrow's Doctors*, recommendations on undergraduate medical education published by the General Medical Council of UK in 2003, the emphasis has moved from gaining knowledge to a learning process that includes the ability to evaluate data as well as develop skills to interact with patients and colleagues. Students should have opportunities to interact with a range of people from a range of social, cultural and ethnic backgrounds from the start of their professional training.

There is evidence that early exposure of students to clinical experiences in the medical undergraduate curriculum does strengthen and integrate the medical education curriculum, and help students develop appropriate skills and attitudes, including communication skills and professionalism. At the University of Malaya, students experience early clinical exposure through a variety of means, including problem-based learning scenarios, clinical ward teaching, and also Community Family Case Studies (CFCS). This paper will discuss these experiences in further detail.

## ORAL COMMUNICATIONS

### 01

#### **INTERPROFESSIONAL EDUCATION IN MEDICINE AND BIOMEDICAL SCIENCES: BRUNEI PERSPECTIVE**

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The Institute of Medicine, Universiti Brunei Darussalam, has established the undergraduate medical programme and completed the first cycle in the year 2008. Since the year 2006, the Institute had started planning to implement the interprofessional education programme by forming an interprofessional team at the Institute.

The first cohort of biomedical science students is joining the first year medical students for PBL sessions under the common foundation year programme in the health sciences scheme. Eight biomedical science students will join 23 medical students in PBL sessions and some of the laboratory sessions. The PBL cases are designed and written specially for the interprofessional education programme by the interprofessional team. The programme is designed to include nursing degree students who are expected to join in 2009.

The combined group of medical and biomedical science students had undergone team building exercise together during the first week of orientation programme. The students will be allocated to PBL groups and each group will have a mix of students from both programmes. The questionnaire survey has been designed and the survey will be carried out to include both students and facilitators towards the end of the module. The survey will examine important factors in developing insights and skills for interprofessional teamwork and contribution of PBL to the development of teamwork skills and confidence. Determinants of desirable group behavior and team dynamics in common foundation sessions will be studied and presented.

**O2**

**PROBLEM BASED LEARNING (PBL) VERSUS COMMUNITY BASED  
MEDICAL EDUCATION (CBME): PROS AND CONS**

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PBL and CBME are the two current and progressive alternative methods of medical education that are currently widely used in many medical schools in the world. Both systems have their own advantages and short comings. In this presentation a comparative analysis based on past experiences of some universities and information on the net will be made. The peculiarities of PBL and why it is progressive will be given emphasis in the light of the old traditional system of medical education. This will be followed by a discussion on the advantages and disadvantages of CBME in comparison with the traditional system of medical education. Then, a comparative analysis of the PBL and CBME will be delineated. In the comparative analysis, curricula, space and trained manpower issues, finance, management and the question of common consensus and the relationship with stakeholders will be dealt with. Finally the relevance of the two systems of education in the context of the developing and other poor third world countries will be emphasized. The experiences of many medical schools who took up PBL and CBME as educational philosophy will be presented as an example. This will shed light on and make the relevance and importance of the two systems of medical education and also illuminate the short-comings and challenges during implementation. The presentation will give a chance for participants attending this conference and who came from different medical schools following different strategies and systems to have a better view of PBL and CBME.

**O3**

**MAKING PROBLEM-BASED LEARNING MORE FOCUSED AND LESS  
FACULTY INTENSIVE IN A HYBRID CURRICULUM**

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The objective of this paper is to share the experiences of tailoring the Problem Based Learning (PBL) process to suit the institutional needs.

Problem Based Learning (PBL) sessions have been extremely intensive in terms of the time faculty members have to devote at the tutorial sessions week after week. Expert tutors have been more effective than non-expert tutors in PBL sessions. To optimize the utilization of faculty time, the problems for PBL were designed in such a way that it had predominant focus in one subject. The subject experts were the tutors for that problem that week. The next week, the PBL problem had focus on another subject and the experts in that subject were the tutors that week. Thereby a tutor had PBL sessions once in three weeks instead of every week. Also, the tutor functioned more effectively as the PBL discussion pertained to his/her area of expertise.

While this PBL format went against the spirit of integration of different disciplines, the distinct advantages included more in-depth study of the topic, better tutor effectiveness and giving faculty the time to concentrate on other teaching-learning strategies in a hybrid curriculum. Also, the last PBL of the academic year was given as a written assignment where the entire PBL process is documented by the student in the journal. This not only released faculty time but also enabled the PBL process to be sequentially recorded.

These interventions in the PBL process contributed towards making PBL a more enjoyable and meaningful experience in a curriculum which has a mix of several learning strategies.

**O4**

**FACULTY PERCEPTION OF PBL CURRICULUM IN MMMC, MANIPAL**

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The present study was carried out to gauge the perception of the PBL curriculum by faculty members in MMMC, Manipal.

The faculty members were divided into those with prior PBL experience (group A) and those without (group B). They were asked to respond to a number of questions about the PBL curriculum with graded responses.

Majority of the faculty members agreed that PBL curriculum helped students to acquire critical thinking skills and had made them more responsible towards self-study. Among the faculty members in group B, 80% felt that students tended to selectively prepare for certain learning objectives rather than prepare for the overall problem whereas only 33% of those in group A felt that way. A greater majority of those in group A (86%) opined that students who were initially reluctant to participate in PBL discussions had increased their participation over the year. 66% of group A members felt that PBL evaluation adequately assessed student involvement in PBL whereas only 35% of those in group B agreed. The majority of the members in both groups were confident about their ability to design problems to adequately address important subject areas. Most of the faculty members in both groups thought that the current PBL system was better than the entirely lecture-based curriculum. 60% of the members in group B would like to see introduction of more PBL sessions whereas only 33% of those in group A agreed with that. A good number in both groups, however, feel that greater integration of the different disciplines in PBL was desirable.

Most of the teachers in MMMC, Manipal opined that PBL was encouraging development of critical thinking skills, self-study and group participation in medical students. Faculty members were confident about their problem-designing ability and preferred to see greater interdisciplinary integration in PBL.

**O5**

**CHALLENGES AND OPPORTUNITIES OFFERED BY PBL;  
STUDENTS' AND FACILITATORS' PERSPECTIVES.**

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This paper aims to solve student concerns regarding PBL and to highlight the role of PBL to act as a bridge to fill up the knowledge gaps in the curriculum.

The final examination in the second year offers an opportunity for all candidates to share their experiences with the external examiner regarding the course, curriculum, teaching learning methods, question papers, conduct of examination and so on. Anonymous written feedbacks received over the last three years were analyzed. Students who had cleared their preclinical phase and were now in their 3<sup>rd</sup> and 4<sup>th</sup> year of study were called in for a focus group discussion with facilitators who were trained in PBL development and conduct to discuss these problems and the possible solutions.

Subtopics discussed ranged from scheduling, punctuality, availability of suitable venue and facilities, role of the facilitator, group dynamics especially the non-participation of certain students, the PBL material including the repetition of learning outcomes in different PBL's and the assessment pattern.

Solutions suggested included orientation of students, training and briefing facilitators, shuffling of PBL groups so that students do not figure in the same group or with the same facilitator for different PBLs, early scheduling of PBL venue and facilities, vetting of the PBL material and the issue of facilitators notes, attendance and interaction be made mandatory to be eligible for marks for all sessions including the review session. The students volunteered to record an ideally and a poorly conducted PBL session. These sessions can be used to orient new students and faculty to PBL conduction.

The general objectives of the course and the intended specific learning outcomes of each trigger are important factors to be considered while developing material for PBL. PBL thus can be developed into a valuable tool for filling up the knowledge gaps in any curriculum in an active learner driven environment

06

**PBL FACILITATION SKILLS AMONG TUTORS OF DIFFERENT  
BACKGROUNDS: MEDICAL STUDENTS' PERCEPTIONS**

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The objective of this study was to identify the facilitation styles of tutors in problem-based learning (PBL) and also to explore any differences between medical and non-medical background tutors of various academic appointments.

The research design was cross-sectional, undertaken at the Faculty of Medicine, Universiti Kebangsaan Malaysia in 2007. Data were gathered from 94 PBL tutorials of semester one students conducted by 55 tutors. Students rated facilitation skills by filling in questionnaires given at the end of each PBL. Students' ratings of each item for 55 tutors were computed per tutorial which also computed under knowledge, attitude, and skills domains and presented as percentage distribution. Response rate per tutorial varied from 58%-100%, and the average was 91%.

A total of 55 tutors were included in the study of which 75% were of medical and 25% of non-medical background. Among them were professors (24%), associate professors (29%), senior lecturers (20%), lecturers (20%) and trainee lecturers (7%). The students perceived that all tutors, regardless of their backgrounds and academic appointments, possessed good knowledge on PBL process. In terms of skills in assisting students to focus on their learning issues, encouraging critical thinking and creating non-threatening atmosphere, the tutors with medical background seemed to perform better than those with non-medical background. There were no obvious differences in the skills of encouraging group participation and building good collaborative teams among the two groups of tutors.

Students' perception on facilitation skills is an important feedback to improve tutors' performance in conducting PBL. However, the perception might be biased due to lack of training in PBL tutoring evaluation. To achieve a more meaningful conclusion, future studies on PBL facilitation require triangulation by other measures.

07

**STUDENT PERSPECTIVES REGARDING THE PROCESS OF  
PROBLEM-BASED LEARNING AT MMMC, INDIA**

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Melaka Manipal Medical College, (MMMC), India , offers the Bachelor of Medicine and Bachelor of Surgery (MBBS) programme of 5 years' duration. Along with didactic lectures, PBL forms part of the curriculum in the first year. The present study was undertaken to explore student perspectives regarding the process of PBL .

After an extensive literature review, a questionnaire consisting 20 items pertaining to the process of PBL was designed. The items were categorized under three modalities namely: content, learning and concerns/suggestions. The face validity of the questionnaire was determined by consulting senior educationists in the institution. The questionnaire was administered after a regular PBL presentation session with 124 students, consisting of twelve groups. Students were asked to respond to each item based on their experience and data were analysed.

More than 80% of students felt that problems were well designed, helped to recall and reinforce prior knowledge of the topic. They also felt that PBL facilitated team-learning (83.9%) and boosted their self-confidence (83.9%). 74.1% of students opined that marks allotted to PBL contributed adequately to internal assessment . The majority of students (53.8%) felt that learning in PBL was not as good as that in a lecture class and 80.6% found preparing for PBL time consuming . Only 16.7% voted for more PBL sessions.

Thus the study shows that while students appreciate the various benefits of PBL, they are also careful to point out that at MMMC which has a packed curriculum, increasing the PBL component is not advised.

**O8**

**ANALYSIS OF PBL BASED TEACHING STRATEGY IN MEDICAL STUDENTS IN A COMPARATIVE STUDY.**

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The institution has more than a decade's experiencing of using the PBL strategy as a major learning tool from the very first year when basic sciences are inducted. The process continues for the first 3 years. All the basic subjects are highly incorporated exhibiting horizontal & vertical integration. Community health issues are also substantial components.

The study includes analysis of student attitude in PBL's in three cohorts of students. Parameters include behavior, regularity and assessment results of the PBL performance. The PBL performance of 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> year students throughout one whole year was compared. The 3 batches of students are appearing in their final examinations at present..

The overall analysis suggests that the participation of the students in different years of study differed widely in several parameters. The newly inducted first year students showed more enthusiasm in terms of group dynamics, exhibiting motivational behavior and scoring better than their seniors. Facilitator reports indicated that first year students utilised all available learning resources for information collection. The scientific discussion derived many additional learning objectives which revealed better scope of knowledge. The 2<sup>nd</sup> year batch which was expected to be more responsible however displayed a lower scoring attitude despite the previous whole year's experience. Their participation was also reported to be comparatively of low profile. The senior most group of 3<sup>rd</sup> year also exhibited discouraging scores which is an alarming feature for the moderators. They seemed to be less responsive despite their exposure to clinical sciences as well.

The conclusion is suggests that students lose interest when they become adapted to the process. They do complete all the steps involved in the PBL but they do develop short cuts to ease up the process. Facilitators report some difficulties regarding moderation where sometimes they have to call the students for extra sessions of PBL. There is a need for exploring factors responsible for change in the attitude of senior students and devising mechanisms for improvement.

09

## **EFFECTIVENESS OF PROBLEM BASED LEARNING: STUDENT PERCEPTIONS**

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Isra University aims include producing doctors better equipped with self- learning skills to cope with the ever-growing information. PBL was introduced as a predominant learning strategy in a system-based curriculum for students coming from a traditional background.

A quantitative study was carried out in an attempt to get feedback from 2nd year MBBS students from Isra University, Pakistan who had had a one and a half-year experience in the PBL programme. A total of 100 students participated. Students reflected their perceptions in a questionnaire regarding PBL using a 5 point Likert Scale, ranging from strongly agree to strongly disagree (1 = minimum, 5 = maximum). The 12-item questionnaire was divided into overall and specific comments. The overall comments included generalized statements on PBL and its process while the specific comments concentrated on the content of problems used and their relevance, extent of use of learning resources, group discussions, role of group and tutors. For the analysis of data, the percentage was computed and frequency of different statements made by students was also analyzed.

Of 100 questionnaires distributed, 95% were completed sufficiently for data analysis. The average percentage scores of student positive responses to items related to the group climate was 77 % and contents of PBL link with prior knowledge was 73%.. Ninety three percent of students gave positive responses to individual items on the role of awareness in understanding PBL methodology and 91% agreed that group discussion which provided them an opportunity to improve communication skills. Most of the students (96%) responded that the problems were relevant to their course objectives. Generally students were not satisfied with the role of tutor in PBL (67%). However, 71% of the students were aware of the tutor role in their knowledge.

This study revealed favorable response from students towards PBL. Most students participated actively and spent a significant time on self-study. Students' views confirmed that tutor's role is important. Tutor training, careful selection and preparation of better problems and developing group skills for those who have language problems were recommended.

**O10**

**STUDENTS' RESPONSE TO REASONS FOR LIKING OF PBL AND LECTURES IN AIMST UNIVERSITY**

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AIMST University follows integrated teaching in Year 1 and 2, followed by introduction of clinical teaching in Year 3. This is a hybrid curriculum with PBL and lectures. This study gives an insight into the student's response to the reasons for liking and disliking of PBL.

The objective of this study are to assess the preferred teaching methods adopted by the medical students in AIMST and to assess the students response to reasons for liking/ disliking PBL and lectures. This is done by a cross-sectional study of medical students and dental students in AIMST. A total of 463 students (417 Medical students and 110 Dental students) participated in the study. The main outcome measures are the reasons for liking and disliking PBL and Lectures, preferred study habits. Questionnaire were employed to assess the students' preferred learning methods and the reasons. The students were asked to choose whether they preferred PBL or Lecture. The reasons why they liked or disliked a preferred method of teaching were elicited. Semi-structured interviews were conducted to allow focused, conversational, two-way communication. Descriptive analysis of the data was done using SPSS 15.0.

The results showed that 52.7% Fifty two percent of dental and medical students liked lectures 47.1% liked the PBL sessions while 0.2% liked both equally.

Students' comments on the best and worst features of the instructional formats revealed the following reviews. Positive comments about the lecture format included "Easy to understand" and "effective and straightforward," "more organized and proper guidelines provided", "all topics were covered" while negative comments included "Passive listening," "Boring, no student participation," and "Monotonous, monologue." Students from the PBL discussion group commented that they enjoyed the "involvement and participation," which helped to "improve knowledge", "thought provoking and interactive", "can remember information longer", "interesting" It was also reported that everyone was "awake and take responsibility", Negative comments included "its time consuming, needs earlier preparation", "cannot exhaustively cover all the important topics", "more pressure on smaller group". Also as PBL involved individual preparation, sometimes there was no sharing of the material.

Thus PBL could be introduced more in the curriculum; more uniformly and more in the number of contact hours. Even Term 1 and term 2 of Year 1 students would reap more benefits by introducing PBL into their curriculum.

## POSTER PRESENTATIONS

P1

### **THE RUBRIC APPROACH: A POWERFUL TOOL FOR PROVIDING FEEDBACK IN PROBLEM-BASED LEARNING**

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Helping learners gain the most from Problem-Based Learning and bringing out their very best is the role of the tutor in a PBL. The tutor can accomplish this by giving practical, constructive feedback. Giving feedback is not an easy task. Although many tutors may intuitively possess these skills, many times tutors need guidelines on this.

A rubric will simply list a set of criteria to be accomplished and can be used as a guide to improve performance. It not only can be designed to formulate standards for levels of accomplishment, but can also be used to make these standards clear and explicit to students.

The objective of this project is to develop a systematic and, at the same time, “fit for purpose” rubric that will enable tutors to provide constructive feedback while evaluating students’ performance.

The template/ basic grid was taken from web based rubrics, which are tools to help any teacher who wants to use and generate rubrics. Ideas from literature helped to feed inputs to the rubric. It was improved upon and developed by discussions and personal interviews with faculty experienced in PBL.

A 4 level feedback rubric having 10 performance objects with descriptors, 5 each for the two sessions of PBL was developed. Thus the total points possible will be 4 x 10=40 points. Strengths and weaknesses of the student can be examined.

The rubric enables tutors to give timely and constructive feedback and thus improve student learning with each session. The rubric also bridges communication gaps between the tutor and learner. The rubric can be made more powerful when both tutors and students get involved in developing the rubric being used. Rubrics help making learning goals and evaluation criteria explicit for both teachers and learners.

**P2**

**PERSPECTIVES REGARDING AN IDEAL PBL CASE**

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Problem based learning (PBL) is found to help the students to acquire skills such as critical thinking, problem solving, collaborative work etc. In most medical curriculums, considerable attention has been given to the definition of PBL curriculum and to the conduct of PBL sessions. Little attention has been given to determine the characteristics of an ideal PBL case should have in order to facilitate student learners. The present study was undertaken to determine the student and faculty perspectives regarding an ideal case scenario for the PBL sessions at Melaka Manipal Medical College (Manipal Campus), India.

The questionnaire containing items that reflect the characteristics of an ideal PBL case was developed. Both students (n= 134) and faculty (n=54) were asked to rank the items in the order of their importance in creating an effective PBL scenarios.

Majority of the faculty felt that an ideal PBL case should be a clinical problem with basic science concepts which allows students to develop knowledge, attitude and skills desirable in their future practice. They also felt that ideal PBL case should stimulate self directed learning and motivate the student to learn the subject and be appropriate to the stage of the curriculum. Majority of the students opined that an ideal PBL case should be relevant to their future profession and should be mimicking the real life situation with basic science integration. They also felt that it should stimulate their thinking and reasoning skills.

The present study provided scope for improvement of the PBL case scenarios to be used in future PBL sessions. The study also revealed the importance of students' perspectives in designing an ideal PBL case.

**P3**

**PLANNING AND DESIGNING PROBLEMS FOR PROBLEM BASED  
LEARNING (PBL) SESSIONS: STUDENTS AND PEER REVIEW**

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A critical factor in the success of PBL is the problem itself. The learning outcome of students in PBL depends on the meticulous planning and design of problems to incorporate the learning objectives, thereby promoting self directed learning. This study aimed at reviewing the process of planning and designing problems by faculty members and to analyze the effectiveness of these problems in PBL sessions.

A questionnaire incorporating various aspects of problem designing, such as planning, discussion among faculty members, clinical relevance, simplicity, enhancing student interest, ambiguity and covering the learning objectives, was prepared. A feedback from 36 faculty members on the process of planning, designing and preparation of problems in each block was collected. A feedback in the form of a questionnaire on the facets of problem design, effectiveness of problem was also collected from students after the completion of PBL sessions. A total of 346 MBBS students of MMMC\* (Phase I, Stage I=124 & Stage II=222) who were exposed to PBL were included

83% of students agreed that the problems designed triggered them to think; 61% felt that they were structurally complete and properly constructed; 76% felt that problems related to the real world, 80% felt that they were clinically oriented and 75% agreed that it would help them in future practice. 78% of the students felt that the problems were designed to their level of understanding. A majority of the of faculty members agreed that the problems were properly constructed (62%), clinically relevant (83%), designed after thorough discussion (62%), gave scope for eliciting discussion (94%), were framed logically and used simple language (89%). 76% faculty felt that problems probed deeper understanding of concepts.

Problem design enhanced student centered learning, brought out the learning objectives, connected previous learned knowledge, encouraged discussion, stimulated concept understanding and critical thinking, framed and revised after every feedback.

**P4**

**CHALLENGES FACED BY NOVICE TUTORS IN EFFECTIVE  
IMPLEMENTATION OF PROBLEM – BASED LEARNING**

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Problem-based learning (PBL) has been a well-established means of imparting medical education since its first implementation at MMMC, Manipal. PBL sessions in our institution require active student participation and the use of clinical cases as a trigger to learn within a given area.

Tutors play a central role in a PBL-based curriculum. An effective tutor promotes student learning by creating a supportive environment which encourages active participation by all members of the group. However tutors especially novices, face many challenges in changing their didactic teaching format to PBL format. Hence this study was conducted to find out the challenges faced by novice tutors in effective implementation of PBL.

Tutors having less than 2 years experience in PBL format were asked to give a feedback on their experiences in implementation of PBL. They were asked to identify the major challenges or difficulties faced by them during conduct of PBL.

The analysis of feedback obtained revealed that the major challenge faced by tutors were in group facilitation and student assessment. Some tutors also experienced difficulties in PBL case – designing and overall conduct of PBL. Paucity of effective assessment tools and lack of experience and skills for execution of PBL sessions were identified as obstacles to novice tutors.

PBL has gained much attention as a pedagogic alternative in the course of reforms in medical education. Training tutors for effective implementation of PBL is a crucial step for the success of this strategy. Inclusion of PBL in post-graduate curricula and regular conduct of workshops for junior faculty may be helpful in this regard.

**P5**

**FACULTY AWARENESS AND ATTITUDES ABOUT PROBLEM BASED  
LEARNING (PBL) IN NON-PROBLEM BASED LEARNING INSTITUTIONS  
OF MANIPAL UNIVERSITY**

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The aim of this study is to find out the awareness and attitudes of faculty of non-PBL institutions of Manipal University. The study was conducted by interviewing the faculty regarding their knowledge about PBL and their interest to include PBL in their curriculum.

A total number of 120 faculties from Medical, Allied Health Sciences, Nursing, Management and Technology institutes were included in the study. The faculties were divided into three groups based on years of their teaching experience.

The results of the current study revealed that most of the faculty had heard about PBL but they admitted that they didn't have the actual knowledge about how to conduct the PBL, nor what the outcomes and advantages of the PBL system were. Though some of the faculty felt that PBL method was stressful to the students, majority of them were willing to include PBL components into their existing curriculum.

In conclusion, majority of the faculty of non-PBL institutes of Manipal University are aware of PBL and are willing to incorporate PBL into their curriculum. Most of them think that the PBL improves the academic performance of the students and inculcates critical thinking in them.

**P6**

**COMPARISON OF STUDENT ACHIEVEMENT IN PBL AND NON- PBL STRATEGIES**

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Melaka Manipal Medical College (MMMM) Manipal Campus has a hybrid curriculum consisting of lectures, self-directed learning (SDL), problem-based learning (PBL) and laboratory-based learning (LBL) sessions.

The study was intended to find out the difference in performance if any, between the topics which were covered as didactic lectures and PBL.

The PBL was conducted in two sessions. During the first (brain-storming) session students analyzed the problem, formulated the hypotheses and identified the learning objectives. During the next session (presentation) the learning objectives were discussed in detail. Assessment of academic performance of students in the topic covered as PBL and didactic lecture was done using a test which consisted of multiple true-false (MTF) questions. The MTF questions included the analytical and recall questions from PBL topics and lecture topics. The MTF paper consisted of forty questions which were divided into two equal sections, one containing 20 MTF questions on topics covered in PBL and the other covering topics not covered in PBL. Within each of the two sections, five questions were of the analytical type, making a total of ten analytical questions. Results were analyzed using the paired t- test

Analysis of the results showed significant difference in scores obtained between the analytical questions of both sections, whereas there was no significant difference between the recall type questions.

In conclusion, performance was found to be significantly higher in the PBL analytical type questions compared to the non-PBL analytical questions

**P7**

**COMPARISON OF PBL WITH CONVENTIONAL MODES OF LEARNING:  
STUDENT PERSPECTIVES**

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Educational approaches are thought to have facilitative or hindering effects on students' academic performances. The aim of this study was to understand the perception about PBL in comparison with other modes of learning among year I MBBS students with varying academic performances.

The undergraduate medical program at Melaka Manipal Medical College (Manipal Campus), India, is a 5 year intensive academic program. Year I MBBS is divided into 4 blocks for integrated learning of Anatomy, Physiology and Biochemistry through different learning modes like didactic lectures, PBL and self directed learning sessions. A batch of 118 year I students, were divided into three academic groups based on the average scores of previous blocks (Group A > 75%, B, 60-75% and C, <60%). Students were asked to respond to a questionnaire regarding their perception and preferences for learning through PBL as compared to other learning modes.

The majority of the students enjoyed PBL sessions as it enabled them to improve their communication and presentation skills (A, 92%; B, 85%; C, 91%). Learning experience was regarded to be more advanced and challenging in PBL than other learning modes. It was felt that PBL was a key factor in making them independent learners by referring to a variety of resource materials other than reference textbooks (A, 79%; B, 89%; C, 91%). However a liking for learning through didactic lectures still persisted as they felt that it consumed minimal study time as compared to other self study activities (A, 94%; B, 92%; C, 91%).

In conclusion, students enjoyed the PBL experience because of its advantages and contributions towards the making of a successful medical professional. However, learning through PBL as compared to other modes did not receive an overwhelming positive response from all three study groups.

**P8**

### **FACULTY EVALUATION OF PBL AND ITS OUTCOME**

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PBL is an instructional approach that uses problems as a context for students to acquire problem solving skills and knowledge.

The aim of the study was to evaluate the PBL sessions using grades and to analyze the effectiveness of assessment system.

133 second year medical students studying in Phase I Stage II twinning programme at Manipal were involved in the study. At the completion of each tutorial case, students were individually awarded the following grades depending on their performance: E (Excellent, score 6/6), D (Distinction, 5/6), H (Honors, 4/6), P (Pass, 3/6), F (Fail, 2/6) and A (Absent, 0/6). The grades were awarded separately for the brainstorming, presentation, participation and content for each PBL case. Facilitators found this system was easy to use evaluate students. The evaluation outcome was analyzed statistically using SPSS software system for the score of  $\geq 4/6$  ( $\geq H$ ) for the three blocks

Evaluation of PBL from block I to block III showed that students' critical analysis of problem improved from 80.4% to 90%, communication and presentation skills from 85% to 94% and active learning score from 85.9% to 92.5%

PBL evaluation proved that students improved in critical analysis of a problem, communication and presentation skills and encouraged them to learn more actively. Our evaluation system which includes the assessment of ability of problem solving, communication, presentation skills and the content presented had the advantages like

1. Overall (360<sup>0</sup>) evaluation of students performance and improvement
2. Easy and accurate for the facilitators to grade and give feedback

**P9**

**ACHIEVEMENT OF LEARNING OUTCOME OF MATERIAL COVERED IN AN INTEGRATED CASE-BASED LEARNING CENTRED MODULE**

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In order to encourage student-centred learning in Phase 1 (Year 1) one module covering the gastrointestinal (GIT) system and Nutrition was redesigned so that the material was presented in a mixture of teaching/learning modalities centred on a series of cases based on the PBL method. The other system modules were taught the traditional lecture-centred methods.

To determine the progress of assimilation of material in the GIT and nutrition module, a series of progressive tests were administered to students before the start, during the middle and on the last day of the module. The test consisted of 100 true-false questions in biochemistry, anatomy and physiology (in no particular order). The same questions were used in every test, but the order was rescrambled in the final third test. Negative marking (correct = +1, wrong = -1) was used. No time was set aside for the students to revise the material.

The performance of students in the final examination of questions based on GIT and nutrition module and those mainly based in the endocrine system was also compared. The endocrine system was chosen for comparison as it was held in the second term, as the GIT module, and material similarly was more factual in nature. The results presented here are from the 2006/2007 academic year, the second year of the CBL programme.

The results of the progressive test showed steady improvement in scores from the first (pre-module) test to the final (end-module) test. There was no significant difference in the performance the GIT-based questions and the endocrine-based questions in the final examination..

The results showed that the students were able to gather and assimilate the material expected of them in a self-directed learning environment. Although there was no apparent advantage in examination performance over material delivered by didactic teaching. However, intangible processes such as improvements in self-dependence, communication and information gathering skills is likely to be greater in the GIT module

**P10**

**STUDENT PERCEPTION OF AN INTEGRATED CASE-BASED LEARNING CENTRED GIT AND NUTRITION MODULE BASIC SCIENCES MODULE**

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In order to encourage student-centred learning in the basic sciences the teaching and learning method in one module in the system-based curriculum was designed so that the material was delivered in a mixture of pedagogic methodologies. In this module, the number of didactic lectures were drastically reduced and the material was delivered in the form of a series of integrated cases based on the PBL methods, but with varying levels of guidance, from minimal (similar to “true” PBL), to highly directed specific questions. In addition, the students attended largely self-directed anatomy practicals. In the module, large group teaching was minimized to about 6 sessions of lectures, a clinical scenario and 3 interactive “round-up” sessions after major cases where the learning that students should have discussed during the small group sessions are discussed. A questionnaire containing a series of questions based on a 5-point Likert scale covering student perceptions of the cases and the process was given at the end of the second session of each case or cases. and student perception over the four-week module was analysed.

In general students viewed the process and cases positively. They found the cases were found to be highly relevant to the subject (consistently above 4 points). The scores were also well above 3 throughout the module for increasing integrative skills, communications skills, ability to discuss and voice opinions, and realizing the importance of basic sciences to medicine. They agreed that the method of learning was more interesting than attending lectures, but was quite neutral when asked whether that they had difficulties with the cases for the final case. However, they had great anxiety whether they had covered enough material for their examinations.

In conclusion the module was quite well received by students, however there was some anxiety as they were not certain whether they had done enough to handle the examinations.

**P11**

**STUDYING EFFECTIVENESS OF PROBLEM BASED LEARNING IN  
HEALTHCARE EDUCATION: : STUDY FROM AN INDIAN UNIVERSITY**

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This study was carried out to know the effectiveness of PBL methods in Healthcare Education. This study will be helpful for universities to realize importance of problem based learning technique in academic activities.

This study was carried out in a university in India. Students from healthcare faculties were selected as samples. Statistical software was used for research and sample size determination. Total population of healthcare students was calculated to be approximately 5000. Best estimate of the rate in population was considered as 50%. Maximum acceptable difference was considered as 10%. 97% were selected as desired confidence level for the results. 117 is required sample size for 97% confidence level. 117 samples (healthcare students) were interviewed and responses were recorded. Healthcare students from the Indian university were selected as sampling unit. A questionnaire with open and closed ended questions was designed and interviewed.

Most of the respondents considered the nature of group of learners and nature and series of problems were important factors in PBL technique. Respondents were of opinion that PBL method would enhance content knowledge and foster the development of communication, problem solving, and self directed skills. The majority of students recommended PBL methods in their curriculum.

From above study we can conclude that PBL is an effective tool in healthcare education. PBL technique can help in enhancing content knowledge and foster the development of communication, problem solving, and self-directed learning skills. Respondents considered knowledge of individuals, team co-ordination and nature of problem to be important parts of Problem Based Learning technique.

On the basis of above study we would like to recommend that universities should implement PBL techniques in the healthcare education.

**P12**

**IMPACT OF TASK BASED LEARNING ON PHARMACY STUDENTS IN  
PHARMACOPOEIAL INFORMATION SEARCH**

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Pharmacopoeias are books of standards for medicines, pharmaceuticals and excipients. The information of pharmacopoeia is a much sought after by the regulatory agencies, industrial practitioners and health care providers. The organization, application and information available in pharmacopoeia and search criteria for information are the basic requirements of pharmacy professionals. This paper aims to assess the impact of task-based learning (TBL) on the efficiency, knowledge and confidence level of pharmacy students in searching information from Pharmacopoeia.

Undergraduate students of Bachelor of Pharmacy Class were exposed to didactic lecture on Pharmacopoeia and then a small group of students were randomly selected and were exposed to a task-based learning (TBL) process. A questionnaire based evaluation was done after the didactic lecture and after TBL process measuring student's capacity for searching information from pharmacopoeia and evaluating the students intellectual and interpretation skills of information available in pharmacopoeia.

Analysis of data was done using paired t-test. The student's ability to search and interpret the information from pharmacopoeia improved significantly after the task based learning process. Students were confident after TBL and were found to be associated with improved skills in gathering information from pharmacopoeia. Students considered this learning process as very useful and effective in addition to didactic lectures.

In conclusion, learning approach of students was improved by TBL process. TBL process in addition to didactic lectures will greatly improve the learning process of the students. A mixture of TBL process with didactic lectures can be implemented in pharmacy colleges with skilled tutors acting as a facilitator of the learning process.

**P13**

**ANALYSING THE APPLICABILITY AND EFFECTIVENESS OF PROBLEM  
BASED LEARNING METHOD IN PHARMACY EDUCATION**

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To analyse the applicability and effectiveness of Problem Based Learning method in Pharmacy Education. Pharmacy education is considered as one of the important and core faculty of healthcare education. This study aims to reveal the importance of new teaching methodologies like problem based learning in pharmacy education.

This study was carried out in a well reputed pharmaceutical college in India. Total population of pharmacy students in the selected college was calculated to be approximately 500 which includes under graduates and post graduates. For the said research the best estimate of the rate of population was considered as 80%. Acceptable difference in the research was taken as 10%. Desired confidence level in the research was assumed as 98%. Sampling size was determined (73) with the help of statistical software. A questionnaire was designed with open and closed ended questions to collect the primary data by interview method. 73 pharmacy students were interviewed and data was collected to derive the results.

From above study it was observed that students wanted new methods to be introduced in the teaching of pharmacy education. Students consider that problem based learning method is the most appropriate method of teaching for some of the pharmacy subjects. Respondents believe that application of problem based learning method will improve the depth of subject knowledge, communication ability of the students. Respondents are of opinion that instructors play a very important role in controlling and guiding the team in the process of Problem Based Learning.

Data collected from the above study shows that problem based learning method is one of the appropriate and important methods for pharmacy education. In this study it was observed that students preferred problem based learning method to any other method in pharmacy curriculum. Respondents are of the opinion that PBL can improve their communication skills and depth of the subject knowledge.

**P14**

**PBL SHOWING A “P.B.L. (POSITIVE, BUOYANT, LUCID) TREND”? – GRADUATING STUDENTS’ SELF-ASSESSMENT**

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In general, it is rather a complex matter to compare research data on the success of PBL, due to the diversity of parameters in the surroundings, settings, systems at different institutions; as well as the small numbers of participants, i.e., students. Even though there are many variants in the implementation, PBLs are essentially centred on the discussion and learning that arise from a clinically-based problem in a medical education setting. The students use "triggers" from the problem case or scenario to identify their own learning objectives. Subsequently, they do independent, self directed study before regrouping to discuss what their colleagues have looked up.

This paper’s main objective is to investigate whether PBL has enhanced University of Malaya (UM)’s medical students’ learning experience.

PBL was launched in the Faculty of Medicine, UM’s curriculum in the 2000/20001 academic session, whereby it was a part of the Newly Integrated Curriculum. The PBL program is of a hybrid nature, in which it combines the conventional didactic teachings.

Self answering questionnaires were distributed to students of Phase 3A (students in clinical years who completed 3 years of PBL tutorials) after the last exam paper, across a cohort of 5 batches of graduating medical students (2002, 2004, 2005, 2006 and 2007). Students were asked to score a maximum value of 5 (strongly agreed) as opposed to a minimum value of 1 (strongly disagree); after which the data was analysed.

Across the board, progressively, students from all the batches noted that they perceived an improvement in their critical thinking, integration of knowledge, appreciation of understanding rather than merely memorising facts, communication skills and ability to counter propose ideas put forth by other students.

While the initial findings are very encouraging, the results of this preliminary study need to be further validated by more detailed and in-depth research methods.

**P15**

**SELF PERCEPTION ON CLINICAL COMPETENCY OF UKM MEDICAL GRADUATES**

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The objective of this study is to assess the self perception of the UKM medical graduates on their clinical competencies.

A cross sectional study was conducted on a batch of UKM medical students who graduated in 2007. Questionnaires on self perception of clinical competencies were distributed to all graduates two months after their graduation. The graduates were asked on their self perception regarding their competencies in history taking, physical examination, diagnostic ability, patient investigations and management, performing clinical procedures, communication and decision making skills. Each element is graded using Likert Scale. They were encouraged to provide narrative comments. The data was analysed using SPSS version 12.0.1.

One hundred and ten respondents participated in the study which comprised of 55% of total graduates that year. High percentage of graduates perceived themselves as competent (scale 7 – 10) in history taking (95.5%), physical examination (96.4%), diagnostic skills, patient investigation and management. None of the students marked their competency level below 5. In performing clinical procedures, 6.4% of graduates perceived themselves less competent (scale 5 and below) as compared to other skills. In communication skills, majority of the graduates claimed themselves to be competent in communication with patients, relatives, other health professionals and patient education. None of the graduates rated themselves below 5 in the skills above. However, 8.2 % of the graduates graded themselves below 5 in breaking bad news. In decision making skills and clinical reasoning, 83.7% rated themselves as competent (scale 7 – 10).

The majority of the graduates perceived themselves competent in basic medical skills taught in medical school. However, competencies in performing clinical procedures were still perceived as lacking among them. It is recommended that a proper communication skills training in breaking bad news should be implemented in the medical curriculum. It is also crucial to emphasize the importance of in-service training in performing clinical procedures.