

## **Problem Based Learning Experience at the Medical School in King Abdulaziz University: Reasons for Not Participating as Problem Based Learning Facilitators**

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*Abstract.* The Faculty of Medicine at King Abdulaziz University, Jeddah started in 1975, and has been running a traditional curriculum for over 30 years. A few years' back, it embarked on changing its curriculum to an integrated system based curriculum. Including different teaching strategies *e.g.*, lectures, problem based learning, practical sessions, clinical teaching, student directed learning, early clinical exposure and communication skills with emphasis on critical thinking, problem solving, case based learning and evidence based practice. The curriculum was implemented in the academic year 2007/2008. The school invested in training staff to become Problem Based Learning tutors and recruited experts to supervise and maintain the new curriculum. A designed questionnaire was sent to the non-participating faculty members. Clinicians were found to be the majority of the non participating tutors (91%); and that there was no difference with regards to gender (56% male and 43% female). The Faculty of Medicine in King Abdulaziz University is successfully embarking on curriculum change. They are challenged with staff development and participation.

*Keywords:* Problem based learning, Curriculum development, Medical faculty development.

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## Introduction

The Faculty of Medicine in King Abdulaziz University (KAU), Jeddah was established in 1975; the curriculum was a traditional one where separate courses were taught by single departments. The medical student graduates after 6 years and upon completion of an internship year.

In 1999 a task force was developed to work on developing a strategic plan. The objective of the task force was to implement an integrated system based curriculum to improve students' learning, comprehension and integration of medical knowledge. The new curriculum includes several teaching strategies *e.g.* lectures, problem based learning (PBL), practical sessions, clinical teaching, student directed learning (SDL), early clinical exposure and communication skills with emphasis on critical thinking, problem solving, case based learning and evidence based practice<sup>[1,2]</sup>. In the year 2007, the school started implementing the new curriculum. This required the school to establish a developmental program to train the faculty members as a basic requirement for the successful implementation of the PBL curriculum<sup>[3]</sup>; for this purpose the school recruited experts in education to help establish the medical education department. One of the medical education department tasks was developing and managing the PBL program. This required training faculty members, developing PBL cases, establishing policies and procedures to run the program and training auxiliary help. These activities were simultaneously conducted.

The first PBL training for faculty members took place in October 2007, where the trainees were 30 faculty members from different departments in the faculty of medicine. The trainees group was formed of faculty members that were interested in medical education, and who already formed a group that met every week to discuss issues pertinent to medical education.

Afterwards, faculty recruitment members planned differently, and sent formal invitations to all departments. Registration of participants was coordinated between the basic science and clinical department heads, the office of the Vice President of Development and the Medical Education Department. Attendance records were kept for all workshops for the purposes of recruiting faculty members on upcoming PBL sessions, monitoring and reporting progress toward PBL, certification, and program evaluation. By June 2009, 18 training workshops were

conducted and 281 faculty members were trained. Faculty members were considered certified and sufficiently prepared to begin facilitation of PBL cases once they had completed the workshop, which will expose them to: PBL process, facilitation of learning, and PBL assessment and feedback.

The training was planned for five days where the following themes were covered: An introduction to the PBL process; the role of the tutors in PBL; the role of students in PBL, and Assessment and evaluation of PBL. This was followed by a 2 days PBL case simulation, at the end of each day participants completed a survey evaluating the workshop. Afterwards, the departments requested a shorter condensed training program as to send more trainees. The program was shortened to 4 and a half day with the same sequence of the original workshop but with a single simulation session. Each workshop was designed to provide background information, engage faculty attitudes toward teaching and PBL, and provide pedagogy-relevant participation opportunities (Table 1).

**Table 1. Design of the workshops conducted to train faculty members.**

Sequence	Knowledge/Skill	Title	Time
1	Student centered learning; active learning; case based learning; small group learning; steps of the PBL process	Introduction To PBL Process	Half day
2	Roles and responsibilities of the PBL tutor; roles and responsibilities of the PBL students	The role of the student and Tutor in PBL	Half day
3	Qualitative assessment of learning and group skills; formative feedback; providing and receiving feedback.	PBL assessments and feedback	Half day
4	Facilitation of a non medical PBL case	PBL simulation	Half day

Developing knowledge about PBL-specific instructional methods and program policies was approached primarily by the use of short, introductory presentations and scenario based discussions. Skills development was accomplished by observation and discussion of role-modeled behavior based on specific criteria. This observation element was followed by selected participant role-playing with subsequent criteria-based feedback from the chief trainer.

In an attempt of the medical education department to evaluate and assess the faculty participation in PBL, a log was created (Table 2). The log stated participation from each clinical and basic department with relevant information, as the number of facilitated PBL sessions. While developing the log, a question emerged regarding faculty members who received the training, yet did not participate as PBL tutors. This issue raised the question: why did 103 faculty members, though fully trained, did not participate as PBL tutors and to explore its link to gender and academic department? Another aim was to present recommendation and rewarding system that could improve faculty participation level. However, it was reported that not all teachers have welcomed the changes and a lot had fears of the new curriculum; fear that their roles are

**Table 2. The log providing full information on the training provided to each department in the year 2008/2009.**

Department	No. of Faculty Members	No. Trained as PBL Tutors	Percentage Trained PBL Tutors*	No. Participating as PBL Tutors	Percentage Participating as PBL Tutors	Sessions conducted
Pediatrics	22	27	122%	10	37%	44
Medicine	38	22	57%	16	45%	88
Surgery	31	14	45%	8	44%	32
OB/GYN	22	38	172%	15	39%	100
Orthopedic	5	7	140%	1	14%	12
Ophthalmology	8	0	0%	0	0%	0
Community Medicine	16	15	93%	9	60%	76
ENT	9	7	77%	3	42%	12
Hematology	8	6	75%	2	33%	12
ER	1	7	700%	5	71%	80
Anesthesia	5	7	140%	1	14%	4
Radiology	7	9	128%	4	44%	36
Urology	4	3	75%	2	66%	8
Microbiology	11	8	72%	5	62%	44
Pathology	16	17	106%	13	76%	152
Pharmacology	7	7	100%	6	85%	52
Anatomy	21	23	109%	19	82%	228
Biochemistry	16	13	81%	12	92%	232
Parasitology	7	4	57%	3	42%	36
Physiology	14	13	92%	11	84%	180

\* The percentage reflects the total number of both hospital and academic staff that was trained, not only the faculty members which are the targeted trainees.

not clear in the new curriculum. Others have said that tutoring is not rewarding and it is time consuming. There is fear that the new curriculum requires more human resource than the traditional curriculum. Some members of staff feel that the change was hurriedly introduced and departmental involvement was limited. Moreover, that was the reason some has found difficulty implementing it. There was no information reported on reasons for not participating as tutors in PBL sessions after being trained<sup>[4]</sup>.

### **Material and Methods**

The study was designed as an observational cohort study.

#### ***Questionnaire***

A focused group of trained facilitators participated at least once in the year 2008/2009, was formed to develop the questionnaire with regards to the reasons why some trained faculty members did not participate in PBL module system. Thus, taking into consideration the fears of tutors reported by Carrera *et al.*<sup>[3]</sup> the questionnaire was then approved by the ethical committee within the school.

#### ***Subjects***

The cohort consisted of all trained faculty members who attended the training, but did not facilitate any PBL session. Hence, the questionnaire was emailed to those faculty members. Due to incorrect email addresses or ignorance, only 20% of the questionnaire sent to the non-participating trainees came back. This required us to resend the emails twice with personal messages to reply and email back the answered questionnaire. Another 25% answered back. The total was still less than the percentage accepted by the National Commission for Assessment and Academic Accreditation (NCAAA) in the Kingdom of Saudi Arabia, which was 50%. The number rose over 70% after a personal visit to the targeted trainees who did not answer the questionnaire. The questionnaire had six questions in which the non-participating tutor would answer yes or no, and will be able to choose more than one answer (Table 3).

#### ***Statistical Analysis***

After the distribution and collection of the questionnaire, statistical analysis of the data was done. Statistical analysis to relate the reasons for

not participating to departmental affiliation was done by using Chi-square test with/without Yates corrections.

**Table 3. Questionnaire for faculty members who did not participate in the PBL sessions.**

<b>Reasons for not participating in PBL facilitation</b>
Academic duties conflict with the session of PBL?
Clinical duties conflict with the session of PBL?
You were not nominated by the head of department?
You are not comfortable with your level of training as PBL facilitator?
You were informed last minute?
PBL needs a lot of preparation and reading and you have no time to read?
Other

## **Results**

The preliminary observations from the results show that the top reason for faculty members not to participate in PBL session facilitation was clinical duties conflict (39.2%). On the other hand, the least reason for them not to participate was they were not comfortable with the level of training they got (11.2%).

More faculty members from the clinical departments did not participate in the facilitation of PBL sessions. Of the 79 faculties who replied, 72 were clinicians; this also reflected in the percentage of the faculty members who answered yes to clinical duties conflict (38%). Table 4 represents a comparison between faculty members from basic and clinical departments'. Conflict with academic duties came next (37%). While nearly one third of the staff (28%) said, their departments did not nominate them and (23%) reported late information of their sessions that they could not reschedule other previous obligations. On the hand, the results gave good indication that the staff were happy with the level of training they received. Only (11.4 %) of the staff were not happy with the level of training they had and thought that they need more training. There was no significant difference between the clinicians and basic science academics. Although, the percentage was sometimes more than double due to the small number of the sample and is considered a Type I error where the test rejects the trueness of the theory of finding a significant difference between both.

**Table 4. Comparison of clinicians and basic science academics for not participating as tutors in PBL.**

SN	Question	Basic		Clinical		Significance	
		7	8.9%	72	91.1%		
1	PBL sessions were conflicting with other academic duties.	3	42.8	26	36.1	$X^2=0.098^*$ P = 0.54	NS
2	PBL sessions were conflicting with Clinical duties.	1	14.3	30	38	$X^2= 0.77^*$ P = 0.36	NS
3	Your department did not nominate you as a PBL tutor	4	57.1	18	13.9	$X^2= 3.06^*$ P = 0.1	NS
4	You are not comfortable with your level of training, you need more training.	1	14.3	8	10.1	$X^2=0.031^*$ P = 0.62	NS
5	You were informed of your participation at last minute could not rearrange your schedule.	3	42.9	16	22.2	$X^2= 1.15^*$ P = 0.21	NS
6	PBL requires extra readings and preparations; you do not have the time	3	42.9	13	18.1	$X^2= 2.29^*$ P = 0.15	NS

\* Chi-square without Yates correction.

In Table 5, a summary of the data comparing between the results from both, male and female faculty members for reasons not to participate in PBL facilitation. There was no significance difference in the results of both, female and male with the exception of the late information about their session. Where 35.3% of female staff compared to 15.6% stated that they are informed last minute, to replace other colleagues. Although the ratio of the male-trained facilitators was less than 50% of the female faculty members, it was still not significant and considered a Type I error where the statistical test rejects the significance

**Table 5. Comparison of male and female staff for not participating as tutors in PBL.**

SN	Question	Male		Female		Significance	
		45	57%	34	43%		
1	PBL sessions were conflicting with other academic duties.	17	37.7	12	35.3	$X^2= 0.085^*$ P = 0.48	NS
2	PBL sessions were conflicting with Clinical duties.	17	37.7	14	41.2	$X^2= 0.083^*$ P = 0.48	NS
3	Your department did not nominate you as a PBL tutor	13	28.8	9	26.5	$X^2= 0.16^*$ P = 0.44	NS
4	You are not comfortable with your level of training, you need more training.	3	6.6	6	17.6	$X^2= 3.63^*$ P = 0.064	NS
5	You were informed of your participation at last minute could not rearrange your schedule.	7	15.6	12	35.3	$X^2= 4.97^*$ P = 0.032	S
6	PBL requires extra readings and preparations; you do not have the time	10	22.2	6	17.6	$X^2= .008^*$ P = 0.58	NS

\* Chi-square with Yates correction.

in this relation. On the other hand, one fifth of the males and females staff stated that the reason for them not to participate in PBL session was the need of extra reading and preparation, and that they have no time.

### **Discussion**

Over the last four years, the Faculty of Medicine at KAU has undertaken a major reform of the undergraduate curriculum in the academic year 2007-2008. To implement a student-centered curriculum, PBL, an integral educational method was used in the new curriculum, where mostly every module during the 2<sup>nd</sup> and 3<sup>rd</sup> year will have 4 sessions of PBL, in which the students will be divided to groups of 8 -10 for each module. This will require the school to provide 35 facilitators for each module. However, the modules do not necessary overlap, but the time and effort needed limits the obligatory sessions to one from each staff during the academic year. The faculty of medicine cannot survive the change in curriculum without its staff. Therefore, it has ensured that there will be enough trained faculty members as PBL facilitator to fulfill the requirement for a successful PBL implementation. The school administration has requested a more condensed shorter workshop to allow more faculty members to fit their duties and attend. It has also affiliated with the departments to ensure the enrollment of staff in the training workshops developed by the Medical Department faculty members. The school administration contact head of departments for nominations of PBL facilitation requires full release of duties for the duration of the workshop.

This conducted study investigates the reasons behind the lack of participation of trained staff in PBL facilitation. Surprisingly the top two reasons causing the staff not to participate in facilitation were confliction with either their clinical or academic duties, which are scheduled by the departments who are also responsible for the nomination and release of their staff to participate as PBL facilitators. The participation of faculty members should be taken in consideration when planning department activities and supervised closely by the head of the department. The school administration should emphasize the participation of every trained PBL facilitator. Moreover, ensure that all members are able to apply their training and improve their skills and knowledge as facilitators. In addition, one of the reasons was information at last minute, which is also resolvable by some influence from both the school administration and



departments. On the other hand, one fifth of the staff said that because PBL requires extra reading and preparation, and they do not have time, they did not participate. This agrees with the findings of Kiguli-Malwadde *et al.* in their study<sup>[4]</sup>. This could be resolved either when nominated facilitators are fully or partially released during both sessions and in the week prior to the start of the sessions of the modules. In addition, incentives could be awarded to staff for their participation.

The least reason to cause the non-participation was found to be the level of the training they received. Trainees were confident with their level of training which also indicates the appropriateness of the training level and material conducted by the medical education department.

### Conclusion

The Faculty of Medicine in KAU is successfully embarking on curriculum change. However, challenged with staff development and participation, is the key to continue this success. The school is facing a difficulty recruiting its clinician to facilitate PBL sessions in the basic science years. The school administration is required to emphasize the release of faculty members for facilitation purposes as they did with the training itself. The school is using hourly load increment intensive, but most of the clinical departments are already over loaded, and either have shortage of staff or busy schedules. The importance of the different types of incentives on the levels of participation from each trained faculty member; which could be in the form of awards, either merit salaries or promotions<sup>[5]</sup>. It is also important to stress on the important fact that if improper regulations and policies were provided to these faculty members, their contribution level will decrease and resentment will start to build up. A careful and clear plan should be provided and shared among faculty members at KAU and their opinion should be taken into consideration.

### References

- [1] **Davis MH, Harden RM.** Planning and implementing an undergraduate medical curriculum: the lessons learned. *Med Teach* 2003; **25**(6): 596-608.
- [2] **Pedemonte M, Ortiz J.** An integrated, system-based modified-block curriculum: a solution for student and faculty burnout. Presented at Pacific University School of Physician Assistant Studies, Hillsboro, Oregon, USA.  
<<http://www.paeaonline.org/index.php?ht=a/GetDocumentAction/i/94881>>.

- [3] **Carrera LI, Tellez TE, D'Ottavio AE.** Implementing a problem-based learning curriculum in an Argentinean medical school: implications for developing countries. *Acad Med* 2003; **78**(8): 798-801.
- [4] **Kiguli-Malwadde E, Kijjambu S, Kiguli S, Galukande M, Mwanika A, Luboga S, Sewankambo N.** Problem Based Learning, curriculum development and change process at Faculty of Medicine, Makerere University, Uganda. *Afr Health Sci* 2006; **6**(2): 127-130.
- [5] **Newton BW, Wheeler RP.** University of Arkansas for Medical Sciences College of Medicine. *Acad Med* 2010; **85**(9 Suppl): S84-87.

## التعليم بحل المعضلات تجربة كلية الطب بجامعة الملك عبدالعزیز : أسباب عدم مشاركة أعضاء هيئة التدريس المدربين على تدريس الطلبة بهذه الطريقة

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المستخلص. تأسست كلية الطب، جامعة الملك عبدالعزیز بجدة في عام ١٩٧٥م، وقد تم الاعتماد على المناهج التقليدية لأكثر من ٣٠ عاماً. وقد شرعت في تغيير المناهج الدراسية منذ عدة سنوات للمنهج القائم على النظام المتكامل. ويشتمل على طرق تدريس مختلفة مثل المحاضرات، التعليم المبني على المعضلات (PBL)، الدورات العملية، التدريس السريري، التعلم الذاتي للطلاب (SDL)، التعرف المبكر على المهارات السريرية، ومهارات الاتصال مع التركيز على التفكير النقدي وحل المشكلات، التعليم المبني على الحالات والتدريب المبني على الأدلة. قد تم تطبيق المناهج الدراسية في العام الدراسي ٢٠٠٧/٢٠٠٨م. وقد استثمرت الجامعة هذا في تدريب الأساتذة ليصبحوا معلمين PBL وتعيين الخبراء للإشراف والحفاظ على المناهج الجديدة. تمت هذه الدراسة لمعرفة السبب في أن بعض الأساتذة المدربين لم يشتركوا في تدريس الـ PBL في العام الدراسي ٢٠٠٨/٢٠٠٩م وربط هذه الأسباب بالقسم والجنس. تم تصميم استبيان وأرسل إلى أعضاء هيئة التدريس غير المشاركين. وجدنا أن

الأطباء هم الغالبية العظمى من المعلمين غير المشاركين (٩١٪)، وأنه لم يكن هناك اختلاف فيما يتعلق بنوع الجنس (٥٦٪ من الذكور و٤٣٪ من الإناث). إن كلية الطب جامعة الملك عبدالعزيز قد شرعت بنجاح في تغيير المناهج. لكنها في تحد دائم لتطوير أعضاء هيئة التدريس وحثهم على المشاركة.