

BRIEF COMMUNICATION

Perception of Students about the Problem-based Learning Sessions Conducted for Medical and Dental Schools' Students of Universiti Sains Malaysia

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Introduction

In the School of Medical Sciences (SMS) and the School of Dental Sciences (SDS), Universiti Sains Malaysia (USM), both the MD and DDS programs respectively are 5 year integrated programs. The full 5 year program is divided into 3 phases and each curriculum is problem-based and community oriented.

Phase II consists of years two and three and introduces different health events of human life with reference to integrated knowledge on common diseases. Teaching and learning in this phase includes lectures, practical, fixed learning modules, clinical clerkship and problem-based learning sessions. A PBL session consists of 2–3 hours with a group of 14–16 students and tutors from all disciplines act as facilitators for the sessions.

Since its implementation at McMaster University in 1969, PBL has become worldwide with variations on implementation (Albanese & Mitchell, 1993). The experience of PBL can be stressful both for students and faculty and implementation of PBL may be unrealistically costly. There are few studies on

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attitude and opinion of participating faculty and students on PBL (Vernon, 1995).

This study attempts to assess the level of interest, enthusiasm and personal satisfaction of the SMS and SDS students in their experience of PBL.

Methodology

A cross sectional descriptive study design was used. All 652 SMS and SDS USM students who had participated in the PBL method between 1998 and 2003 were surveyed in 2003. The survey asked students about the benefits of PBL and the challenges of learning by this method.

The responses were anonymously tabulated. Opinion questions were on a 5-point Likert scale, 5 representing “strongly agree” and 1 for “strongly disagree”. For analysis, responses to opinion statements were clustered into three groups: “strongly agree and agree”, “undecided” and “disagree and strongly disagree”. A SPSS/PC statistical package was used to analyze the data and a chi-square test for goodness of fit was done to compare categorical variables.

Results

Out of 652 students (212 males and 440 females) a total of 476 (73%) responded to the questionnaires. The age range of the respondents was 21–26 years and the majority (293, 64%) of the students were of the opinion that PBL should be started at the beginning of year two and continued through to the end of year three (190, 54%).

A total of 376 (79.0%) respondents [100 males (80.6%) and 276 females (78.4%)] found PBL sessions to be “interesting” (see Table 1). Although 130 (27.0%) found PBL to be very stressful, another 195 (41.0%) of the respondents reported the contrary. No significant differences were observed between the proportions of males and females in regard to stress or attitudes towards PBL.

More than 65% of respondents were of the opinion that (see Table 2):

- Some students in the group work harder than others to prepare themselves for the PBL discussion,
- PBL sessions were beneficial in achieving their learning objectives and allowed in-depth understanding of the topic of study,
- PBL helped them in linking basic science knowledge to clinical appraisal skills and to develop group interaction skills,
- Students utilized whatever resources were available,
- Time allotted for each of the PBL sessions was sufficient.

Table 1. Students' feelings of PBL as interesting by gender

Gender	PBL sessions are interesting			Total	χ^2	p-value
	Strongly agree and agree	Undecided	Disagree and strongly disagree			
Male						
Count	100	9	15	124	7.894	0.019
Row %	80.6	7.3	12.1	100.0		
Female						
Count	276	53	23	352		
Row %	78.4	15.1	6.5	100.0		
Total						
Count	376	62	38	476		
Row %	79.0	13.0	8.0	100.0		

The students' feedback was also obtained through a more open-ended manner on specific areas. Only 22.1% (106) of the respondents provided comments to the open-ended questions. Comments presented below are without weight.

- Students were happiest and most comfortable when the PBL sessions were conducted in tutorial rooms rather than in other places such as the multidisciplinary laboratories.
- Facilitators should promote more interaction between the tutor and the students as well as between students.
- Students believed that clinical expert facilitators should give the correct answer when the students were in doubt.
- Some students dominated while others were passive in the discussion sessions and at times the sessions were very dull.
- Not all of the topics were covered by PBL sessions.

Discussion

The general perception is that Asian students, particularly female ones, are unwilling to actively participate in PBL sessions when taught with this method (Khoo, 2003; Lackey, 1995). Gender differences in the degree of participation was not explored in this study. However, this study documented that the majority of students found PBL to be "interesting" and males and females did not differ significantly in their attitudes. As in other studies (Das *et al.*, 2002; Davis *et al.*, 1992) students in this study felt that the PBL discussion should not be limited to the students, but that it should include teachers as well.

Woodward and Ferrier (1983) reported that PBL track graduates found their basic science preparation to be inadequate. To the contrary, students in this

Table 2. Frequency distribution of students' responses on PBL sessions

Statement	Strongly agree and agree <i>n</i> (%)	Undecided <i>n</i> (%)	Disagree and strongly disagree <i>n</i> (%)	χ^2	<i>p</i> -value
PBL sessions are interesting	376 (79.0)	62 (13.0)	38 (8.0)	448.35	<0.001
Attending PBL sessions is stressful	130 (27.3)	151 (31.7)	195 (41.0)	13.87	<0.001
All students in PBL group participate in discussion	208 (43.7)	89 (18.7)	179 (37.6)	48.53	<0.001
Some triggers are difficult	297 (62.4)	105 (22.1)	74 (15.5)	183.94	<0.001
Some students work harder to prepare than others to participate in PBL discussion	412 (86.6)	50 (10.5)	14 (2.9)	610.81	<0.001
PBL sessions beneficial in achieving learning objectives	381 (80.0)	69 (14.5)	26 (5.5)	473.15	<0.001
PBL allows in-depth understanding of the topics	340 (71.4)	99 (20.8)	37 (7.8)	322.97	<0.001
PBL helps to link basic sciences knowledge to clinical appraisal skills (responses of 4th & 5th year students only)	277 (79.6)	47 (13.5)	24 (6.9)	337.47	<0.001
PBL provides group interaction skills	388 (81.5)	62 (13.0)	26 (5.5)	501.29	<0.001
Enough learning resources are available for PBL sessions	183 (34.4)	141 (29.6)	152 (31.9)	5.98	0.05
Students utilize learning resources available for PBL	329 (69.1)	110 (23.1)	37 (7.8)	291.08	<0.001
Time allotted for each of the PBL sessions is enough	325 (68.3)	99 (20.8)	52 (10.9)	265.52	<0.001
Tutors effectively facilitated the PBL sessions	183 (38.4)	182 (38.2)	111 (23.3)	21.48	<0.001

study stated that PBL helped them in link basic science knowledge to clinical appraisal skills. This may be due to the fact that in PBL at USM, specific emphasis is given to the basic science elements of the clinical scenarios used in the trigger sessions.

Respondents in this study also noted that PBL helped to improve their clinical appraisal skills and group interaction skills and acquire in-depth understanding of the topic of study. These findings are similar to those of other previously published studies (Seneviratne *et al.*, 2001; Khoo *et al.*, 2001; Azila *et al.*, 2001).

In conclusion, PBL appears to be well accepted by both male and female students of SMS and SDS as a pedagogical method. Based on these findings, SMS and SDS students should continue to be briefed on the philosophy, principles and objectives of the PBL as well as student and tutor roles in the session. However, in view of the existing perception that females do not actively participate in PBL sessions (Khoo, 2003), we recommend that this issue be objectively studied in the future.

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