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Effect of Interactive Sessions (IS) and Problem Based Learning (PBL) With Regards To Student Learning Among MBBS Students of BUMDC, Karachi

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ABSTRACT:
Objective: To compare the effectiveness of small group sessions in terms of pedagogy and students learning from an undergraduate MBBS student's perspective in Bahria University Medical and Dental College (BUMDC).
Methodology: It was a cross-sectional study carried out in BUMDC from June 2015 to August 2015 by interviewer-administered type questionnaire. 60 students from each year of MBBS (first to final year) were interviewed. Total study population was 300. Those medical students who had attended both PBL and IS during any stage of their medical education were included. Each student was assessed by questionnaire for 5-10 minutes. The student responses were acquired on a scale of strongly disagree, disagree, agree and strongly agree. Frequency of responses was calculated and reported in percentages.
Results: The participants responded to 15 questions given in the questionnaire in relation to interactive session (IS) and problem based learning (PBL). The results of both were comparable. For PBL, 82.6% participants agreed that they were able to learn the content of the subject, whereas 85% of study participants agreed same for IS. 76% said that PBL had helped them to be an active learner, which was 77.3% for IS. For some questions, PBL had better response, whereas for others, IS were considered better by the students.
Conclusion: Although short group interactive sessions, and problem based learning, both are effective methods of teaching from students' perspective, PBL had better appraisal in terms of group dynamics, confidence building in students, communication skills, presentation skills and to develop higher order thinking. Rest of the questions in the questionnaire had better results for interactive session, confirming that both teaching strategies are effective as teaching tools, with PBL having an edge over interactive sessions.
Keywords: Interactive session, Problem based learning, Students' perspective, Pedagogy

INTRODUCTION:

There is a saying that "knowledge learnt in isolation is rapidly forgotten". To overcome these drawbacks, students are taught by using interactive learning skills i.e., PBL, Interactive Sessions, Case Base Teaching and Integrated Lectures[1,2,3].

Problem Based learning is a mode of instruction that focuses on student- centered approach which develops an understanding to integrate theoretical and practical knowledge, to conduct research, and apply knowledge and skills to develop a valid explanation to a defined problem[4,5]. This was introduced in McMaster University, Canada in the late 1960s, by Howard Barrows and his colleagues[6,7,8]. But, it is a relatively fresh mode of instruction in Pakistan having started in some medical colleges in the early 2000s. It has been much debated upon the pros and cons of PBL, with PBL being viewed favourably since evidence shows it is supportive in the improvement of the social, psychological and cognitive domains of student[9]. It also promotes student and faculty satisfaction, self-directed learning skills, communication skills and team work[10]. But, its implementation requires homogeneity in the educational background of participants[11]. Not only students but proper training of faculty members for facilitation of such sessions is required, as it introduces a change of viewpoint[12]. In approach to clinical problems a different set of skills is developed due to PBL[13].

The PBL conducted in BUMDC are of 6 hours, carried out in 3 sessions, conducted as 2 hours/session, the clinical scenarios constructed with an integrated approach to all the subjects of the respective year. The first and the third sessions are facilitated by faculty, whereas in the second session there is no facilitator and students come together to share ideas and information gathered. It comprises of 7 jumps which are carried out in the 3 sessions[14].

The students start it with no prior notice as to which

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topics or clinical scenario the PBL will cover, with each individual having prior knowledge which the group is not privy to. The facilitators provide insight to the objectives but, otherwise have a passive role in the sessions.

In its contrast, interactive sessions although different in its execution, provide a productive academic environment which encourages collaborative learning of theory and practice in students by active participation and teamwork. This improves self-directed learning, critical thinking skills and communicational abilities in undergraduate medical student[15]. Interactive Session stimulates discussion among students for building self- motivation, self-esteem and intellectual grasp resulting in a better retention of knowledge[16]. The interactive sessions are conducted once in a week, covering 2 hours in each session. They are held independently for each subject of the respective year. The students are informed beforehand of the topics to be covered in the session so that they come prepared, which leads to better understanding of the topic. The session is facilitated and students are encouraged to share their knowledge about the related topic. The facilitator guides the group through all the objectives of the session, ending it with a summary of discussed objectives.

PBL sessions are carried out in the first, second and third year of MBBS in BUMDC whereas the interactive sessions are conducted in first, second, third and fourth year of MBBS. The PBL and Interactive session are both conducted by the departments of anatomy, physiology, biochemistry, pathology, pharmacology and forensic medicine

METHODOLOGY:

It was a cross-sectional study carried out in Bahria University Medical and Dental College from June 2015 to August 2015 by interviewer-administered type questionnaire. 60 students from each year of MBBS (first year to final year) were interviewed and the total study population was 300.

The medical students who had attended both PBL and IS during any stage of their medical education were included in the study. Each student was assessed by interviewer-administered type questionnaire for 5-10 minutes. The student responses were acquired on a scale of strongly disagree, disagree, agree and strongly agree. The pattern of questionnaire is given below (Table-1):

Table-1: Questionnaire prepared for study

1 Strongly disagree	2 Disagree	3 Agree	4 Strongly Agree	
				PBL IS
Q. No				
1	Do the sessions generally help you learn the content of the subject?			
2	Do the sessions generally help you become an active learner?			
3	Do the sessions generally motivate you to self-directed learning?			
4	Do the sessions generally help you learn the skill of group dynamics?			
5	Do the sessions generally develop confidence in you?			
6	Do the sessions generally help you improve your communication skills?			
7	Do the sessions generally develop clinical skills in you?			
8	Do the sessions generally improve your presentation skills?			
9	Do you go through different books while preparing yourself for the sessions?			
10	Do you generally come prepared for the sessions?			
11	Do the sessions generally induce brainstorming in you?			
12	Do the sessions generally develop adult reasoning skills in you?			
13	Do the sessions generally induce perception of content relevancy?			
14	Does the session generally help you in practising higher order thinking?			
15	Do the sessions generally let the knowledge retain for long after being conducted?			

At the end of sample collection the data was analyzed. Percentages of frequency distribution were calculated on SPSS version 20 and results were obtained.

RESULTS:

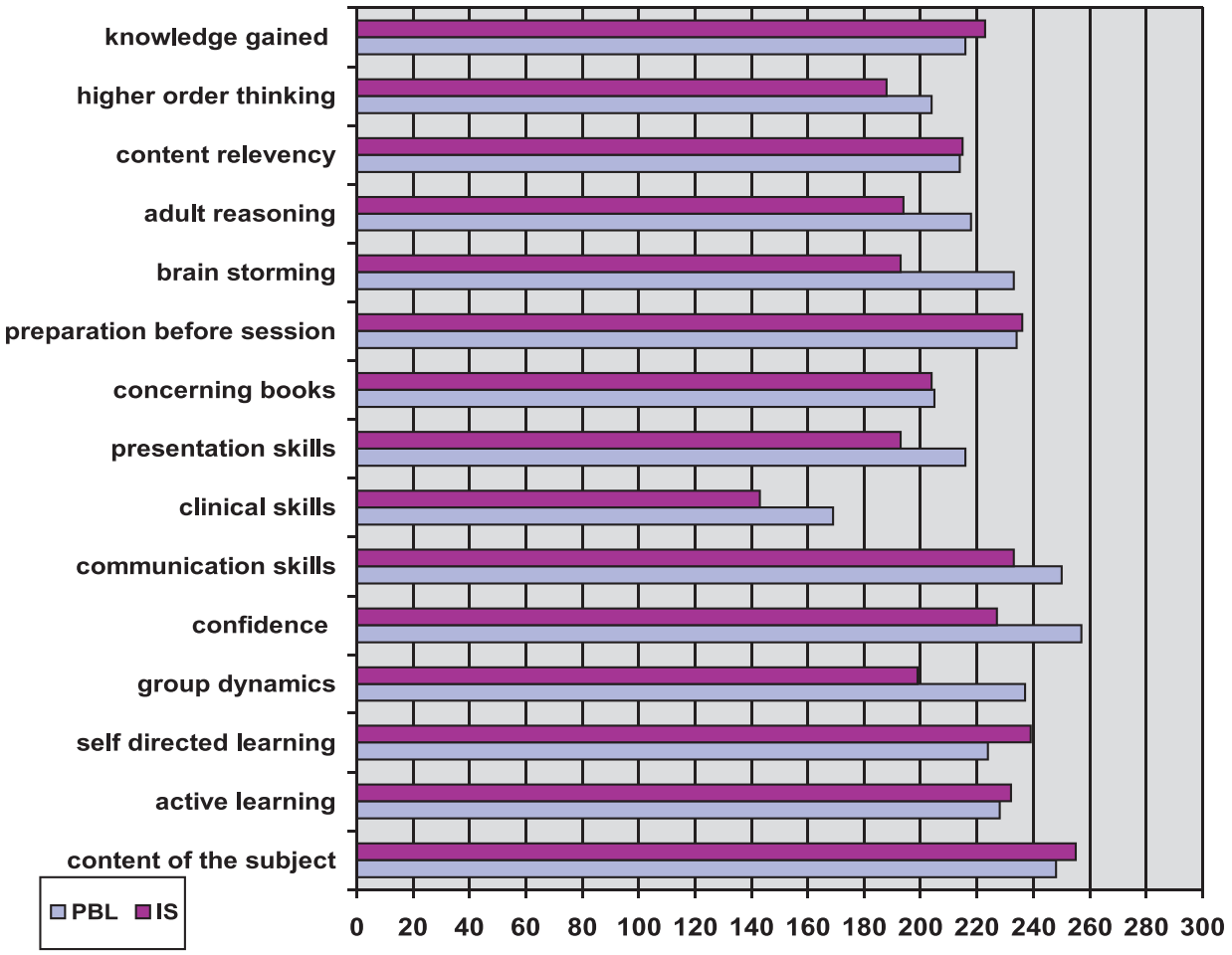
300 students participated in the study. Participants responded to 15 questions given in the questionnaire in relation to interactive session and PBL.

The responses of the students were mixed, and they supported both teaching strategies variably. In some questions, PBL was a preference while in others, interactive sessions received greater value. In questions regarding learning the content of the subject, to be an active learner, motivation regarded self-directed learning, group dynamics, developing confidence, improvement in communication, presentation and clinical skills, increased motivation for brain storming and adult learning and higher order thinking had better response in problem based learning. Some questions had equal response for both teaching modalities like, preparedness for sessions, content relevancy and retention of knowledge for long periods after session was being conducted (Table-2). The comparison of these questions is shown in Figure-1.

Table-2: percentages of response to study questionnaire regarding PBL and IS

	VARIABLES	SESSION	STRONGLY DISAGRE n (%)	DISAGRE E n (%)	AGREE n (%)	STRONGLY AGREE n (%)
1.	Do the sessions generally Help you learn the content of the subject?	PBL	14 (4.7%)	38 (12.7%)	182 (60.7%)	66 (22.0%)
		IS	12 (4.0%)	33 (11.0%)	137 (45.7%)	118 (39.3%)
2.	Do the sessions generally help you become an active learner?	PBL	14 (4.7%)	58 (19.3%)	162 (54.0%)	66 (22.0%)
		IS	19 (6.3%)	49 (16.3%)	129 (43.0%)	103 (34.3%)
3.	Do the sessions generally motivate you to self-directed learning?	PBL	15 (5%)	61 (20.3%)	146 (48.7%)	78 (26.0%)
		IS	21 (7.0%)	40 (13.3%)	138 (46.0%)	101 (33.7%)
4.	Do the sessions generally help you learn the skill of group dynamics?	PBL	19 (6.3%)	44 (14.7%)	151 (50.3%)	86 (28.7%)
		IS	33 (11.0%)	68 (22.7%)	115 (38.3%)	84 (28.0%)
5.	Do the sessions generally develop confidence in you?	PBL	16 (5.3%)	27 (9.0%)	141 (47.0%)	116 (38.7%)
		IS	25 (8.3%)	48 (16.0%)	127 (42.3%)	100 (33.3%)
6.	Do the sessions generally help you improve your communication skills?	PBL	15 (5.0%)	35 (11.7%)	139 (46.3%)	111 (37.0%)
		IS	25 (8.3%)	52 (17.3%)	128 (42.7%)	95 (31.7%)
7.	Do the sessions generally develop clinical skill in you?	PBL	54 (18.0%)	77 (25.7%)	111 (37.0%)	58 (19.3%)
		IS	61 (20.3%)	96 (32.0%)	83 (27.7%)	60 (20.0%)
8.	Do the sessions generally improve your presentation skills?	PBL	32 (10.7%)	52 (17.3%)	142 (47.3%)	74 (24.7%)
		IS	32 (10.7%)	75 (25.0%)	121 (40.3%)	72 (24.0%)
9.	Do you go through different books while preparing yourself for the sessions?	PBL	35 (11.7%)	60 (20.0%)	127 (42.3%)	78 (26.0%)
		IS	33 (11.0%)	63 (21.0%)	120 (40.0%)	84 (28.0%)
10.	Do you generally come prepared for the sessions?	PBL	19 (6.3%)	47 (15.7%)	165 (55.0%)	69 (23.0%)
		IS	22 (7.3%)	42 (14.0%)	145 (48.3%)	91 (30.3%)
11.	Do the sessions generally induce brainstorming in you?	PBL	16 (5.3%)	51 (17.0%)	165 (55.0%)	68 (22.7%)
		IS	32 (10.7%)	75 (25.0%)	122 (40.7%)	71 (23.7%)
12.	Do the sessions generally develop adult reasoning skills in you?	PBL	19 (6.3%)	63 (21.0%)	155 (51.7%)	63 (21.0%)
		IS	32 (10.7%)	74 (24.7%)	125 (41.7%)	69 (23.0%)
13.	Do the sessions generally induce perception of content relevancy in you?	PBL	20 (6.7%)	66 (22.0%)	175 (58.3%)	39 (13.0%)
		IS	27 (9.0%)	58 (19.3%)	144 (48.0%)	71 (23.7%)
14.	Do the session generally help you in practicing higher order thinking?	PBL	16 (5.3%)	78 (26.0%)	149 (49.7%)	57 (19.0%)
		IS	34 (11.3%)	78 (26.0%)	115 (38.3%)	73 (24.3%)
15.	Do the sessions generally let the knowledge retain for long after being conducted?	PBL	28 (9.3%)	56 (18.7%)	150 (50.0%)	66 (22.0%)
		IS	30 (10.0%)	47 (15.7%)	121 (40.3%)	102 (34.0%)

Figure-1: **Comparison of students' response between PBL & IS**



DISCUSSION:

The present study was a trial to compare the effectiveness of interactive sessions and problem based learning sessions concerning student learning, in the students of Bahria University Medical and Dental College. The results indicated positivity towards PBL sessions. The hypothesis was made that students learn more in the PBL session than in an Interactive session.

PBL provides a more intriguing, motivating and pleasant approach towards learning and education[17]. PBL sessions are based on Integrated Learning with learner- centered approach that follows the goal decided by the participant group of students. In contrast, interactive sessions provide pre-determined objective to a group of students in a particular subject, while following an instructors approach. The results were in concurrence with another study which showed medical undergraduate students responded better to an integrated method of learning, concluding an absolute requirement for integrated learning[18]. The role of the tutor is to assist the process of self-learning by helping the group leader to keep group dynamics and facilitating the group, and to ascertain that the group achieves proper learning objectives as designed by those who have made it[15]. In our study it was found that content of the topic was relatively better understood in an interactive session due to predetermined objectives. The students came prepared and were able to comprehend content of the topic faster, in comparison the PBL sessions where they had the required information but were unable to access the knowledge within the information. This was supported in another study where the students assessed after PBL session felt that they did not completely comprehend the content of the topic[19,20].

The response of students was more in favour of PBL with regards to adult reasoning and communication skills. Another research revealed PBL as being beneficial towards physician competency, especially in social and cognitive dimensions[5,14,21,22] which contradicted with our results which showed a negative response in developing clinical skills in both PBL as well as interactive session. Our study showed that only half of the students agreed to have improvement in clinical skills by PBL, which is similar to a study which determined that no convincing evidence was found that PBL improved clinical knowledge or execution of clinical

skills, at least not of the expected magnitude in relation to the effort and resources required for a PBL curriculum[23].

This study showed an equivocal response regarding retention of knowledge for long duration after conduction of a session in case of PBL as well as interactive sessions. However, in literature, it is seen that PBL is thought to improve acquisition and retention of knowledge[24], whereas another study revealed inferior scores by students in basic sciences, with poor performance in examination or assessment in PBL students as compared to others[25].

CONCLUSION:

This study has showed that although PBL and interactive sessions, both are excellent pedagogy, however, PBL has better students' response. Students feel more confident, and develop better communication and presentation skills when they are taught through PBL. It also induces better adult learning, brain storming skills and develops higher order of thinking among students.

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