



ANALYSIS OF TEACHING AND LEARNING METHODOLOGY FOR UNDERGRADUATE MEDICAL STUDENTS

Pharmacology

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ABSTRACT

INTRODUCTION: This study is done to analyse the traditional teacher-centred/ subject-based teaching and learning approach & student-centred teaching and learning approach. And also to study and analyse the lecture teaching and learning method and problem based teaching and learning method besides large group teaching and learning method and small group teaching and learning method.

MATERIALAND METHODS: This was a descriptive cross-sectional study. 100 students out of 150 M.B.B.S. students of second professional in Department of Pharmacology, T.S.M. Medical College, were randomly selected for this study. Data collection tools included a 6-items questionnaire. The questions were 5 pointed ranging from extremely appropriate/possible to not appropriate/possible.

RESULTS: The results showed that the students preferred the teacher-centred teaching and learning approach (67%), lecture teaching and learning method (75%). Our results further revealed that small group teaching and learning method was extremely possible for discussion (85%), clarification of doubts (86%) and interaction with teacher (94%).

CONCLUSION: The students of T.S.M. Medical College, Lucknow more preferred teacher-centred approach, lecture method and small group method. The teacher must have an exceptional personality who inspires students and allows the students to think, discuss, ask questions for clarification of doubts and interact with him.

KEYWORDS

Teacher-centred approach, Student-centred approach, Lecture method, large group method, Small group method, Problem-based method.

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INTRODUCTION:

In this era of evolution of medicine we are facing new challenges in medical education. There are various ways to teach pharmacology to medical students. In which teacher centred and student centred approaches are used. Students put all of their focus on the teacher in teacher-centred education, teacher delivers a talk while students listen to the teacher and make notes. Teacher has full control of the classroom and its activities. In this model teacher is the most authority figure. Since teacher has full control it is less likely to miss any important topic. Teacher passes his knowledge to students in this model of teaching.

Teaching and learning both are important [1]. Creating an environment in which students can learn effectively and efficiently becomes the new prerequisite, demanding not only that teachers are experts in their fields but also-and more importantly-that they understand how students learn. [2] Teaching learning process should proceed from the known to the unknown and simple to complex.

Classroom assessment focuses the primary attention of teachers and students on observing and improving learning, rather than on observing and improving teaching. *Samarakoon et al.* [3] Teaching is considered as 'ever-evolving' processes especially in medical school. He further states that it needs to modernise continuously. According to *Angelo et al.* [4] in their handbook for college teachers, explained teaching without learning is just talking.

Learning style is defined as 'the manner in which and the conditions under which learners most efficiently and effectively perceive, process, store, and recall what they are attempting to learn' as per *James et al.* [5]. According to *Kharb et al.* [6] 'learning style' means as 'an individual's preferred method of gathering, processing, interpreting, organizing and analysing information'[6]. *Omorogiuwa et al.* [7] told that teaching and learning were the two sides of a coin. The best way to the quality of teaching is the 'amount of student learns'. As per studies [8, 9] many terms have been linked with student-centred learning, such as flexible learning, experiential learning, and self-directed learning and therefore the slightly overused term 'student-centred learning' can mean different things to different people. In student-centred approach knowledge sharing is most important. In this a student seek to solve a problem initially with help of knowledge of other students and teacher and gradually learn to solve them by his own learning capability.

The cooperative learning method is used in the student-centred classroom, in which students produce the questions. Teacher facilitates students. This approach also leads to finding basic fundamental information and possible solutions of the questions including in the debate based on the inquiry. [10]

Wojtczak [11] defined lecture as an instruction or verbal discourse by a speaker before a large group of students. Main advantages of lecture were coverage of topics, simplification of difficult concept stated by *Wrown et al.* [12]. Several studies [13, 14, 15, 16] found that lecture was easy organization and effective and economical way of conveying information to large numbers of recipients.

Boud et al. [17] described problem based learning as one of the most significant developments in professional education. Problem based learning is generally understood to mean an instructional strategy in which students identify issues raised by specific problems to help develop understanding about underlying concepts and principles. The focus is usually a written problem comprising "phenomena that need explanation". [18]

This study is done in T.S.M. Medical College, Lucknow, U.P. Study is done to know and establish whether this college students prefer teacher-centred teaching and learning approach or student-centred teaching and learning approach, lecture teaching and learning method or problem-based teaching and learning method, and large group or small group teaching and learning method.

MATERIALAND METHODS:

The present study was conducted in the Department of Pharmacology, T.S.M. Medical College, Lucknow, U.P. The present study was carried out during November, 2018. Data collection tools included a 6-items questionnaire. The questions were 5 pointed ranging from extremely appropriate/possible to not appropriate/possible. [19]

SUBJECTS:

A total of 100 first year MBBS students were randomly selected out of total strength of 150 and invited to participate in this study. An informed consent was obtained from each participant after giving them full information about the study.

Great care has been taken to preserve the anonymity of survey participants. The participation is voluntary and no money or other incentives would be given to participants. The information they provide will not be divulged to others without their permission, and that their identities will not be disclosed to third parties.

RESULTS:

We have comparatively studied the teacher-centred/ subject-centred teaching and learning approach (Table-1) and student-centred teaching and learning approach (Table-2). Lecture teaching and learning method (Table-3) has been taken up for comparative study on behalf of teacher-centred teaching and learning approach. Problem based teaching and learning method (Table-4) was taken up on behalf of student-centred teaching and learning approach. Both the methods were compared with each other. Large group (Table-5) and small group (Table-6) teaching and learning methods were taken up to know discussion in the classroom, clarification of doubts and interaction with the teacher were how far possible.

Table 1: Teacher-Centered Teaching and Learning Approach

	NUMBER OF RESPONDENTS	PERCENTAGE
Extremely appropriate	67	62
More appropriate	22	22
Moderately appropriate	10	10

Table 4: Problem - Based Teaching and Learning Method

	NUMBER OF RESPONDENTS	PERCENTAGE
Extremely appropriate	41	41
More appropriate	30	30
Moderately appropriate	14	14
Less appropriate	05	05
Not appropriate	00	00

Table 5: Large Group Teaching and Learning Method

	DISCUSSION		CLARIFICATION OF DOUBTS		INTERACTION WITH TEACHER	
	Number Of Respondents	Percentage	Number Of Respondents	Percentage	Number Of Respondents	Percentage
Extremely possible	03	03	07	07	06	06
More possible	06	06	06	06	04	04
Moderately possible	16	16	26	26	18	18
Less possible	37	37	36	36	40	40
Not possible	38	38	25	25	32	32

Table 6: Small Group Teaching and Learning Method

	Discussion		Clarification Of Doubts		Interaction With Teacher	
	Number Of Respondents	Percentage	Number Of Respondents	Percentage	Number Of Respondents	Percentage
Extremely possible	85	85	86	86	94	94
More possible	08	08	07	07	05	05
Moderately possible	07	07	08	08	01	01
Less possible	00	00	00	00	00	00
Not possible	00	00	00	00	00	00

Teacher-centred teaching and learning approach got the support of 99% students combined in extremely, more and moderately appropriate whereas student-centred teaching and learning approach got the support of 69% students in the above three items.

Lecture teaching and learning method got the preference of 100% students combined in extremely, more and moderately appropriate. Problem-based teaching and learning method got the preference of 85% combined in the three items.

Problem- based teaching and learning method secured 85% combined together extremely, more and moderately appropriate.

Large group teaching and learning method secured the preference of 25%, 39% and 28% for discussion, clarification of doubts and interaction with the teacher respectively combined extremely, more and moderately appropriate.

Small group teaching and learning method got the preference of students 100% in all the discussion, clarification of doubts and interaction with the students combined extremely, more and moderately appropriate.

DISCUSSION:

Quality improvement of medical education is very important these days worldwide. As medical education improves our society and country will also improve. Better healthcare professional with knowledge, proficiency and efficiency can only be prepared if we provide a better medical education to our students. So, suitable approaches, methods, techniques and skills in medical teaching and learning are important to produce a good number of committed doctors who should have human and social outlook.

Less appropriate	01	01
Not appropriate	00	00

Table 2: Student-Centered Teaching and Learning Approach

	NUMBER OF RESPONDENTS	PERCENTAGE
Extremely appropriate	42	42
More appropriate	16	16
Moderately appropriate	11	11
Less appropriate	19	19
Not appropriate	12	12

Table 3: Lecture Teaching and Learning Method

	NUMBER OF RESPONDENTS	PERCENTAGE
Extremely appropriate	75	75
More appropriate	22	22
Moderately appropriate	03	03
Less appropriate	00	00
Not appropriate	00	00

On the basis of result analysis we found very interesting findings. Hundred students participated in this study. Teacher-centred teaching and learning approach got 62% preference for extremely appropriate, 20%-more appropriate, 15%- moderately appropriate, extremely and more appropriate combined got 82%. According to student-centred teaching and learning approach research results 46% students preferred extremely appropriate, 14%- more appropriate, 10%-moderately appropriate.

This is also notable that no approach was out rightly rejected by the students. They supported the both approaches. But most of students preferred teacher-centred teaching and learning approach more. The use of modern technology in education is a powerful tool to supplement traditional teaching methods.

A teacher should inculcate social service mind and human attitude among the medical students. A teacher must be an embodiment of knowledge and a model to the students. Teacher's explanations enable students to understand the content and forging connections between what is known and what is new. Good teaching methods are open to change for effective teaching in the light of evidence collected.

Adult learning theories describe ways in which adults assimilate knowledge, skills and attitudes. Medical students as adult learners need to know why they should learn something. They must be motivated by the teacher. Ideally theory and practice should go together. It is very appropriate to say that the teacher is the foundation and the pillar of the building whereas the teaching and learning methodology is the structure of the building. Teaching was a skill that you were expected to possess or acquire. Effective teaching techniques are now a requirement for doctors, as highlighted by the General Medical Council. [20] A passionate teacher will be an asset to any

medical department.

Guilbert, [21] in his Educational Handbook, observed that teacher would be successful when he accepts criticism of students. When students performed better and even more than expected, it was thought academic faculty was more effective and quality teaching was ensured according to Goe et al. [22]

Implementation of a student-centred method has the barriers such as confusion in the cases of implementation and lack of comfort with it. Since training design of student-centred classroom is more unpredictable than teacher-centred classrooms. Teachers need support in the design of classes. In addition, many students have little experience about the skills and knowledge needed to successful learning in the student-centred classroom. [10] Thus Blanchard et al. viewed that student-centred teaching and learning method was unpredictable than teacher-centred approach which confirmed our research findings.

Out of the two methods-lecture teaching and learning method, and problem based teaching and learning method, most of the students preferred the first method significantly. Lecture teaching and learning method got 100% preference of the respondents combined extremely, more and moderately appropriate. Extremely and more appropriate together got the support of 97%.

Problem-based teaching and learning method secured 85% combined together extremely, more and moderately appropriate. According to different literature survey findings among the educational methods applied in undergraduate medical education, lecture was still a preferred and established part of learning experience. [23, 13, 12, 24, 25] Lecture is considered as one the oldest method of teaching and learning in all types of education including medical science. Further Medical Council of India has considered lecture as one of prime method of teaching as per Sarkar et al. [26]

Number of studies by several research scholars have confirmed our findings in the case of problem-based teaching and learning method. Several disadvantages have been identified in problem-based teaching and learning method including the costs for starting up and maintenance, [27] excessive demands on staff time, [28] increased stress on both students and staff, [27] relative in-efficiency, [29] reduced acquisition of knowledge of basic sciences, [30] and implementation difficulties when class sizes are large or where there is a broad lack of enthusiasm for the approach. [29]

Our findings showed that students very clearly opted to the small group teaching and learning method as the best method with regard to discussion in the class, asking questions for clarification of doubts and interaction with teacher. Our research results further showed that the students did not encourage large group learning and teaching method wherein according to them discussion, clarification of doubts and interaction with the teacher were not so possible.

Several research studies confirmed our findings that small group teaching is an important component of undergraduate medical education; many medical schools around the world have adopted this strategy of teaching to make the classes more interactive and to give opportunities for students to take part in discussion, [30, 31] Saleh et al. suggested the priority for improving the quality of teaching methods including strategies for teaching were introduction of small groups in all years of the study. [25] They also confirmed that there was a considerable problem of having a large number of students in the lecture hall. [25] The problem of large number of students reported in Iran study. [33] Students in our research study preferred more teacher-centred teaching and learning approach, lecture teaching and learning method and small group teaching and learning method.

Faculty needs to be trained through faculty training programs based on Continuing Education (CE) and Permanent Education (PE) demonstrating theoretical references and methodologies paying greater attention to the current process of Academic Permanent Education (APE). This is for betterment of teachers in order to improve teaching. [34]

CONCLUSION:

Most of the students in our college are giving maximum importance to teacher-centred teaching and learning approach, lecture teaching and

learning method and small group teaching and learning method. The other approach and teaching learning methods which are under study except large group teaching and learning method got support up to some extent which can also be used as and when necessary. Teacher should be given suitable training in the teaching and learning skills and techniques.

CONFLICT OF INTEREST:

NONE

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