



**ORIGINAL RESEARCH PAPER**

**Pharmacology**

**TEACHING LEARNING STRATEGIES IN PHARMACOLOGY - A QUESTIONNAIRE BASED ANALYTICAL STUDY.**

**KEY WORDS:** Questionnaire, Teaching, and Pharmacology.

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**ABSTRACT**

**Background:** Proper Teaching learning strategies is active learning process that analyze from different perspectives. Pharmacology is progressing continuously. Various teaching-learning methods have their own advantages and disadvantages. So analysis & reforming is the need of hour.

**Objectives:** To determine the medical students' perspective towards teaching learning methods in pharmacology.

**Material - Methods:** This is a prevalidated questionnaire based study, involving 2<sup>nd</sup> MBBS students (n=100). Results: The data collected from completed questionnaire is statistically analyzed by students "t" test. The preference of students is evaluated in the form of %. 60% student's opted combination of aids 31.6% opted power point presentation. 78% students accepted lectures as best methodology.

**Conclusion:** Our study, concluded that student's feedback is the most effective tool of evaluation & combination of different audio – visual aids, can improve the teaching strategy effectively.

**INTRODUCTION:**

Development and advances in the 18<sup>th</sup>, 19<sup>th</sup> & early 20<sup>th</sup> centuries laid-down the foundation for understanding the mechanism of action of drugs & their effects at the organs & tissues, molecules & genetic level. [1] Pharmacology being backbone of rational therapeutics, both basic & applied science, the success of its teaching programme lies in planning a curriculum allowing the students to gain maximum knowledge in the stipulated time span. To take rational therapeutic decisions in clinical practice is the primary objective of teaching pharmacology [2] Teaching requires acquisition of thorough knowledge of the subject with proper delivery of the content to facilitate students to achieve their highest level of independent thinking & skills. [3] Method of teaching is a systematic procedure which enables a contact between the students & subject matter for attaining the educational goals.[4] In India Pharmacology is introduced in 3<sup>rd</sup> semester to the medical students & is horizontally integrated with other para-clinical subjects. The training in pharmacology takes place by way of didactic lectures, A-V aids, problem based learning & practical curriculum including animal experiments, prescription writing & therapeutic problems.[5] In medical education lectures being the most common mode of large group teaching, occupy 1/3<sup>rd</sup> of teaching hours in MBBS course as per MCI guidelines.[6] This trends in medical education is changing day by day. Considering this the process of teaching and learning can be made effective by timely renewing the teaching methods & accordingly modifying methodologies. Student's feedback being the most common used tool to assess teaching learning strategies help to know about the pros & cons of teaching learning methods. Also bridges the communication gap between teachers & students. Giving due consideration to all these facts it was decided to do this questionnaire based analytical study.

**AIMS & OBJECTIVES:**

1. To know the students perspective towards teaching- learning strategies in pharmacology
2. To get feedback for improvement.

**MATERIAL & METHODS:**

The present analytical study was done at Dr. VPMCH&RC, Nasik after approval from institutional ethics committee & Medical Education Unit. The study population was 2<sup>nd</sup> MBBS students (n=100). Willingness was taken from the students prior to start of the study & to express freely students were asked to hide their identities. The prevalidated questionnaire consisting of 12 questions given to students to assess their feedback on teaching – learning methodology in pharmacology. The questionnaire was adapted from previous studies which was again prevalidated with few modification by subject experts considering the available facilities, environment & syllabus of universities. Sufficient time

was provided to students to complete questionnaire & they were also encouraged to give suggestions with their perspective under the section of comments.

The questionnaire is as follows

**1. Teacher capabilities affects learning**

- a. Knowledge & Proper explanation of concepts
- b. Organization of lecture material & Appropriate response to doubts
- c. Planning of teacher & Clarification of thoughts & ideas
- d. Command on language with effective communication in class.

**2. Best teaching & learning aids in pharmacology**

- a. Audio-Visual aids/ Power-point presentation
- b. Combination of aids
- c. Chalk-Board
- d. OHP & transparency

**3. Motivation should be given by teacher**

- a. Helps to perform better by setting of goals & also teaches morals
- b. It is not a part of curriculum & this is waste of time

**4. Group discussion/interaction encouraged Students**

- a. To participate in class discussion, to share their ideas & knowledge, to ask questions

**5. Interest in the subject increases with course completion & increases in knowledge & understanding of subject.**

**6. Taking notes during lectures**

- a. benefits.
- b. Not Benefits

**7. Taking handouts after the lecture more beneficial as it does not distract during lectures.**

- a. Yes
- b. No

**8. Which is teaching method is more useful?**

- a. Didactic Lectures
- b. Seminar
- c. Tutorials
- d. Group discussion

**9. Practical teaching**

- a. demo only
- b. demo with work
- c. pharmacy practical

**10. Need of pharmaco-vigilance at UG level**

- a. Agree
- b. Disagree

**11. Whether the present teaching methods will enable students to prepare the subject for Post Graduate entrance exam?**

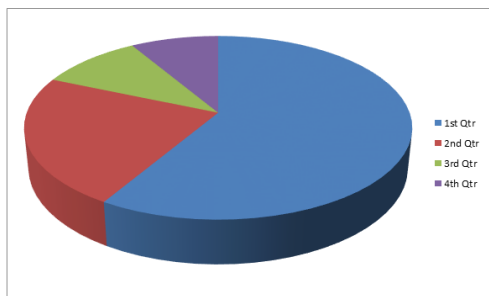
- a. Yes
- b. No
- c. Dilema

**12. Classroom environment affects learning**

- a. Relaxed & non threatening atmosphere
- b. Classroom facilities
- c. Class size

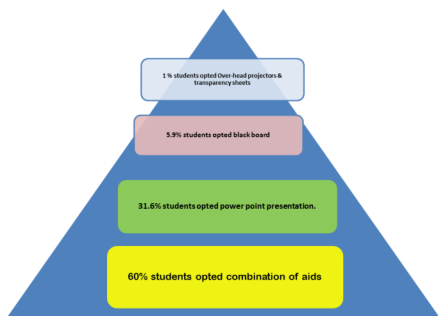
**RESULT:**

All the students participated in the study completed the questionnaire for data analysis. The data collected was statistically analyzed by independent students "t" test using spss version 17. [7] The level of statistical significance was considered at p value less than 0.01. The preference of students for the teaching aids was evaluated in the form of %.



**1. Teacher capabilities affects learning**

- 1<sup>st</sup> Qtr- Knowledge & Proper explanation of concepts - 99% students find this to be most important characteristics
- 2<sup>nd</sup> Qtr - Organization of lecture material & Appropriate response to doubts - 83 % students gave importance
- 3<sup>rd</sup> Qtr - Planning of teacher & Clarification of thoughts & ideas - 76% students find this is important students preferred this as very important capability.
- 4<sup>th</sup> Qtr - Command on language with effective communication in class.- 56% students said it is important



**2. Best teaching & learning aids in pharmacology**

**3. Motivation should be given by teacher**

- a. Helps to perform better by setting of goals & also teaches morals
- b. It is not a part of curriculum & this is waste of time

**4. Group discussion/interaction encouraged Students**

60% students agreed to share their ideas & knowledge, to ask questions

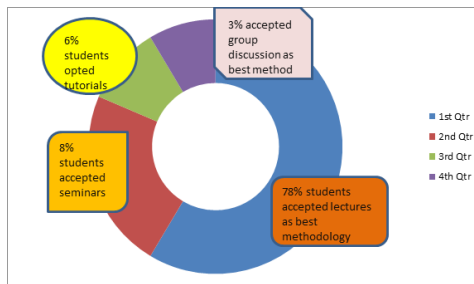
**5. Interest in the subject increases with course completion & increases in knowledge & understanding of subject.- 70% students were of that opinion**

**6. Taking notes during lectures benefits.**

a. 53.8% students preferred taking notes during lecture hours

**7. Taking handouts after the lecture more beneficial as it does not distract during lectures.**

a. 56.6% students preferred taking notes after lecture.



**3. Which teaching method is more useful?**

**8. View about Practical teaching**

- a. 12% students agree practical demo only
- b. 78% % emphasize the need of demo with work
- c. 3% students said pharmacy practical needed

**9. Need of pharmacovigilance at UG level**

- a. 67% students were in favour
- b. 33% students disagree

**10. Whether the present teaching methods will enable students to prepare the subject for Post Graduate entrance exam?**

- a. 75% students were of opinion that it helps in UG exam
- b. 13% said that it is helpful in PG entrance exam & other goals.

**11. Class room environment affects learning**

- a. Relaxed & non threatening atmosphere- 90% students emphasized in the study for proper learning
- b. Classroom facilities- 98% students appreciated the important of classroom facilities
- c. Class size- Neglected.....

**DISCUSSION**

Pharmacology the backbone of rational therapeutics though interesting is a very volatile subject. Learning pharmacology to choose & prescribe drugs is a major challenge encountered by students. [8]. The teaching learning methodologies needs to be assessed for its merit-demerits which will help students for UG education also throughout the medical carrier. [9] Thus students feedback to review teaching-learning methods and modification of methodologies accordingly is very important.[10] Currently students feedback represents the primary means used by most programmes to assess their methodologies. [11] A survey of Indian doctors considered the pharmacology teaching to be mainly theoretical & opined that more attention should be devoted to clinical aspects. [12] As per the study done by Mcleman MW & Isaacs G 2002, Students preferred lecture notes to be provided in the form of partial or complete handout. [13] In our study 53.8% students preferred handout during lecture instead of after while 56.6% preferred after lecture to avoid distraction during lecture. In our study 13% students said that current teaching methodologies is helpful in PG entrance exam. While majority of students favoured MCQs pattern which will help them in reasoning out rather than memorizing. Teaching strategies & different aids impart knowledge. Also emphasize important facts of topic in the memory through audio visual impact. A study conducted by Banerjee et al. Nepal in 2008-2009 reported that Chalk board methodology was found to be the best followed by LCD slides. [14] Most of the students thought multimedia to be the most effective teaching tool followed by chalk board method in a study conducted in 2012 in Goa medical college. [15] But in our study 60% students preferred combination of aids as a best teaching strategy. Our observations are in accordance with recent studies conducted in India which reported that combination of teaching aids is the best method of teaching. [16] Students might feel easy & free to communicate with junior teachers [17]. Knowledge, organization, confidence of teacher all of these characteristics found to be the most important ones among the students of our study which is in accordance with the different

studies done by Sherman TM(1987) & Ken Bain (2004). [18] Good teaching is essentially good communication, ignition of their capacity to think & help them acquire skills. Hence in the study done by Ken Bain(2004), rapport with students effective communication in class appropriate respectively to doubts given importance. In our study also students emphasized on these characteristics. As per Ken Bain. Motivation of students helps them perform better by setting goals. [19] In our study students emphasized the importance of a relaxed, non-threatening atmosphere for proper learning. Students appreciate the importance of classroom facilities but neglected the importance of class size.

### CONCLUSION

Teaching learning tradition is facing a paradigm shift from where teachers being active & students used to be passive listeners to learner oriented approach. Keeping in view the needs of students, if the teaching learning strategies evaluated & modified accordingly then teaching-learning process can be made very effective. In our study, students feedback method in a questionnaire format found to be the most effective tool of evaluation. It is concluded from our study that a combination of different audio – visual aids, together can improve the lectures & facilitate students to understand pharmacology in a better way. Students were in favour of hands-out after lecture. Maximum students accepted lectures as best methodology. Practical with demo were found more useful. In our study students gave importance to the capabilities of teacher's knowledge, clarity, explanation. Students gave importance to good communication, healthy teacher student rapport with emphasizing the need of motivation & encouragement for better learning.

**"It's not the strongest of the species that survives, nor the most intelligent, but those who are most responsive to CHANGE." – Darwin**

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