

Assessment of Learning Preferences among Indian Undergraduate Dental Students

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ABSTRACT

Objectives: In order to facilitate and optimize learning process, there is need to evaluate preferred choice of teaching methods among dental students, especially in Indian scenario wherein lecturing remains the most commonly employed method of teaching. The aim of the present study was to assess and compare learning approaches among the male and female undergraduate dental students.

Materials and methods: The study was conducted among undergraduate dental students of Manipal College of Dental Sciences, Manipal University, Mangalore, Karnataka, India. Students belonging to the first 4 years of their professional dental education program were enrolled in the study. A structured, self-administered questionnaire comprising of nine multiple choice questions apart from the demographic details was employed to assess the dental student's preferences towards learning.

Results: A total of 100 dental students participated in the study. Majority of the respondents preferred lecture classes in the morning hours for 30 minutes. Audiovisual method was the most preferred teaching aid, whereas multiple choice questions and periodic tests were most preferred method for evaluation. Significant difference was observed between male and female study subjects in terms of average percentage of the lecture content they were able to understand ($p < 0.035$).

Conclusions: The present study holds policy implications for changes in the teaching patterns practiced in current times. Differences among learning preferences of males and females must be considered while selecting teaching methods. There is need to introduce more of active learning programs in order to overcome the drawback of lack of interaction and also to facilitate the learning among all students.

Keywords: Dental students, Learning preferences, Teaching.

How to cite this article: Ahmed J, Binnal A, Denny C, Shenoy N, Natarajan S. Assessment of Learning Preferences among Indian Undergraduate Dental Students. *World J Dent* 2015;6(3): 169-173.

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Source of support: Nil

Conflict of interest: None

INTRODUCTION

Dental education of undergraduate students is a very demanding training program wherein the students are expected to gain theoretical knowledge and the clinical skills in a period of 5 years. Traditionally, teaching in these programs mainly has been in the form of lecturing.¹ The main disadvantage of this method of teaching is minimal or no interaction from the audience side^{1,2} and it is a challenge for the dental educators to promote active involvement of the students in these lecturing sessions. The benefit of this age old method of teaching is questionable because it promotes the concept of gaining knowledge based on memorization among students.³

It has been reported that the learning process of every individual is different and if appropriate methods of teaching are employed, enhanced learning occurs.^{4,5} Recent times have witnessed vast array of changes with respect to modes of education leading to introduction of active teaching methods, such as small group discussions,⁶ e-learning,⁷ problem, based learning^{8,9} to name a few. However, lectures still remain to be the main mode of education.

Learner's experiences with various teaching modalities are important to optimize the learning process.¹⁰ In order to facilitate and optimize learning process, there is need to evaluate the preferred choice of teaching methods among dental students especially in Indian scenario wherein lecturing remains the most commonly employed method of teaching. Further, there is definite dearth of investigations that explored if any differences existed among male and female subjects with respect to their learning preferences.

The present study was undertaken to determine the learning preferences among the dental undergraduate students and also to assess and compare the learning approaches among the male and female dental students.

MATERIALS AND METHODS

A cross-sectional questionnaire design was employed in the present study to assess the dental student's preferences toward learning. The study was conducted among

undergraduate dental students of Manipal College of Dental Sciences (MCOADS), Manipal University, Mangalore, Karnataka, India. Students belonging to the first 4 years of their professional dental education program, i.e. Bachelor of Dental Surgery (BDS) were enrolled in the study. Ethical clearance was obtained from the Institutional Ethics Committee, MCOADS, Mangalore. Permission for the study was also obtained from the Head of the Institution of the aforementioned dental college and informed consent was obtained from the study subjects. A structured, self-administered questionnaire comprising of nine close ended multiple choice questions apart from the demographic details was employed in the present study (Table 1).

The data were entered into the computer (MS Excel, MS Word) and Statistical Package for Social Sciences (SPSS), version 16.0 (SPSS Inc, Chicago IL) was used for data analysis. Data were described by frequency tabulation and Chi-square tests were used to assess the comparison of items of the questionnaire based on gender.

RESULTS

A total of 100 undergraduate dental students participated in the study. The average age of the study subjects was 20.7 ± 1.27 years. The number of male and female respondents was 22 and 78 respectively.

Majority of the respondents preferred lecture classes in the morning hours (69) over afternoon (16) or evening hours (6) and time did not matter for eight subjects. While most of the study subjects preferred duration of lecture to be in the range of 30 to 45 minutes (54 and 34 respectively), nine subjects preferred lecture for 60 minutes and for two subjects time did not matter. The most preferred aid in teaching according to the study subjects was audiovisual method (64) while the least preferred method was overhead projection (Graph 1). Respondents believed that multiple choice questions (33) and periodic tests (32) were more beneficial for student evaluation (Graph 2). Study subjects were of the opinion that innovative methods, such as video clips (51), small group discussions (45), short quizzes (34), handouts (40) and problem solving sessions (37) should be included in teaching sessions. Respondents believed that the contents of an ideal theory class should include combination of content from an exhaustive textbook, recent updates from journals with liberal use of audiovisual aids (Graph 3).

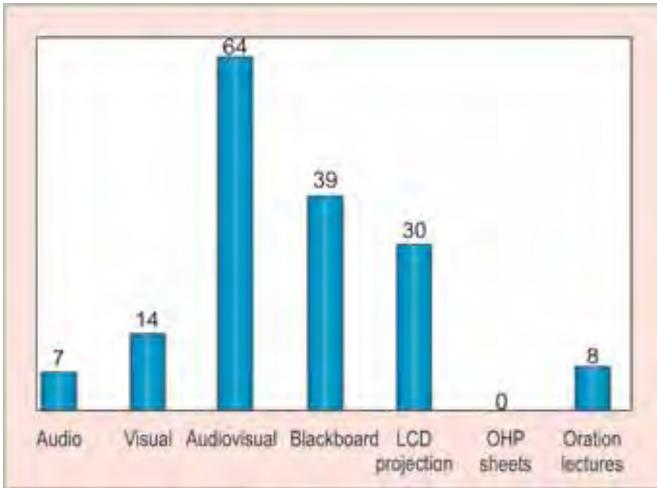
Unimpressive presentation by the lecturer (65) and boring lecture content (59) were the main reasons for students disinterest in lecture class followed by duration (48) and the timing (27) of a lecture. Majority of the

respondents (52) reported that they were able to understand only 50% of the lecture content while 27, 22 and four subjects reported that they were able to understand 25, 75 and 100% respectively. Eighty-eight respondents

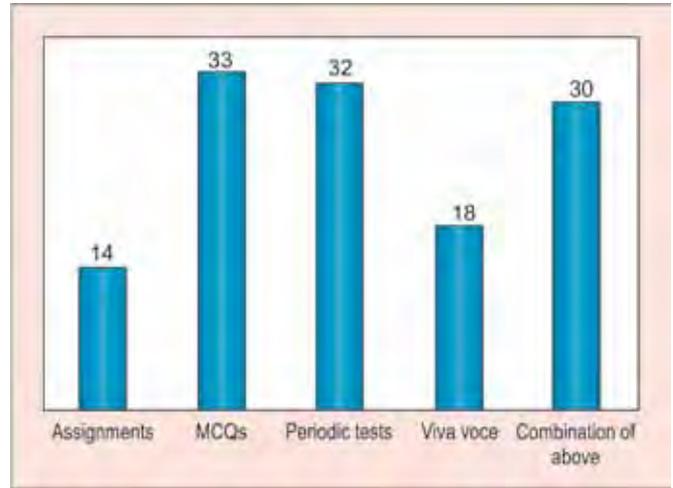
Table 1: Questionnaire employed in the present study

What should be the preferred timings of a class?	a. Morning hours b. Afternoon hours c. Evening hours d. Time does not matter
Ideally the duration of a lecture should be?	a. 30 minutes b. 45 minutes c. 1 hour d. Does not matter
Tick the teaching aids according to your preferred choice (Tick multiple if required)	a. Audio b. Visual c. Audiovisual d. Blackboard e. LCD projection f. OHP sheets g. Orator lectures
Which according to you is more beneficial for student evaluation? (Tick multiple if required)	a. Assignments b. MCQs c. Periodic tests d. Viva voce e. Combination of the above
Innovative methods of teaching can include (Tick multiple if required)	a. Video clips b. Small group discussions c. Short quizzes d. Handouts of the study material e. Problem solving sessions
Contents of an ideal theory class should include?	a. Exhaustive textbook content b. Recent updates from journals c. a and b d. Liberal use of audiovisual aids e. All of the above
The main reason for disinterest in a class (Tick multiple if required)	a. Duration of class b. Timings of lecture c. Boring lecture content d. Unimpressive presentation by the lecturer
On an average how much percentage of a lecture are you able to understand well?	a. 25% of the lecture b. 50% of the lecture c. 75% of the lecture d. The entire lecture content
Are you comfortable with English as the primary language of communication used by the instructor?	a. Very comfortable b. Fairly comfortable c. Not very comfortable d. Not comfortable at all

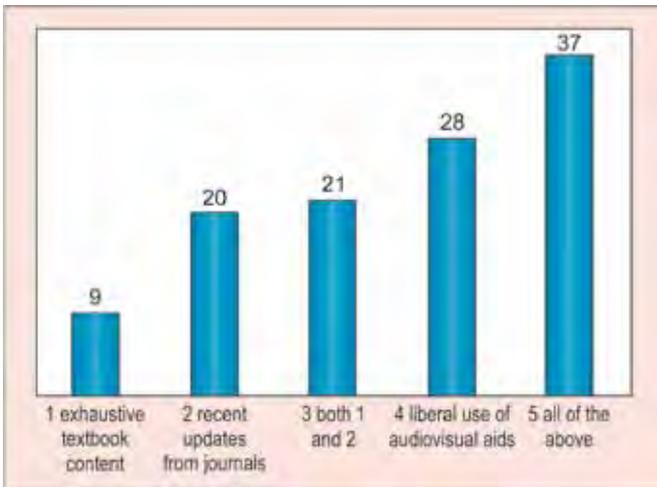




Graph 1: The most preferred aid to be employed in teaching according to the study subjects



Graph 2: Methods which are beneficial for student evaluation according to the study subjects



Graph 3: Contents of an ideal theory class according to the study subjects

DISCUSSION

Dental graduates are study subjects of many researches as this group form future of dentistry.^{11,12} In order to augment the learning process of the dental students there is a need to evaluate the existing system of teaching and bring in the necessary modifications. Although lecturing is the most commonly practiced method of teaching, previous studies have stressed on the importance of introducing other active methods to facilitate learning.²

Majority of the study subjects in the present study preferred morning hour classes which could be due to the ability to grasp things better during that period of time. This finding is in agreement with the results of Parolia et al (2012) which was attributed to better concentration in the morning hours.²

Most of the respondents in the present study preferred lecture class for the duration of 30 minutes followed by 45 minutes which is in conformity with the results of Parolia et al (2012),² Stuart and Rutherford (1978),¹³ and Arredondo et al (1994).¹⁴ Stuart and Rutherford (1978) reported that concentration of the students was maximum for the initial 10 to 15 minutes and it declined thereafter.¹³ Dental Council of India in its 2007 guidelines recommended a total of 1,760 lecture hours for undergraduate dental education. Implementation of 30 to 45 minute lecture classes in Indian setup might not be practical if these recommendations have to be achieved. Hence, 60 minutes lecture using various innovative methods of teaching is recommended to combat short attention span of students.^{2,15,16}

Allers (2010) conducted a study among dental students and reported that they preferred strong visual modalities, such as video/TV, posters/charts, models, and simulations.¹⁷ Parolia et al (2012) observed in their investigation that the PowerPoint presentation, chalkboard and

believed that they were very comfortable with English as primary language of communication, 11 were fairly comfortable and one subject was not very comfortable with the language.

Learning preferences based on gender was also assessed in the present study. Statistically significant ($p < 0.035$) difference was observed between male and female study subjects in terms of average percentage of the lecture content they were able to understand (Table 2).

Table 2: Percentage of lecture content respondents were able to understand

		Males	Females
On an average	25% of the lecture	11	16
how much	50% of the lecture	9	41
percentage	75% of the lecture	2	18
of lecture are	The entire lecture	0	3
you able to	content		
understand?			
Total		22	78 ($p < 0.035$)

clinical demonstrations were the most preferred modes of teaching.² In the present study, respondents preferred varied teaching aids, such as audiovisual, blackboard, PowerPoint presentations, with no particular single choice. Similarly, respondents were of the opinion that various assessment modalities should be used for evaluation of the students with no particular preference to a single modality. The present study subjects believed that the contents of an ideal class should include exhaustive textbook, recent updates from journals with liberal use of audiovisual aids. These findings can be attributed to the complex nature of dental education which requires stimulation of various senses of the dental students to understand the composite dental curriculum as well as for its evaluation.¹⁷

Lecturing remains to be the most commonly practiced teaching modality which has a major drawback of having lack of interaction between the lecturer and the students. When enquired about the extent of understanding the lecture content, only four study subjects reported that they were able to understand entire lecture content, whereas the remaining respondents understanding of the lecture content varied from 25 to 75%. These results are consistent with the reports of Keefe (1987) and Reiff (1992) who observed that the learning styles of every individual is different and if appropriate methods of learning are employed, enhanced learning occurs.^{4,5} In order to facilitate learning among all the students, it is essential to introduce other active teaching methods, such as handouts, seminars, problem based learning, discussions, tutorials, etc.¹⁷

Unimpressive presentation by the lecturer and boring lecture content were the main reasons for being disinterested in a lecture class. Lecturers should avoid being passive orators and facilitate learning among the students by introducing more innovative and active learning strategies which promotes a healthy interaction between the students and the lecturer.

Dentistry, especially in India is increasingly being dominated by females. There are very few studies which explore the differences in learning preferences and approaches among male and female subjects. Rehman et al (2013) reported that females had higher strategic learning approach and were better in time management, alertness to assessment demands, seeking meaning and relating ideas; whereas, males stressed on the learning environment to support understanding.¹⁸ In the present study, we evaluated the differences in learning preferences based on gender. Significant difference was observed between male and female subjects in the understanding of the content of the lecture while no significant difference was observed among other items

of the questionnaire. These findings might be important while developing teaching plans.

The present study must be interpreted in the light of its limitations. The study was conducted in a single dental institution which is definitely not representative of all the institutions in the country; but since our institution is in a unique position wherein we have student admissions from the majority of states across India, it does, however, represent a small cross-sectional study group across the country. Although the study results have to be confirmed in a larger sample size for a more specific and validated results. Further, questionnaire-based investigations are prone for biases which need to be considered while interpreting their results.

The present study highlights the following aspects of teaching: Although lecturing is the most commonly practiced method of teaching, it is associated with major drawbacks, especially lack of interaction between the lecturer and audience. The present study holds policy implications for changes in the teaching patterns practiced in current times. There is need to introduce more of active learning programs in order to overcome the drawback of lack of interaction and also to facilitate the learning across all students.^{19,20}

CONCLUSION

Majority of the respondents preferred lecture classes in the morning hours for 30 minutes. Audiovisual method was the most preferred teaching aid, whereas multiple choice questions and periodic tests were most preferred method for evaluation. Respondents were of the opinion that innovative methods should be introduced to facilitate learning process. Unimpressive presentation by the lecturer and boring lecture content were the main reasons for disinterest in a class. Significant difference was observed between male and female study subjects in terms of average percentage of the lecture content they were able to grasp.

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