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Change in Learning Preferences From Pre-clinical to Clinical Course of Undergraduate Medical Students– A Longitudinal Study

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Abstract

Learning strategies are important in medical students' lives which are attributed to the instructional circumstances and prevailing environment in educational institutions. Analysisof students' learning preferences will enable the educators to plan an appropriate curriculum and modulate the motivational factors. Hence this study was undertaken to assess the changes in learning strategies of students during the course from pre-clinical to clinical and to determine the influence of gender on these preferences. A longitudinal study was conducted in a Medical college of Karnataka using a pre-designed, semi-structured questionnaire from first year MBBS students and re-administered in the final year.The preference for medium of learning shifted from books in first year to teachers in final year ($p<0.0001$). Students preferred to clarify doubts from friends in first year but by final year they preferred teachers ($p<0.0001$). Teachers were a source of motivation in first year but by final year they were self-motivated (p-0.029). Gender-wise analysis revealed a significant difference in learning preferences. There is a need for a judicious mix of different learning methods for overall teaching learning experience.

Introduction

Medical students coming from various places getting admitted to medical colleges have varied methods of reading and learning. They will be exposed to an entirely different curriculum which they had not faced earlier. The students reach the course of MBBS after clearing many hurdles. So they are expected to be good at studying, understanding and retaining a large amount of data. They would have developed their own reading skills to fulfill their needs. These skills will guide their future endeavors. Even so, the course of MBBS is incomparable to anything they have faced before (1). The amount of data input taking place in

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medical field is too vast and too fast. So, no matter what method they were following before, they have to adapt to this change.

They have to initially experiment with multiple learning styles to which they will be exposed to (2). Each student adapts his or her own strategy for learning as they have to retain the large amount of information. They will have a definitive perception on each method. Whichever method they select, they will have to work on it, and match it with their learning styles. This appropriate selection will be based on different psychological aspects of a student and their perceptions (3).

Various factors influence their preferences of learning styles like their age, gender, geographical placement, institutional environment, their academic graph, cultural background, family atmosphere, thinking ability and grasping power (4, 5, 6). They use a combination of techniques for acquiring this knowledge and retaining it. It can be Visual, Aural, Reading, Writing and Kinaesthetic (7, 8). Learning preferences, their choice of method adaptation also depend on mode of instruction by the facilitators (9).

The methods preferred by the students help the teachers and curriculum designers to make appropriate changes and also design new formats of teaching learning techniques. Academicians and curriculum designers can understand; what type of methods do students prefer, what are the drawbacks for not selecting a particular format, what changes they prefer in existing instructional teaching methods, are there any gender differences, how to inspire students to take up a well appreciated and tested technique, which method giving out best examination results (10, 11).

The quality of an individual depends on the individualized learning method adapted by students and the interaction between the learner and the facilitator. Students' performance certainly will be improved if teaching process involves that which is preferred by them (12). As a teacher, it becomes imperative that different learning preferences and its change in due course is understood so as to help nurture these to enable a student to become a self-motivated, lifelong learner. Hence teachers have to keep in mind this concept to make them lifelong learners (13, 14, 15).

This study therefore, aims to throw light on the various methods preferred by students to understand the subjects and also to know the changes in their learning preference as they advance from first year to final year. This will help us to develop those styles of learning to ensure deep and long lasting erudition. Hence the present study was carried out to assess the changes in learning strategies of students during the course from pre-clinical to clinical and also to study the difference in these preferences if any based on gender.

Methods

A longitudinal study was conducted among students pursuing MBBS in a medical college affiliated to a private University in Dakshina Kannada district of Karnataka state, India for duration of three years. Institutional Ethics committee approval was obtained before the start of the study. This University has students from various parts of South India predominantly from Karnataka and Kerala. All the students admitted to the course of MBBS for the academic year 2011 were included for the study. Needs assessment pertaining to the study was done in consultation with the student fraternity prior to formulation of the questions. Questionnaire items were developed after generating pool of items followed by item selection and reduction. It was validated with subject experts, experts in medical education and collected feedback for any changes. Cognitive interview, internal consistency, test-retest reliability (Chronbach alpha score), pre-testing and piloting were undertaken. Following a written informed consent, the self-administered questionnaire was distributed to the students.

In the first year, 110 students participated in the study. The same group was followed in final year of their course. We could collect responses from 66 final year students as 16 were not available at the time of collection of responses and remaining 31 failed to clear their previous exam. The study group consisted of 24 males and 42 females (n=66).

Questionnaire concentrated on obtaining information regarding the predominant study mode adopted by students for their learning, preferred way of clarifying their academic doubts and their strongest source of motivation to study.

The data were analyzed statistically using SPSS version 16 (SPSS Inc). Data was presented as proportions and percentages. Mc Nemar test was applied to find the association of responses between first and final year. $p<0.05$ was considered as significant.

Results

When questioned on the preferential medium for learning, it was seen that there was a significant difference in their method of studying ($p<0.0001$). In first year, students had a greater preference towards studying from books compared to in final year. In final year, they shifted towards gathering information from teachers and from peer discussions (Table I).

There was no much difference among the choice of method of studying between the genders (Table II).

On comparing students in first and final year about their method of clearing doubts, a statistically significant difference was observed ($p<0.0001$). Majority in first year chose clearing doubts with friends and then with teachers. But in final year, majority preferred clarifying doubt with teachers and then with friends (Table III).

Gender wise comparison showed that, in first year, female students preferred approaching their friends for clarifying their doubts which was much higher than preferring a teacher for the same. In final year, a larger percentage of female students opted discussing doubts with teachers and with peers compared to males. None of the females preferred forgetting the doubt. ($p<0.05$) (Table III).

First year students mainly accepted teachers as strong source of motivation, while in final year, they chose teachers and self motivation as important sources (Table IV).

When genders were compared, in first year students, there was no significant difference seen. In final year, the female students chose major source of motivation being self or family and then teachers ($p<0.05$) (Table V).

TABLE I: Year wise difference in preference for medium of learning (n=66).

Year	*Books/Notes*	*Teachers*	*Friends/Peers*	*Computer*	*P value*
I	54 (81.8%)	09 (13.6%)	01 (1.5%)	02 (3.0%)	< 0.0001
IV	40 (60.6%)	18 (27.3%)	07 (10.8%)	01 (1.5%)	

TABLE II: Gender wise difference in preference for medium of learning (n=66.

Year	*Gender*	*Books/Notes*	*Teachers*	*Friends/Peers Computer*	*P value*
I	Male	20 (83.3%)	3 (12.5%)	1 (4.2%)	0.764
	Female	34 (80.9%)	6 (14.3%)	2 (4.8%)	
IV	Male	15 (62.5%)	8 33.3%)	1 (4.2%)	0.287
	Female	25 (59.5%)	10 23.8%)	7 (16.7%)	

TABLE III: Year wise difference in preference for doubt clarification (n=66).

Year		*Forgets*	*Teachers*	*Friends/Peers*	*Self-reading*	*P value*
I		11 (16.7%)	15 (22.7%)	36 (54.5%)	04 (6.1%)	< 0.0001
IV		04 (6.1%)	32 (48.5%)	25 (37.9%)	05 (7.6%)	
Year	*Gender*					
I	Male	6 (25%)	5 (20.8%)	10 (41.7%)	3 (12.5%)	0.41
	Female	5 (11.9%)	10 (23.8%)	26 (61.9%)	1 (2.4%)	
IV	Male	4 (16.7%)	9 (37.5%)	7 (29.2%)	4 (16.7%)	0.005
	Female	0 (0%)	23 (54.8%)	18 (42.8%)	1 (2.4%)	

TABLE IV: Year wise difference in source of motivation (n=66).

Year	*Friends*	*Seniors*	*Teachers*	*Self/family*	*P value*
I	13 (19.7%)	08 (12.1%)	28 (42.4%)	17 (25.8%)	0.029
IV	14 (21.2%)	12 (18.2%)	20 (30.3%)	20 (30.3%)	

TABLE V: Gender wise difference in source of motivation (n-66).

Year	*Gender*	*Friends*	*Seniors*	*Teachers*	*Self/family*	*P value*
I	Male	5 (20.8%)	3 (12.5%)	10 (41.7%)	6 (25%)	0.872
	Female	8 (19.0%)	5 (11.9%)	18 (42.9%)	11 (26.3%)	
IV	Male	7 (29.2%)	5 (20.8%)	8 (33.3%)	4 (16.7%)	0.029
	Female	7 (16.7%)	7 (16.7%)	12 (28.6%)	16 (38.1%)	

Discussion

Our study showed that students initially depend on books for learning and later in final year some prefer teachers over books. The role of a teacher in medical education is still relevant today. Harden RM mentions that good teacher is more than a lecturer with teachers having to play many roles, other than just lecturing (16). Even with the advent of technology, internet in this decade, students of medical school rely on books for their learning. A study done by the Health Science Center Libraries and Department of Zoology at the University of Florida on the benefits of use of library resources to students showed majority of students made use of library books in acquiring knowledge, understanding the concepts in academic and latest developments in research field. Libraries formed the centers of learning (17).

In this study, students in first year depend on friends and peers to clarify doubts. When they reach final year they depend on teachers more. This is in accordance with earlier study by Hanan et al, who showed that learning strategies of students were strongly influenced by teachers who played important roles in constructive development of their wards. Teachers with their firm commitment to the teaching profession work for the overall betterment of student population. They form the role models, share their experiences in coaching and guiding students that will enhance the quality of learning in the workplace (18).

Teachers were the source of motivation for the students in first year. But self motivation and importance of family was highlighted by the time they reach final year. Hasnain Afzal et al, in his cross sectional study on 388 final year medical students of different medical colleges in Karachi showed that prayers, relaxation techniques and self-motivation, support from friends and family were the frequent methods used to overcome exam anxiety. Students of final year depend more on the above measures for motivation to study (19). Another study revealed that first year medical students were motivated by mere fact that they are intelligent enough to get into this profession. Affection and support by family, friends, economic status and professional independence were other factors (20). Motivation is inversely related to absenteeism and implementing various measures to motivate the students in any field can certainly yield better overall results in a study by Emilie Joy Kistnasamy in South Africa. This can enhance their performance in internal assessment exam by 75%. With this, the students also felt the sense of accomplishment, personal satisfaction and wellbeing which all indirectly built up best teaching atmosphere and learning process (21). Contrary to this, another study indicated that there exists no significant relation between motivational factors and academic performance of students (22).

A wider coverage, a different set up with an intervention to address these issues form the future scope of this study.

Conclusion

The present study highlights the importance of teacher's multidimensional role as a guide, facilitator, motivator and a preferred person in solving student's learning difficulties in medical schools. But their roles differ at each level of student life. An amalgamation of these in right proportion and at right time benefits the student and makes the teacher more efficient.

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