A Study of Learning Approaches in Undergraduate Medical Students

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Abstract

Introduction: One among various methods adopted by students in the process of seeking knowledge is a learning approach. Learning approach of students will be of concern to the teachers and medical education experts.

Methods: Total 155 second year MBBS students were included for study, out of which 143 students were participated in the study. A preformed proforma was prepared for the study which includes demographic details of the student and a R-SPQ-2F questionnaire. SPSS software was used to analysed the data. Outcome variables were described using the descriptive statistics. Mean score of two study approaches (deep & surface) was compared using the Students t-test and the internal consistency of R-SPQ-2F was assessed using Cronbach's alpha.

Results: In 130 total completed form by MBBS students 71(54.61%) were males, 59 were females (45.38%).The mean age of the students were 19.6 years. No significant difference was found in Deep and Surface learning approach in Male vs Female assessment. The deep approach score was significantly higher than those of the surface approach (33.385 Vs 24.254) (P<0.05). In subscale approaches deep motive had high score than deep strategy approaches. The cronbach's alpha values for deep approach and surface approach were 0.668 & 0.724 respectively. The subscales had alpha values that ranged from 0.48 to 0.65.

Conclusion: Our study found that learning approach preferred by students was deep approach than surface approach.

Keywords: Learning approaches, medical students, MBBS, Deep approach, Surface approach

Introduction

One among various methods adopted by students in the process of seeking knowledge is a learning approach. Learning approach of students will be of concern to the teachers and medical education experts. Learning style varies among students, which is determined by their intellectual ability. Learning style is defined as a

composite of cognitive, emotional, and physiological traits that serves as a powerful indicator of how learners perceive, interact, and react to their learning environment. [1,2]

A conclusion was drawn from several studies by Marton from the results of several studies about the potential educational importance of information about students' learning styles, in higher education. Marton has given the reference of phenomenographic studies, the findings of all these studies, supports a final conclusion that there exists obvious correlation between the ways in which an individual conceptualises learning, the processes of learning attempted by individual and the result of the individual's attempts to learn. The inference are of specific interest because of the use of phenomenographic methodology in the studies that the author has given in the reference. [1]

Marton described phenomenology as a research method for calculating qualitatively different approaches in which people experience, conceptualize, perceive, and understand different aspects of phenomena in the world around them. Marton's explanation of phenomenology is that phenomenological studies have constructed specific condition of their living experiences, in other words, how individuals illustrate their experiences in specific aspects of their lives such as the experience of learning. It shows that it has considerable potential to provide insight into how to interpret it. Their study experience. For graduate students, phenomenological studies of how individual students are involved in a degree program may provide faculty with insight into the importance that students place on various aspects of the program. These insights can inform the instructor on many issues like scope and amount of interaction between specific aspects of the student course learning style and special features.1

In the literature, there are several methods of learning style which offers categorically nonidentical perspective of learning style preferences. Learning approaches include Visual, Aural, Read/Write, and Kinesthetic styles [3]. Concrete experience, Reflexive Observation, Abstract Conceptualization and Active experimentation [3,4]. Medical students acquire knowledge, competence and skill in multiple disciplines in a short duration [5]. To become a successful doctor and for career and academic achievement, he/she has to be a lifelong learner. Surface approach and deep approach are two major approaches to learning. Surface approach is usually a syllabus bound superficial method of learning where students accept information and memorise with lack of understanding as isolated and unrelated facts. Here learning is motivated for sake of examinations and to complete the course. [6,7]

Students who acquire a surface approach are mostly inspired either by a desire to only finish the academic course or by a fear of getting failed in the exam. Their intention is to meet research requirements by remembering and recreating specific facts or by providing personalized information for testing. They tend to worry about evaluation requirements and prefer to limit learning to set curriculum and assignments. It has been seen that the only aspiration is to complete the course or in fear of getting failed in the exam the student were motivated and adopted the surface approach. Their intention is to meet the course requirements by memorizing and reproducing specific facts or pieces of disengage information for examinations. They tend to be anxiously aware of assessment requirements and prefer to restrict learning to a defined syllabus and specified tasks.

The learning for its own sake and an interest in the subject material predominantly motivated the students to adopt the deep approach. Through this approach, students understand the underlying structure and

meaning, critically examine evidence, use it with caution, and actively correlate new information with prior knowledge. [6]

Deep approach involves desire for personal understanding of a subject area actively, critically examining the information and data, use them to build new information based on their acquired knowledge. [8] Usefulness of deep approach is positivity to the learning outcomes and promotes more effective retention of factual details. [6]

Educational success depends not only on the subject's expertise, but also on the student's understanding of learning styles and behaviours. Different students have different learning abilities, motivations, styles and approaches. Understanding these skills will help educators strengthen their teaching approach to make coursework more attractive, purposeful and delighting. Learning styles are a way for students to focus, process, internalize, and remember new and difficult information. Improving medical education requires appropriate changes in education, curriculum, especially assessments, and new strategies based on the identification and adaptation of student learning styles and approaches. Students' learning styles and approaches to learning can play a compelling role in a student's academic success. [7] In the field of medical teaching, the knowledge of students and teachers is to be up to date. [8,9] For a better curriculum planning, knowing the learning style is important step in medical education. Gibbs et al [10] described the different factors that add to deep learning as a unified curriculum, match between the assessment and objectives, intrinsic motivation, and a learner-centeric educational environment. We conducted this study to know which approach of studies was preferred by the students and extent of difference between surface and deep approaches of studies.

Aim: Assessment of the learning approaches among the 2nd year MBBS students

Objectives:

1. Gender wise comparison of Deep and Surface and learning approach in 2nd year MBBS students
2. Comparison between Deep and Surface learning approach among 2nd year MBBS students

Methods:

For study data were collected from third and sixth semester of MBBS students in different batches from BKLW Rural Medical College, Sawarde. Institutional ethical clearance was taken before collection of study data. Total 155 students were included for study, only 143 students participated in the study. The study period was after completion of practical class in third semester and after completion of final Pharmacology practical exam in fifth semester students.

Students were enrolled in study after taking written informed consent and needed instructions were given before distribution of the preformed proforma.

Preformed proforma was prepared which includes demographic details (participants Gender, age, semester & place of living) and R-SPQ-2F questionnaire (developed by Biggs & colleagues). [11]

The deep and surface learning approaches are measured by the questionnaire. Each approach consists of ten items and together both approaches will have twenty items. Both the approaches will be evaluated by the 5-point Likert scale (one = never or only rarely true of me and five = always or almost true to me). The R-SPQ-2F outcome was decided as the learning approaches whether it was a deep approach (sum of deep motive & deep strategic) or surface approach (sum of surface motive & surface strategic).

SPSS software, version 21.0 was used to analysed the data. Quantitative outcome variable were discovered by the descriptive statistics (Mean & SD). Mean score of deep approach, surface approach were compared

by Student t-test. Cronbach's alpha was used to assessed the internal consistency of R-SPQ-2F. A p-value of ≤ 0.05 and 95% confidence intervals was used to report the statistical significance and precision of results.

Results

In our study 143 total students were took participation in the study, 130 students completed questionnaire form and 13 students questionaries form were incomplete. In total completed form 130, 71(54.61%) were males, 59 were females (45.38%).

The participated students mean age of 19.6 years. 86 Students were in third semester MBBS students and 45 students were in fifth semester MBBS students.

Table 1: Gender wise comparison of scores in Deep and Surface learning approach

Learning approach	Male	Female	P value
Deep approach	17.30 ± 1.08	18.63 ± 2.17	0.0611
Surface approach	13.18 ± 5.15	14.01 ± 3.11	0.12

$P<0.05$ – statistically significant There was no statistically significant difference found between the Deep and Surface learning approach in the male and female students participating in the study. ($P>0.05$)

The score of the deep approach students were significantly higher than those for the surface approach students (33.385 Vs 24.254). In subscales approach deep motive approach was high score than deep motive approach and surface strategy was high score than deep strategy score. The deep approach and surface approach scales had cronbach's alpha values of 0.668 and 0.724 respectively. The subscales had alpha values that ranged from 0.48 to 0.65 (Table no.1)

Table No 2 & 3. Shows Mean, Standard deviation and Cronbach's α of Deep approach, Surface approach, deep motive, deep strategy, Surface approach and Surface motive.

Table 2:

Type of approach	Mean ± SD	Cronbach's α
Deep approach	33.385 ± 5.887	0.668
Surface approach	24.254 ± 6.831	0.724

Table 3:

Type of approach	Subscale approach	Mean ± SD	Cronbach's α
Deep approach	Deep motive	17.038 ± 3.231	0.482
	Deep strategy	10.685 ± 4.08	0.653
Surface approach	Surface motive	10.685 ± 4.0806	0.653
	Surface strategy	13.569 ± 3.793	0.529

Table 4 depicts the comparison of Deep approach and surface approach in all the students. The mean ± SD score of Deep approach and surface approach was 33.385 ± 5.887 and 24.254 ± 6.831. A significant difference was found between the Deep learning approach and Surface learning approach ($p < 0.05$). (Table 4)

Table 4: Comparison between Deep and Surface Learning Approach

Type of approach	Mean± SD	P Value
Deep approach	33.385 ± 5.887	0.041
Surface approach	24.254 ± 6.831	

P<0.05 – Statistically significant

Discussion

In medical college, as per academic schedule focus on most common topic, exam orientation, University pattern of question. Because of above factors students get less time to study medical topics/subjects deeply and even staff also get less time to focus on interested subjects. A learning approach is a blueprint for the student for seeking the knowledge and are the determinant for achievements in the academic, with considering time spent in learning, gender and intellectual ability. [11] Entwistle et al [12] in one of the studies reported that the approach of the student towards a learning situation is not inherent but it depends on the situation of the learning context. In one of the studies conducted by Prosser and Trigwell [13] it has been seen that learning approaches and teaching perceptions have direct influence on the quality of learning of students. An approach to learning is defined as a desirable way for students to organize the knowledge they have acquired for understanding and learning purposes. The three approaches are, deep approach, surface approach and strategic approach. The deep approach is characterized by trying to acquire in-depth knowledge of the field and the region. At the same time, they connect new concepts with each other and with existing knowledge. This approach is preferred by educators because it not only focuses, but also promotes more advanced forms of learning to achieve good scores. This approach is preferred by educators because it promotes more advanced forms of learning, not just focusing on achieving good grades. On the other side, the surface approach is limited to memorizing of the syllabus and is used by students who are not driven by a desire to achieve a deep comprehension of the topic or by good grades. Strategic approach Students are versatile as being able to engage in deep or superficial learning, as needed, and are mainly related to performance.

In the present study it was seen that there was no significant difference found in the preferences of learning approaches between the male and female students. In one of the studies conducted by Soundarya K et al [13] similar results were seen. Our study shows most dominant approach of learning was deep approach. Comparison with other studies may be difficult due to the use of variable instruments to assess learning approaches. But in some studies, results similar to our study results i.e. students preferred learning approach was deep approach compared to the surface approach [14,15,16,17,18] Paudel et al conducted study on preclinical years of medical students, their study found that deep approach was high score than surface approach among the students [18]. The alpha values for the two scales indicated good level of internal consistency (0.66 for deep approach and 0.72 for surface approach) of the R-SPQ2F. Similar studies was found in Ahamed et al study, Munshi FM et al and Emilia O et al study [16, 19]. In one of the studies conducted by Chonkar S et al, it was seen that the age difference was not significantly associated to the predominant learning approaches acquired by the students which also coincides with the finding of our study in which the difference in age has no influence over the learning approach also there was no significant difference found in the learning approach of students of both the gender. This also aligns with the findings of the study conducted by Shankar PR et al [19] It was interesting to find out in our study that the female students have significantly exhibited more deep approach learning as compared to the male students. While in another study conducted by Emilia Et al and Wickramasinghe et al. It was seen that no significant difference found in the scores of male and female learning approaches. In subscale approaches found that deep motive approach was high score than surface motive approach and surface strategy approach was high score than deep strategy approach. This difference of

preference may lead to lack of intrinsic motivation in students and more concentrate on exam-oriented type of study and also students get less time to study. In other studies results was students preferred deep motive and deep strategy than surface motive and surface strategy [18, 20, 21]. Multiple factors may contribute for the preference of surface strategy than deep strategy among preclinical years of medical students [20]. Limitation of the study was less sample size and recall bias in replying to 20 items of a study task questionnaire used in this study. [22-26]

Conclusion

A medical student is always expected to be a lifelong learner, the learning approaches have major role to play in the quality of learning of medical students. The present study shows that there was no significant difference found in the preferences of the student from either sex, towards the learning approaches. There were no demographic features significantly associated with the dominant approach to learning in a varied medical student population. The learning approach preferred by all the 2nd year MBBS students was deep approach than surface approach. In subscales approach there were differences in the preferences of the students i.e., deep motive approach was more preferred that the surface motive and deep strategy was less preferred than the surface strategy. It's therefore time to look into how educators may intervene and change clinical teaching practices to help students learn more effectively using their chosen learning modalities and to foster a move towards deep learning.

Limitations

We believe that a more evaluative approach for characterising the way of learning approaches and categorising them may have been taken. The major limitations of this study include its small sample size and focus on a limited number of demographic characteristics. These constraints also prevent us from making additional curriculum-specific improvements that might inspire students to adopt higher-order learning processes, which are beneficial in medical education.

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