



ORIGINAL ARTICLE

## Learning approaches of undergraduate medical students at exit and entry of their medical schools.

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**ABSTRACT... Objective:** To Compare the learning approaches of medical students at the exit and entry of their medical school, to evaluate the influence of gender and to look for factors leading students towards a change in their learning approach, if any, through interviews. **Study Design:** Concurrent Mixed Method study. **Setting:** Ameer-ud-deen Medical College, Lahore. **Period:** March 2021 to March 2022. **Methods:** Sequential mixed method 100 first year and 100 Final year MBBS students were included in the study for quantitative analysis. ASSIST Questionnaire is used for identifying student's approach to studying as either deep, surface or strategic and the correlation of gender with preference of study approach. Descriptive statistics were performed. Student's t-test was used for statistical comparisons. Qualitative data was collected through in depth semi structured interviews of final year students. Thematic analysis was done to interpret the data and triangulation method was used for validation. **Results:** There is an over-all predominance of deep approach in the both first and final year MBBS students. The number of first-year students employing a strategic approach were significantly in majority as compared to final year students doing the same. No significant difference is seen in the learning approaches of male and female students. Interviews indicated reasons of shifting away from strategic learning approach in the final year medical students. No significant difference was seen in the selection of approach between female and male students of both groups. **Conclusion:** Study suggests that there is a predominance of deep approach in the medical students both at exit and entry points. This is due to their clinical exposure and environment, assessment methodologies, curriculum planning, seniors and peer pressure and most importantly their immediate teachers. The more we understand these learning styles, the better we can guide our future generations towards deep learning and improve their attitude and professional skills.

**Key words:** ASSIST Questionnaire, Learning Approach, Medical Students.

### INTRODUCTION

The learning approach is the scheme or the plan of action students follow to reach their goals while acquiring knowledge. The way a learner approaches a given task is not inherited but is acquired with time in accordance with many factors, for example, the learning environment and its demands.<sup>1</sup>

Learning approaches can be broadly divided into three categories; deep, surface and strategic approach.<sup>2</sup>

The deep approach stresses on understanding basic concepts and then relating them to past experiences and knowledge. This ultimately helps to retain facts more clearly.<sup>3</sup> This is a well-

planned, organized approach and driven by internal motivation and personal needs. The deep learners understand the meaning but the surface learners try to memorize things for any upcoming test. The surface approach is the least liked approach and it emphasizes on rote learning with no intention of understanding. The mindset here is only to minimally cope with the subject.<sup>2</sup> The surface approach emphasizes unreflective memorization and retrieval of content. In the strategic approach students are focused on the assessment, exam winning techniques, and making a good impression on the assessor.<sup>4</sup> The strategic learner manages their time properly due to their motivation to get good grades but the understanding is not well integrated as compared to the deep learners.<sup>2</sup> In the long run, the students

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with deep approach to learning are more likely to be life-long learners.<sup>5</sup>

In different parts of the world the institutions emphasizing on examinations, lead students to adopt a surface approach to learning. Students try to reproduce without understanding, to bring good results.<sup>6</sup> When these students reach the first year of medical school, they come across a diverse and challenging syllabus and this in turn directs them towards strategic or deep learning by the end of their medical school provided they are challenged properly and given a suitable educational environment. The learning approaches along with internal motivation, good educational strategy and assessment styles are the foundation stones for medical education.<sup>7</sup> With proper knowledge, a good teacher inculcates activities to enhance students' interest and will ultimately improve the outcome in their academics.<sup>8</sup> These learning approaches can change over time during medical degree programs if appropriate efforts are made.<sup>2</sup> Teachers can better guide the students to be deep learners. The surface learners can be identified and separate attention can be given to them individually. Teachers can also improve the effectiveness of their own teaching.

Various types of performas are developed to assess learning approaches. The Approaches and Study Skill Inventory for Students (ASSIST) is a well-known tool to assess learning approaches and to categorize them into three groups i.e. Deep, Surface, and Strategic Approaches.

Many researchers have given their time and energy in understanding different learning approaches in undergraduate medical students as these learning approaches play a major role in the students' learning.<sup>5</sup> The researchers claimed that there are different factors that lead students to a specific learning approach. Alkadri in his study concluded that the workplace assessment results in different learning approaches. The supervisor, feedback by the faculty, and assessment make students swing between different learning approaches, and utilization of all these factors can lead the learner towards a deep learning

approach.<sup>9</sup>

The study by Subasinghe showed that the medical students with a deep learning approach show higher academic performance.<sup>10</sup> Shah DK et al found deep approach learning more in medical students as compared to dental students and nursing students, but also concluded that this deep approach shifted to superficial learning after completion of the academic year.<sup>11</sup> A study conducted by May W. on fourth year medical students showed that female students have a more strategic approach.<sup>12</sup> The decline in the learning approach of the students need special attention and curriculum developers have an important role to play.<sup>13</sup> In UK special attention is given to the curriculum of medical schools and they are inclining more towards problem based learning to encourage understanding and deep learning.<sup>14</sup> The study conducted on the Medical schools in Southeast Asia reported that that their schools are in a dynamic state. They are gradually moving towards student-centered learning and gradually redefining their learners approaches.<sup>15</sup> A study at King Edward medical university showed that postgraduates at King Edward medical university have predominantly strategic approach as compared to the medical students. Teaching and assessment methodology, clinical environment and role of supervisor were the source of change in the learning approach.<sup>16</sup>

The different international, regional and local researches emphasized on various aspects of learning approaches of medical students in their pre/post graduate levels and emphasized on curriculum planning, assessment methodologies and supervisors role, but there seems to be a gap in the research particularly at our local level, regarding the comparison of the learning approaches of first year and final year medical students and the different factors which shifted the students from one type of learning to another in final years of their medical school.

The aim of our study is to identify the learning approaches of medical students in the beginning and end of their five years of undergraduate medical education and to identify the factors

affecting their learning approach during the final year of their medical school. We will also try to identify any associated demographic differences between surface and deep learners.

The deficient areas in development of our local medical educational programs will be highlighted and its improvement will help nurture the students learning process and will make them better professionals. It will not only help the students to learn their approach and become deep learners or strategic learners but also guide the teachers to identify the factors promoting deep learning in students. The educationists will be able to improve their teaching skills, assessment methods and curriculum planning.

This study will positively sensitize medical and health educators and Policy makers regarding the importance of the part it can play in developing a curriculum for medical colleges.

This study will address the different learning approaches of first year and final year medical students and how it varies among at the entry and exit of their undergraduate medical education.

## METHODS

The concurrent mixed method study was conducted in pragmatic paradigm to analyze quantitatively the learning approaches of first and final year medical student at Ameer-ud-Deen Medical College (AMC). The study was approved by ethical committee (25/MU-1/LGH/2023).

There were two types of data: quantitative and qualitative.

Non-Probability convenience sampling for quantitative data and Purposeful sampling for qualitative data will be employed for the study.

A total of 200 participants were included after approval from the ethical review board; 100 first year and 100 final year MBBS students were included for quantitative analysis in the study who volunteered to participate by nonprobability purposive sampling technique. After informed consent from the participants, the ASSIST online

questionnaire (Quantitative data instrument) were distributed amongst first and final year medical students to collect the quantitative data and to identify the type of students learning approach (superficial, deep or strategic).

The first phase of this design will be a quantitative exploration of different types of learners in both first year and final year medical students through an online questionnaire containing demographic questions and the ASSIST Questionnaire.<sup>17</sup> The English version of ASSIST has been validated by Byrne et al. Respondents will answer the questionnaire using 5 point modified Likert scale (1=strongly disagree, 2=disagree somewhat, 3=unsure, 4=agree somewhat and 5=strongly agree). From this initial quantitative phase, the quantitative findings will be used and it will involve collecting quantitative data regarding the different learning approaches of first and final year medical students and then explaining the quantitative results.

The participants were properly briefed about the objectives of the study, and confidentiality of responses were ensured by maintaining anonymity of the responder. Quantitative data collected through ASSIST questionnaire is then analyzed through SPSS version 23. Descriptive statistics is performed in the form of mean and standard deviation.

In-depth qualitative data will be collected in the second phase, conducted as a follow up to the quantitative results to help explain the quantitative results. In this exploratory follow-up, the tentative plan is to explore different learners through qualitative in-depth interviews till the saturation point is reached. Recorded interviews are transcribed and coding is done in addition to identification of themes and subthemes through content analysis.

Data obtained from the qualitative phase was triangulated with the data from the quantitative phase for the validation of results.

Percentages were calculated and compared between the first and final year students.

The different type of learners were calculated by adding the three types of questions individually and assigning the learner type to the individual (from which one of the three he/she will get the highest score).<sup>16</sup>

## RESULTS

The male to female ratio in our participants were 53% to 47% respectively.

Learning Approach	Year	N	P-Value
Superficial	First year	10	0.505
	Final Year	24	
Deep	First year	62	0.05
	Final Year	50	
Strategic	First year	28	0.025
	Final Year	26	

**Table-I. Learning approaches of first year and final year MBBS students**

As shown in Table-II, amongst all male students, there was no significant difference seen in superficial (P value = 0.676), deep (p value = 0.126) and strategic learning (p value = 0.123) approaches at entry and exit points of their medical college. Amongst all female students, there was also no significant difference seen in superficial (P value = 0.226), deep (p value = 0.245) and strategic learning (p value = 0.106) approaches at entry and exit points of their medical college.

However as calculated in Table-I, when the comparison was made collectively (taking both male and female students together) the shift of Final year students away from strategic and deep learning was seen with a P value of 0.025 and 0.05 respectively and is statistically significant. No significant difference between first year and second year students were noted in their approach as surface learner (p value = 0.505).

When the final year students were interviewed different themes were identified and we were able to interview eight students before reaching the saturation point. Major themes identified are clinical experience, teaching peers/seniors, social media, assessment, syllabus, COVID.

The theme / Sub theme that led to the change of the learning approaches of final year students

with their comment verbatim are given in Table-III.

Gender	Learning Approach	Year of Study	N	P-Value
Male (N=106, 53.0%)	Superficial	First year	7	0.676
		Final Year	13	
	Deep	First year	29	0.126
		Final Year	26	
	Strategic	First year	16	0.123
		Final Year	15	
Female (N=94, 47.0%)	Superficial	First year	3	0.226
		Final Year	11	
	Deep	First year	33	0.245
		Final Year	24	
	Strategic	First year	12	0.106
		Final Year	11	

**Table-II. Gender based learning approaches of first year and final year MBBS students**

## DISCUSSION

The learning approach of the students especially the medical students has always been an important aspect and a major concern of teachers as it has major implications on the educational outcome of the students. This resulted in the development of different instruments (e.g ASSIST questionnaire) to measure the students characteristic orientation to learning where students are divided into deep, surface and strategic learners accordingly.<sup>18</sup>

The students who are surface learners need to shift towards deep learning. The teachers and the curriculum planners need to work together for this positive shift, e.g. implementing student-centered curriculums and aligning different assessment methods with the teacher's and student's requirements which in turn enhances the learning process and brings about a positive shift towards deep learning from surface learning. Ultimately, the study patterns and different choices of the medical students affect their learning style.<sup>19</sup> In medical education, identifying the students learning approach has long-term effects on the student's understanding, concept building integration and knowledge retention for problem solving in different clinical scenarios.<sup>20</sup>

	Theme	Sub Theme	Comments Verbatim
Negative Impact	COVID	On line classes	<p>"I am unable to focus in online classes for long" (Participant 3)</p> <p>"Have difficulty in understanding and ultimately you lose your interest." (participant 5)</p> <p>"The internet connection is not good at the college end and there is usually difficulty in understanding" (participant 6)</p>
	Doctor/Patient ratio	Burn out	<ul style="list-style-type: none"> <li>The doctor patient ratio should be corrected.(participant 8)</li> <li>extracurricular activities are lacking(participant 8)</li> </ul>
Positive Impact	Clinical Experience	Patient / Dr. interaction	"Interaction with patients help me learn more readily" (participant 1)
		Clinical skills	"Practicing my clinical skills improve my confidence and learning" (participant 2)
		Practical application	"Help me learn better" (participant 4)
	Teaching	Methodology	"Interactive lectures are always helpful"(participant 7)
		Guidance	"Proper teacher guidance is the key to success." (participant 8)
	Peers/Seniors Influence	Positive and negative influence	'The seniors and peers have usually guided me and advised in a very positive way.' (participant 4 and 7)
	Social Media	Medical globe	"It was helpful in my studies" (participant 5)
		Selfless medicos	"I take help from selfless medicos" (participant 4)
Curriculum	Assessments Monthly planned test, VIVA	<p>"Help me finish the syllabus in time" (participant 2)</p> <p>"Give me confidence to appear in exam viva" (participant 1 and 4)</p>	
	Cognitive Load / Burn out	Due to unorganized and irrelevant things in the curriculum we students burn out. (Participant 3)	

**Table-III. Thematic analysis results with comments verbatim.  
Which factors determine surface, strategic and deep learning approaches among under graduate students?**

The knowledge of the student's learning approach helps the teacher to device proper teaching strategies and to help students improve their academic performance and attain professional skills.

Our study carried out at the exit and entry of MBBS students helped us to explore their learning approaches and to see if there is any change at these two exit and entry points of the students. We also assessed the preference of learning approaches in male and female students. The interviews were conducted for the qualitative data and themes and sub themes emerged from the interviews and pointed towards different factors affecting the Learning approaches of the students as given in the Table-III.

The triangulation of the data led to convergent results of a study. The medical students used deep and strategic approach with strategic

approach decreasing towards the exit year i.e. final year students. No significant difference was seen in the learning approaches between male and female students. Soundariya K in his study found that most of the medical students adopt deep approach which is matching with our results which also showed predominance of deep approach amongst medical students.<sup>21</sup>

From the interviews it appeared that the COVID situation had a major role in shifting the students away from the strategic learning.

It is obvious from the interviews that the students of the final year polished their skills through clinical experience, teachers/peers and senior guidance. All these factors inculcated deep learning in the students. Social media, different assessment methods and the curriculum of the students also have major implications in determining the learning approaches of the students.

Encouraging medical students towards deep learning will not only maximize learning in their university years but will also benefit them in their problem-based learning skills for life. Studies have also demonstrated that the student with deep learning shows better performance in their academics than those with superficial approach.<sup>10</sup> Win may et al. also sowed positive impact on the grades of the students who have a deep learning approach.<sup>12</sup>

### LIMITATIONS OF THE STUDY

Our study is conducted in Ameer ud deen medical college Lahore (AMC) only. The government colleges of Lahore have a higher merit as compared to private medical colleges and colleges outside Lahore. Result of this study cannot be applied on the whole population. In the future, more studies can be conducted in other institutes outside Lahore and private medical colleges to find out the correlation of the learning approaches with academic performance.

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### CONCLUSION

Study suggest that there is a predominance of deep approach in the medical students both at exit and entry points. The final year students drifted away from strategic approach as compared to the first-year students only when males and female students are compared separately as showed in Table-II. This might be due to their clinical exposure and environment, assessment methodologies, curriculum planning, seniors and peer pressure and most importantly their immediate teachers. More we understand the learning styles better we can guide our future generations towards deep learning and improve their attitude and professional skills.

### CONFLICT OF INTEREST

The authors declare no conflict of interest.

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### AUTHORSHIP AND CONTRIBUTION DECLARATION

No.	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	Nighat Haroon Khan	Idea Conception, Data Collection, Data Analysis, Article writing, Proof Reading.	