



## Evaluation of Medical Undergraduate Students' Perception of their Educational Environment - Only DREEM-ing is Not Sufficient

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### ABSTRACT

**Background:** Students' perceptions of their educational environment have a significant impact on their behavior and academic progress. The aim of this study was to assess the perceptions of medical students concerning their educational environment at Datta Meghe Institute of Medical sciences (DMIMS) in India.

**Methods:** This was a cross sectional study wherein DREEM questionnaire was distributed to students from all years of MBBS course. We distributed to 330 medical students out of which 267 were found complete (81%). Focus group discussions were carried out for in depth understanding of the students' perceptions. The data thus collected was analysed by descriptive statistics like percentage and mean and the mean scores between groups were compared by the student 't' test.

**Results:** The total DREEM scores for MBBS year I, II, III first and III second respectively was 125, 125, 118 and 125 averaging 123 for the medical college. The educational environment as perceived by the students was same across the years of study and across gender. The FGD highlighted out the issue of need of more teaching through the skill labs.

**Conclusion:** Our education is perceived as more positive than negative however improvements are required. Focus group discussions brought out few important points which DREEM missed out. Thus combining DREEM questionnaire and qualitative method is recommended.

### KEYWORDS

Educational environment, DREEM

### Introduction

Medical education in India is undergoing changes to keep up with the changing trends in medical education. Medical Council of India (MCI) – in its document Vision 2015 has stressed upon innovations in medical education to produce an "Indian Medical Graduate" to be at par with international standards. Our university follows the Hybrid curriculum and it is been constantly upgraded with newer methods being incorporated into teaching and learning (e.g. Problem Based Learning, Integrated Teaching, Clinical skill lab, Evidence Based Medicine) [1]. Along with these innovations, the 'educational climate' the learner is exposed to, plays a major role in the learning process. 'Educational environment' is defined as everything that happens within the classroom, department, faculty or university. It comprises of the curriculum style, teaching quality, clarity of process, outcomes and assessment, the support mechanisms, teaching techniques, role modelling, enthusiasm and the physical environment. It is one of the most important factors determining the success of an effective curriculum [2].

We undertook this study to measure the perceived academic environment among medical undergraduates using DREEM inventory which would help us identify the strong and weak areas and improve upon the learning environment we provide.

### Method:

This observational cross sectional study was conducted at Datta Meghe Institute of Medical Sciences in Maharashtra, India. The study population comprised of the undergraduate students from all the years of MBBS course i.e. I year, II year, III /1 year and III/2 year. A total of 330 students were given the DREEM (Dundee Ready Education Environment Measure) questionnaires of which 267 were found to be complete and were analysed. The questionnaire was administered at the end of a lecture class. Prior to administration of the questionnaire, the class was addressed regarding the process, the purpose and the issue of anonymity of students for the study. Three focus group discussion were then carried out with 7 – 10 stu-

dents participating each from II year, III first year and III second year being selected randomly.

### Measures:

DREEM is a validated universal diagnostic inventory which has been used worldwide for gathering information about the educational environment in medical institutions. It was originally developed at Dundee University [3]. DREEM contains 50 statements concerning a range of topics directly relevant to the educational climate. The students were asked to read each statement and to respond using a five-point Likert scale ranging from strongly agrees to strongly disagree. Items are scored as follows: 4 for strongly agree, 3 for agree, 2 for uncertain, 1 for disagree and 0 for strongly disagree. The negative statements are scored in reverse. Higher the score, more positive and favorable is the educational climate.

The 50-item DREEM has a maximum score of 200, indicating the ideal educational environment. It consists of the following five subscales:

- Students' Perceptions of Learning (12 questions, maximum score: 48)
- Students' Perceptions of Teachers (11 questions, maximum score: 44)
- Students' Academic Self-Perceptions (8 questions, maximum score: 32)
- Students' Perceptions of Atmosphere (12 questions, maximum score: 48)
- Students' Social Self-Perceptions (7 questions, maximum score: 28)

The DREEM can be used to pinpoint specific strengths and weaknesses within the educational climate by analyzing the responses to individual items. Items that have a mean score of 3.5 or above are classed as 'real positive points'. Items with a mean of two or less should be examined more closely as they are indicative of problem areas. Items with a mean between

two and three are aspects of the climate that could be enhanced.

**Data analyses**

The data was analysed on an excel sheet using descriptive statistics like percentages and mean. Student ‘t’ test was used for the comparison of the scores between the gender and scores between different years of study.

**Results:**

Of the 267 students, 38.6% were male and 61.4% were female. The overall reliability (Cronbach’s alpha) of the DREEM inventory was 0.86 in this study. Table I shows the mean scores for each domain and the mean total DREEM score. The total DREEM score was 125 for first year, 125 for second year, 118 for third first year and 124 for third second year with a score of 123 for this institution. Thus students perceive the learning environment in a more positive manner. The sub-scale scores for the institution were for Students’ perception of learning (SPL) - 30.9 (64.4%) interpreted as ‘**A more positive approach**’, Students’ perception of Teachers (SPT) - 25.7 (58.4%), interpreted as ‘**Moving in right direction**’, Students’ academic self-perception (SASP) - 20.6 (64.4%), interpreted as ‘**Feeling more on the positive side**’, Students’ Perception of atmosphere (SPA) - 29.9 (62.3%) interpreted as ‘**A more positive atmosphere**’, Students’ social self-perception (SSSP) – 16.1 (57.5%) interpreted as ‘**Not too bad**’. Table II shows the scores for each statements.

**Table I**

**Table II**

There was no significant difference in perception of educational environment by male and female students and also among the students of various years of study.

**Discussion:**

Our DREEM scores are comparable with scores from other institutions in India and Asia (Table III) [4-10]. The institutions from UK [11] and Australia [12] show a much better score.

**TABLE III**

The salient points brought out by this study using the DREEM questionnaire are similar to other studies throughout the world. The need for shift of teaching style from teacher centered to student centered is emphasized in this study, so also is the need for teachers’ feedback and support mechanism for stress. The salient points that came out of the FGD were that the students appreciated the introduction of clinical and communication skill labs and requested to have more postings in these labs. They felt the need for getting orientation to the post graduate entrance examinations. They criticised the teacher centered lecturing style and suggested that the lectures to be made more interactive by using quizzes. The students voiced their concern about the stringent attendance rule.

If only DREEM questionnaire was used we would have missed all the above points. Hence supplementation of DREEM with qualitative data is necessary for a complete picture of the educational environment. DREEM creates a snapshot of student perception of their study environment, but cannot provide information about the concerns underlying poor scores. Generation of a better understanding of these concerns through qualitative analysis allows identification of areas that require remediation and provides a mechanism for improving the educational environment [13].

With the introduction of the basic course in medical education for the teachers, we hope to have more student centered active learning going on in the medical schools.

**Conclusion:**

The educational environment in our college was perceived as more positive than negative. However the need of an ‘active student centered learning’ was echoed in this study.

**Outcome of this study:**

The following changes were made for the students by our departments in view of the above findings:

Emphasis on teaching through simulation.

Quizzes are organised for the students.

Effort is made to give feedback to the students.

Subscales	1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> first	3 <sup>rd</sup> second	Interpretation
Students Perception of Learning (SPT) [max score 48]	32	31	29	32	A more positive approach
Students’ Perception of Teachers (SPT) [max score 44]	26	26	25	25	Moving in right direction
Students’ Academic Self Perception (SASP) [max score 32]	21	21	19	22	Feeling more on the positive side
Students’ Perception of Atmosphere (SPA) [max score 48]	29	31	30	30	A more positive atmosphere
Students’ Social Self Perception (SSSP) [max score 28]	17	16	15	16	Not too bad
Total DREEM score [max score 200]	125	125	118	125	More positive than negative

**Table I: DREEM scores for the students.**

Do-main	Statement	1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> first	3 <sup>rd</sup> second	All
SPL	1. I am encouraged to participate during teaching sessions	2.62	2.86	2.32	3.06	2.72
	7. The teaching is often stimulating	2.61	2.68	2.45	2.70	2.61
	13. The teaching is students centred	2.70	2.56	2.43	2.66	2.59
	16. The teaching helps to develop my competence	2.80	2.71	2.72	2.66	2.72
	20. The teaching is well focused	2.83	2.59	2.66	2.99	2.77
	22. The teaching helps to develop my confidence	2.88	2.73	2.57	2.66	2.71
	24. The teaching time is put to good use	2.64	2.62	2.42	2.54	2.55
	<b>25. The teaching over emphasizes factual learning</b>	<b>2.09</b>	<b>2.20</b>	<b>2.28</b>	<b>2.15</b>	<b>2.18</b>
	38. I am clear about the learning objectives of the course	2.75	2.85	2.68	2.96	2.81
	44. The teaching encourages me to be an active learner	2.65	2.71	2.34	2.58	2.57
	47. Long term learning is emphasized over short term learning	2.86	2.55	2.32	2.64	2.60
<b>48. The teaching is too teacher centred</b>	<b>2.14</b>	<b>2.14</b>	<b>2.08</b>	<b>2.07</b>	<b>2.11</b>	

Do-main	Statement	1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> first	3 <sup>rd</sup> sec-ond	All
SPT	<b>2. The course organisers are knowledgeable</b>	<b>3.32</b>	<b>3.05</b>	<b>3.09</b>	<b>3.34</b>	<b>3.20</b>
	6. The course organisers espouse a patient centred approach to consulting	2.54	2.76	2.65	2.67	2.65
	8. The course organisers ridicule the students	2.35	2.56	2.38	2.37	2.42
	<b>9. The course organisers are authoritarian</b>	<b>1.46</b>	<b>1.50</b>	<b>1.29</b>	<b>1.31</b>	<b>1.39</b>
	<b>18.The course organisers have good communication skills with patients</b>	<b>2.97</b>	<b>2.83</b>	<b>2.80</b>	<b>3.13</b>	<b>2.94</b>
	<b>29. The course organisers are good at providing feedback to students</b>	<b>2.48</b>	<b>2.26</b>	<b>1.82</b>	<b>1.96</b>	<b>2.13</b>
	32. The course organisers provide constructive criticism here	2.61	2.71	2.18	2.21	2.43
	37. The course organisers give clear examples	2.77	2.64	2.62	2.60	2.66
	<b>39. The course organisers get angry in teaching sessions</b>	<b>1.55</b>	<b>1.65</b>	<b>1.55</b>	<b>1.25</b>	<b>1.50</b>
	40. The course organisers are well prepared for their teaching sessions	2.78	2.82	2.88	2.58	2.76
<b>50. The students irritate the course organisers</b>	<b>1.26</b>	<b>1.73</b>	<b>1.60</b>	<b>1.93</b>	<b>1.63</b>	
SASP	5. Learning strategies which worked for me before continue to work for me now	2.46	2.53	2.55	2.78	2.58
	<b>10. I am confident about my passing this year</b>	<b>2.99</b>	<b>2.89</b>	<b>2.49</b>	<b>3.42</b>	<b>2.95</b>
	21. I feel I am being well prepared for my profession	2.83	2.76	2.32	2.76	2.67
	26. Last years' work has been a good preparation for this years' work	2.46	2.50	2.51	2.78	2.56
	<b>27. I am able to memorise all I need</b>	<b>2.19</b>	<b>1.79</b>	<b>1.65</b>	<b>1.99</b>	<b>1.91</b>
	31. I have learnt a lot about empathy in my profession	2.74	2.79	2.38	2.84	2.69
	41. My problem solving skills are being well developed here	2.67	2.38	2.32	2.52	2.48
45. Much of what I have to learn seems relevant to a career in healthcare	2.87	2.86	2.60	2.78	2.78	
SPA	11. The atmosphere is relaxed during consultation teaching	2.64	2.59	2.62	2.75	2.65
	12. This course is well timetabled	2.39	2.67	2.68	2.82	2.64
	17. Cheating is a problem on this course	2.38	2.33	2.38	2.22	2.33
	23. The atmosphere is relaxed during lectures	2.28	2.55	2.68	2.58	2.52
	30. There are opportunities for me to develop interpersonal skills	2.86	2.70	2.38	2.48	2.61
	33. I feel comfortable in teaching sessions socially	2.57	2.85	2.68	2.64	2.68
	34. The atmosphere is relaxed during seminars / tutorials	2.35	2.41	2.65	2.16	2.39
	35. I find the experience disappointing	2.30	2.61	2.51	2.43	2.46
	36. I am able to concentrate well	2.41	2.56	2.51	2.52	2.50
	<b>42. The enjoyment outweighs the stress of the course</b>	<b>1.96</b>	<b>2.24</b>	<b>1.98</b>	<b>2.19</b>	<b>2.09</b>
	43. The atmosphere motivates me as a learner	2.58	2.68	2.37	2.37	2.50
	49. I feel able to ask the questions I want	2.46	2.74	2.48	2.55	2.56
	<b>3. There is a good support system for students who get stressed</b>	<b>2.00</b>	<b>1.95</b>	<b>1.60</b>	<b>1.99</b>	<b>1.89</b>
SSSP	<b>4. I am too tired to enjoy the course</b>	<b>1.83</b>	<b>1.56</b>	<b>1.65</b>	<b>1.76</b>	<b>1.70</b>
	<b>14. I am rarely bored on this course</b>	<b>2.10</b>	<b>2.15</b>	<b>1.91</b>	<b>2.13</b>	<b>2.07</b>
	<b>15. I have good friends on this course</b>	<b>3.10</b>	<b>3.03</b>	<b>2.88</b>	<b>3.06</b>	<b>3.02</b>
	<b>19. My social life is good</b>	<b>2.87</b>	<b>2.89</b>	<b>2.78</b>	<b>2.96</b>	<b>2.88</b>
	28. I seldom feel lonely	2.41	2.45	2.42	2.09	2.34
	46. My accommodation is pleasant	2.78	1.88	2.00	2.10	2.20

Table II: The individual item mean score in all students.

	N	Global DREEM score	SPL	SPT	SASP	SPA	SSSP
Our study Maharashtra India, 2013	267	123.2	30.9	25.7	20.6	29.9	16.1
Unnikrishnan et al., Manglore, India, 2012 [4]	386	116.5	27.5	26.5	19	28	15.5
Naser et al.,Kolkatta, India, 2012 [5]	321	105.9	24.5	22.1	16.7	24.7	15.6
Abraham et al., Manipal, India, 2008 [6]	226	117	28	28	19.5	29	15.5
Thomas et al., Manipal, India [7]	126	115	27.5	24.5	17	27	13
Jawaid et al., Pakistan, 2013 [8]	586	114.4	25.8	25.4	18.8	28	16.3
Lokuhetty et al., Srilanka, 2010 [9]	151	107.4	26.8	22.7	18.2	24.7	14.8
Nahar et al., Bangladesh, 2010 [10]	1903	110	28	24	19.5	24	14
Varma et al., England, 2004 [11]	206	139	34.5	32	19.5	34	18.9
Brown et al., Australia, 2008 [12]	548	137.3	32.7	31.4	21	32.6	18.8

**Table III: Comparison of DREEM scores.**

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