



A CROSSECTIONAL STUDY ABOUT PERCEPTION OF THE LEARNING ENVIRONMENT AMONG UNDERGRADUATE STUDENTS IN A MEDICAL COLLEGE

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ABSTRACT **Background:** The environment and surrounding in which medical student live and perceive has shown to have a significant impact on their academic performance and achievements.
Aim and Objectives: To assess the perception of the educational environment by medical students
Methodology: The Dundee Ready Education Environment Measure (DREEM) inventory was used. DREEM was administered to undergraduate medical students (n = 255) and the scores were compared using a nonparametric test.
Results: Gender wise, there was not much difference in the students' perceptions. The difference between the scores among four batches was statistically significant. The overall DREEM score was 89.23/200. However 32.9% of students find the educational environment more positive than negative.
Conclusions: A large number of diverse and hidden factors influence the way students perceive their educational environment. A larger study may need to be undertaken to verify the above results and conclusions.

KEYWORDS : Dundee Ready Educational Environment Measure, Educational environment, Medical student, Perception.

BACKGROUND

The 'educational environment' defined as everything that happens within the classroom, department, faculty or university. (1) The environment and surrounding in which medical student live and perceive has shown to have a significant impact on their behavior, sense of well being, happiness, achievements and most importantly their academic performance. There is a proven correlation between educational environment and valuable outcome of student's achievement, satisfaction and success. (1) Studies have shown that Educational environment, the role of faculty, introduction of technology etc plays an important role in medical student's academic performance. (2-5) The behaviors of medical students are determined not only by their personality but by the characteristics of the learning environment as well. (6) The world over, medical educators are attempting to reform the educational environment so as to make it student friendly without compromising the standards and the quality of learning. Successful management of the curriculum is only possible with systematic feedback and assessment. (7) As learning environment affects student's motivation and achievement, it is important to get feedback from the students on how they feel about their learning environment (8,9). There are only limited studies from India in this regard.

The medical council of India and the government of India are both interested in improving the quality of Indian Medical Graduates, by legislation and standards i.e make it conducive of learning. The expectations and experiences of students around the country differ with respect to the medical institution. It is essential to utilize appropriate methods and instruments to assess the educational environment in order to ascertain what is happening. A variety of the instruments are available. The Dundee Ready Educational Environment Measure (DREEM) is a culturally non-specific, generic instrument, developed to analyze undergraduate educational environment as perceived by the medical students. This valuable tool was originally designed in English (Roff, et al., 1997) and has been translated into various languages. (10)

The present project was designed to study the perception of students regarding educational environment and, assess differences in perception between gender, different batches and low and high achievers. The study intends to suggest corrective measures to improve the educational environment.

AIM & OBJECTIVES

Aim

To assess the perception of the educational environment by medical students

Objectives

1. To identify whether there is any gender difference in the

perception of the educational environment.

2. To assess differences in perception of the educational environment between the batches.
3. To compare the perceptions of the educational environment of high achievers and low-achievers

METHODOLOGY

It was a cross-sectional study conducted among all medical students who have cleared first professional examination (n=300), in Christian Medical College Ludhiana. Approval from the Institutional research and ethical Committee of our medical college was obtained and written informed consent was taken from participants. The data was collected batch wise. The instrument (in a printed format) was distributed among undergraduate students. Before administering DREEM 50 item questionnaire, along with some additional questions for evaluation, students were explained the purpose of this data collection. Participation in the study was optional and confidentiality of the respondents was maintained and consent was taken. DREEM questionnaire was administered to students after their scheduled lecture. The completed questionnaires were collected at the same session. Total duration of each session was one hour, about 15-20 minutes of briefing and 40-45 minutes for filling form.

The students who have experienced failure at least once in university examination during MBBS curriculum were labeled as low achievers (UA). Student who never experienced failure were labeled as academic high achiever (HA). Hence students who had at least once appeared for summative (university) examination were included in the study.

The response rate was 85%, i.e total 255 students filled DREEM questionnaire.

Exclusion criteria – Respondents who did not return back the complete questionnaire were not included in the study.

Instrument

The DREEM questionnaire comprises 50 items, and has a maximum score of 200, indicating the ideal education environment. Items are in the form of statements relating to the student's course environment (e.g., I am encouraged to participate in class), which are rated by 5-point Likert scale, where 4 = strongly agree, 3 = agree, 2 = unsure, 1 = disagree and 0 = strongly disagree. Nine items are worded negatively (e.g., the teachers ridicule the students) and were reverse scored by the researcher. Scoring was carried out in the questionnaire forms filled up by the students.

The DREEM items are grouped into 5 subscales covering different aspect of the educational environment:

	Subscales	No of questions	Maximum Score
1	Students' perceptions of learning	12	48
2	Students' perceptions of teacher	11	44
3	Students' academic self perceptions	8	32
4	Students' perceptions of atmosphere	12	48
5	Students' social self perception	7	28
	Total	50	200

The response to individual item in the DREEM questionnaire is employed to assess particular strengths and weakness of the educational climate.

Data Analysis

Data was analyzed using epi- info software 3.43 version. Mean scores and standard deviation for each item was derived. Comparison of items between HA and UA and the two gender was done by unpaired t-test and level of significance was considered as p<0.05. One-Way ANOVA was used to compare perception between different batches.

OBSERVATIONS AND RESULTS

The results of the study are as under:

A total of 255 students undertook the DREEM questionnaire. The group included 168 (65.9%) girls and 87 (34.1%) boys. The mean age of students was 20.85 + 1.34. 88.5% of students have never failed, 11.5% of students have failed once or more than once. 32.9% of students perceive education environment is "More positive than negative" and only 2% perceive it as poor(Table1). For all of the students taken together (n= 255), the total DREEM score, out of a maximum possible of 200, was 89.23+21.90. The mean score for perception of learning was 17.5+7.3; for perceptions of teachers 15.0+5.9; for academic self-perceptions 8.6+5.3; for perceptions of atmosphere 16.7+6.9 and for social self-perceptions 8.3+5.1.

While taking the individual items into consideration, Table 3 shows the items with their average scores in different domains; 12 items scored between 2 and 3; 38 items scored less than 2. The three most highly rated items were 'There is a good support system for students who get stressed (2.56),' 'The teaching over emphasizes factual learning,' (2.51) and 'The teachers are authoritarian' (2.45). The three items that students had the greatest problem with were 'I have good friends on this course' (0.89), 'Much of what I have to learn seems relevant to a career in medicine,' (1.27) and 'I am confident about my passing this year' (1.11).

The difference of total DREEM score in between gender was not significant statistically (p=0.19). The difference of total DREEM score in between HA and LA (Table 2) was not significant statistically (p=0.68).

The total DREEM scores were the lowest for final prof part I students (85.57+22.90) when compared to those of the third prof students (90.61+17.76), final prof part II students (86.66+21.17), and interns (95.37+25.23). One-Way analysis of variance (ANOVA) yielded F (variance ratio) = 2.74, P = 0.040, which indicated statistically significant differences of total DREEM scores between batches.

Table 1: Distribution of students according to DREEM score

DREEM	Score	Number of students(%)	
1	Very Poor	0-50	5(2.0%)
2	Plenty of Problems	51-100	166(65.1%)
3	More Positive than Negative	101-150	84(32.9%)
4	Excellent	151-200	0
	Total		255

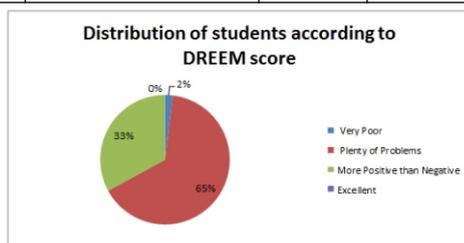


Table 2: Average Dundee Ready Educational Environment Measure (DREEM) scores for comparison among different groups

	Number	DREEM Score	P value
Gender			
Male	87(34.1%)	86.77 + 22.6	0.19
Female	168(65.9%)	90.51 + 21.5	
Achievers			
High achievers	224(88.5%)	89.24 + 22.07	0.68
Low achievers	29(11.5%)	87.48 + 20.41	
Batch			
Interns	52(20.4%)	95.37 + 25.2	0.04
Final prof part II	56(22.0%)	86.66 + 21.2	
Final prof part I	75(29.4%)	85.57 + 22.9	
Second Prof	72(28.2%)	90.61 + 17.8	

Table 3: Average scores of 50 items of Dundee Ready Educational Environment Measure (DREEM)

Students' Perception of Learning (SPL)		Mean	SD
1	I am encouraged to participate in class	1.67	0.97
7	The teaching is often stimulating	1.82	0.85
13	The teaching is student-centered	1.81	0.97
16	The teaching helps to develop my competence	1.60	0.86
20	The teaching is well focused	1.67	0.88
21	I feel I am being well prepared for my profession	1.82	1.01
24	The teaching time is put to good use	1.90	1.01
25	The teaching over emphasizes factual learning	2.51	1.00
38	I am clear about the learning objectives of the course	1.56	0.86
44	The teaching encourages me to be an active learner	1.86	0.98
47	Long term learning is emphasized over short term learning	1.72	1.03
48	The teaching is too teacher centred	2.11	0.92
Students' Perception of Teachers (SPT)			
2	The teachers are knowledgeable	1.99	0.66
6	The teachers are patient with patients	1.49	0.90
8	The teachers ridicule the students	1.95	1.01
9	The teachers are authoritarian	2.45	0.95
18	The teachers have good communications skills with patients.	1.28	0.86
29	The teachers are good at providing feedback to students	1.96	1.01
32	The teachers provide constructive criticism here	1.93	0.96
37	The teachers give clear examples	1.64	0.83
39	The teachers get angry in class	2.34	1.03
40	The teachers are well prepared for their class	1.57	0.92
49	I feel able to ask the questions I want	1.95	1.11
Students' Social Self-Perceptions (SSSP)			
3	There is a good support system for students who get stressed	2.56	1.01
4	I am too tired to enjoy this course	1.85	1.13
14	I am rarely bored on this course	2.29	1.13
15	I have good friends on this course	0.89	0.92
19	My social life is good	1.31	1.03
36	I am able to concentrate well	1.99	0.93
46	My accommodation is pleasant	1.65	1.25
Students' Academic Self-Perception (SASP)			
5	Learning strategies which worked for me before continue to work for me now	2.01	1.04
10	I am confident about my passing this year	1.11	0.92
22	The teaching is sufficiently concerned to develop my confidence	2.00	0.97
26	Last year's work has been a good preparation for this year's work	1.71	0.97
27	I am able to memorise all I need	2.34	1.06
31	I have learnt a lot about empathy in my profession	1.32	0.91
34	The atmosphere is relaxed during seminars / tutorials	1.76	1.10

35	I find the experience disappointing	1.47	0.93
41	My problem solving skills are being well developed here	1.82	0.98
45	Much of what I have to learn seems relevant to a career in medicine	1.27	0.92
Students' Perceptions of Atmosphere(SPA)			
11	The atmosphere is relaxed during the ward teaching	1.64	0.96
12	This college is well time-tabled	1.65	1.19
17	Cheating is a problem on this course	2.27	1.23
23	The atmosphere is relaxed during the lectures	1.56	0.92
30	There are opportunities for me to develop interpersonal skills	1.48	0.97
33	I feel comfortable in teaching sessions socially	1.56	0.89
42	The enjoyment outweighs the stress of the course	2.03	1.15
43	The atmosphere motivates me as a learner	1.89	0.98
50	The students irritate the teachers	2.15	1.13

Table: 4 Items of Dundee Ready Educational Environment Measure (DREEM) with average scores of 2 or >2

Mean (SD) DREEM item scores		Mean	SD
3	There is a good support system for students who get stressed	2.56	1.01
5	Learning strategies which worked for me before continue to work for me now	2.01	1.04
9	The teachers are authoritarian	2.45	0.95
14	I am rarely bored on this course	2.29	1.13
17	Cheating is a problem on this course	2.27	1.23
22	The teaching is sufficiently concerned to develop my confidence	2.00	0.97
25	The teaching over emphasizes factual learning	2.51	1.00
27	I am able to memorize all I need	2.34	1.06
39	The teachers get angry in class	2.34	1.03
42	The enjoyment outweighs the stress of the course	2.03	1.15
48	The teaching is too teacher centered	2.11	0.92
50	The students irritate the teachers	2.15	1.13

Table 5: Average scores of 50 items of DREEM of Students according to Gender

Students' Perception of Learning (SPL)		Mean Score		P value
		Male	female	
1	I am encouraged to participate in class	1.55	1.73	0.17
7	The teaching is often stimulating	1.84	1.80	0.75
13	The teaching is student-centered	1.87	1.77	0.44
16	The teaching helps to develop my competence	1.45	1.68	0.04
20	The teaching is well focused	1.56	1.73	0.16
21	I feel I am being well prepared for my profession	1.64	1.92	0.04
24	The teaching time is put to good use	1.82	1.94	0.35
25	The teaching over emphasizes factual learning	2.66	2.44	0.11
38	I am clear about the learning objectives of the course	1.49	1.60	0.37
44	The teaching encourages me to be an active learner	1.72	1.93	0.11
47	Long term learning is emphasized over short term learning	1.75	1.70	0.74
48	The teaching is too teacher centred	2.15	2.10	0.65
Students' Perception of Teachers (SPT)				
2	The teachers are knowledgeable	1.92	1.63	0.20
6	The teachers are patient with patients	1.53	1.48	0.65
8	The teachers ridicule the students	2.09	1.88	0.10
9	The teachers are authoritarian	2.67	2.34	0.01
18	The teachers have good communications skills with patients.	1.41	1.21	0.07
29	The teachers are good at providing feedback to students	1.85	2.01	0.22
32	The teachers provide constructive criticism here	1.83	1.99	0.2

37	The teachers give clear examples	1.64	1.64	0.99
39	The teachers get angry in class	2.52	2.24	0.04
40	The teachers are well prepared for their class	1.52	1.60	0.52
49	I feel able to ask the questions I want	1.64	2.10	0.001
Students' Social Self-Perceptions (SSSP)				
3	There is a good support system for students who get stressed	2.55	2.57	0.88
4	I am too tired to enjoy this course	1.82	1.87	0.72
14	I am rarely bored on this course	2.37	2.24	0.40
15	I have good friends on this course	0.72	0.98	0.03
19	My social life is good	1.28	1.33	0.67
36	I am able to concentrate well	2.05	1.96	0.47
46	My accommodation is pleasant	1.09	1.95	0.00
Students' Academic Self-Perception (SASP)				
5	Learning strategies which worked for me before continue to work for me now	1.92	2.06	0.30
10	I am confident about my passing this year	1.06	1.13	0.50
22	The teaching is sufficiently concerned to develop my confidence	1.90	2.06	0.20
26	Last year's work has been a good preparation for this year's work	1.71	1.71	0.99
27	I am able to memorise all I need	2.16	2.43	0.05
31	I have learnt a lot about empathy in my profession	1.47	1.24	0.05
34	The atmosphere is relaxed during seminars / tutorials	1.59	1.85	0.06
35	I find the experience disappointing	1.45	1.48	0.78
41	My problem solving skills are being well developed here	1.69	1.89	0.12
45	Much of what I have to learn seems relevant to a career in medicine	1.13	1.35	0.07
Students' Perceptions of Atmosphere(SPA)				
11	The atmosphere is relaxed during the ward teaching	1.69	1.62	0.58
12	This college is well time-tabled	1.66	1.65	0.99
17	Cheating is a problem on this course	2.02	2.39	0.02
23	The atmosphere is relaxed during the lectures	1.52	1.59	0.55
30	There are opportunities for me to develop interpersonal skills	1.29	1.58	0.02
33	I feel comfortable in teaching sessions socially	1.53	1.58	0.68
42	The enjoyment outweighs the stress of the course	1.95	2.07	0.46
43	The atmosphere motivates me as a learner	1.89	1.89	0.95
50	The students irritate the teachers	2.10	2.17	0.64

DISCUSSION

The global mean score of the study sample (89.2) similar to the study results from eighth semester students (89.8) of University College of Medical Sciences, India (16). The mean DREEM score of Kasturba medical college in India was reported as 107.44/200 (12).

While taking the individual items into consideration, none of our students scored any item above 3, 12 scores ranged between 2 and 3 (Table 3 and 38 items were scored less than 2. Negative items (score below 2) were indicated as problem areas. These areas require further investigations and remedial steps. The highest rated (2.56 + 1.01) item was "There is a good support system for students who get stressed", similar finding was reported by Shubhada Gade in their study. (18) The study population perceived that teaching over emphasizes factual learning and the teaching is too teacher centered. Other items as 'Much of what I have to learn seems relevant to a career in medicine,' and 'I am confident about my passing this year' are rated with lowest score indicating problem in learning environment. These responses to learning indicate that there is a need for change in curriculum. The study population indicated that they prefer teachers to be more patient and less authoritarian and perceived these as problem areas. Same perception was found in another study by Mayya et al. 2004 (12). These items are the areas of concern and the most difficult area of educational environment to change. Several problem areas were identified in all the

subscales, students' perception of atmosphere indicated that atmosphere is stressful and less motivational.

Though the overall DREEM score did not show a significant gender wise difference, however mean DREEM domain scores in male and female students revealed that as compared to males, females had significant positive perception regarding Social Self-Perception ($p=0.03$). 9 items (items 16, 21, 9, 39, 49, 15, 46, 17, 30) (Table 5) were found to have significant difference ($p < 0.05$) between male and female students. The difference in perception of educational environment between HA and LA was not statistically significant. There is decline in scores in final prof part 1 and final prof part 2 as compared to second prof and interns group of students. It may be due to stress among final year students due to their more challenging teaching and learning activities.

Limitations:

1. A limitation of this study is that it used a questionnaire with predetermined choices, some factors that impact the environment in our institution may have been left out.
2. A survey may not capture all the information that a qualitative interview can, however DREEM has been found to be useful and more efficient than qualitative interviews (15).
3. The educational environment is a complex mix of multiple factors, specific to each institution, and the results of this study may not be applicable to other institutions.

CONCLUSIONS

Improvement is required across all domains of the educational environment at this institution. No difference in perception was found between genders and high and low achievers group, though evidence is available that links a favorable learning environment to improved student learning. Further research is required to correlate perceptions of the environment with academic success.

As the learning environment affects student motivation and achievement, it is important to get feedback from the students on how they are experiencing their learning environment. The assessment provides a useful guide into areas that the students felt 'good' about, which should be reinforced and the weaker areas that needs improvement.

IMPLICATIONS

This is the first assessment of students' perception of the educational environment at our institution, thus it can serve as a baseline to monitor the effects of curricular change over a period of time. These results indicate that there is need for further enhancement in educational environment for more effective learning. Such a study requires further expansion to explore reasons of poor score items.

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