

Perceptions of the educational environment of a new medical school, Saudi Arabia

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Abstract:

Background: Educational environment hugely impacts the learning process. An assessment of perceptions of students about the educational environment at Qassim University College of Medicine (QUCOM) would assist educators and college administration in gauging the quality of the learning in this venue. The aim of this study is to see the educational environment of an innovative undergraduate medical program through the eyes of students.

Methods: During the academic year 2011/2012, a survey was performed at QUCOM using the Dundee Ready Education Environment Measure (DREEM) questionnaire. All undergraduate students participated in the survey. Comparisons between students' responses according to their study years in the college and gender were taken into consideration. Data were entered and analyzed using SPSS version 17.0. The scores assigned by the students to questionnaire items were converted into and continuous variables and summarized as means.

Results: Out of 467 students enrolled at QUCOM 454 students (61% males and 39% females) participated in the study (response rate of 97%). The mean age of the participants was 21.4 (standard deviation: 2.2). The mean total score was 112, out of a possible maximum of 200. The mean total score for Perception of Learning was 26/48; for Perceptions of Teaching 25/44; for Academic Self perceptions 20/32; for Perceptions of Atmosphere 26/48 and for Social Self Perceptions 15/28. The mean score of 1.13 for Item 3 "There is a good support system for students who get stressed" was the lowest and is indicative of the pressures felt by the students. While the mean score of 3.24 for Item 15 "I have good friends in this school" was the highest showing good relationship between students. There were no significant differences of perceptions between genders and between basic sciences and clinical phases.

Conclusion: Students perceive the educational environment at QUCOM as having more positives than negatives. Certain areas need further exploration and improvements, which should serve as a decision support mechanism for educationists at QUCOM in rationalizing their priorities for reforms.

Key words: Educational climate, Educational environment, Medical culture, Medical education

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Background:

Educational environment is an important factor in nurturing students' learning. Recently, medical education has undergone major changes world-wide; ⁽¹⁾ making students' perceptions of their educational environment to attract more attention. ^(2, 3) This assumes ever increasing importance when we consider that the quality of the educational environment relates strongly to the effectiveness of an educational program. ⁽⁴⁻⁷⁾

Good learning correlates positively with the students' perceptions of the educational environment, which in turn impacts students' learning experiences and outcomes. ^(7, 8) One of the methods ⁽⁹⁾ for assessing the educational environment is to evaluate students' perceptions of the environment by using the Dundee Ready Education Environment Measure (DREEM), particularly in health and medicine programs. ⁽¹⁾

This paper reports the results from a survey of the undergraduate students at QUCOM, Qassim, Saudi Arabia using the 50-item DREEM which has been validated and found to be reliable in a range of cultural contexts. ^(1, 5, 8, 10, 11, 12, 13, 14)

The aim of the study was to evaluate the students' perceptions of the educational environment and climate of an innovative undergraduate medical curriculum. The findings of this study could be used as a basis to support curriculum planners at QUCOM to implement the necessary changes in the medical program. These data may also serve as a baseline to help subsequent studies ⁽¹⁵⁾ detects results of the corrective strategies.

Methods:

Context

During December 2011-March 2012 a quantitative survey was performed in QUCOM. It is one of the newly established medical colleges in Saudi Arabia. It offers one of the innovative medical curricula, which has the following features; Hybrid PBL, Community oriented, Integrated and uses the Spiral approach. Its 6-year program integrates basic and clinical sciences, in which the first 3 years are devoted to basic medical sciences and the remaining for clinical rotations. The latter is mostly spent outside the college where student usually go to hospitals or primary health care

centers for training. Moreover, the program is hybrid which has a healthy mix of student-centered and teacher centered activities. The current annual intake of students is approximately 120.

Participants

All students enrolled at Qassim University College of Medicine.

Instrument

Several questionnaire-based educational tools are available that attempt to 'quantify' the educational environment [James PA, 2002] [Robins, 1997]. However, we chose the DREEM inventory, as more studies have evaluated and validated this method. ^(16, 17, 18) The Arabic version of DREEM inventory consists of 50 questions, each scoring 4, thus giving a cumulative maximum individual DREEM score of 200. The scores are, 4 strongly agree, 3 agree, 2 unsure, 1 disagree and 0 strongly disagree. Negative items are scored in reverse for analysis so that the higher the score the more positive the reading, as with the positively formulated items.

The inventory encompasses five subscales:

- perceptions of learning—12 items/maximum score 48;
- perceptions of teaching—11 items/maximum score 44;
- academic self-perceptions—8 items/maximum score 32;
- perceptions of atmosphere—12 items/maximum score 48;
- social self-perceptions—7 items/maximum score 28.

The inventory yields two types of information: mean total scores for 50-item scale or each of its five subscales, and individual item mean scores for each of the 50 items.

In conjunction with the variables such as gender, year of study, the results can be used 'diagnostically' to identify strengths and weaknesses in the institution's educational environment as perceived by the students.

The questionnaire was administered to 467 undergraduate medical students, 454 responded. The mean score for each item was calculated.

The overall scores were interpreted using the guide developed by McAleer and Roff (19, 20) that indicate that a score of 51–100 indicates “plenty of problems, while a score of 101 to 150 is “more positive than negative.” Indeed, it is advised that a score of 100 should be interpreted as being viewed with “considerable ambivalence by students and as such needs to be improved.” Items with an individual mean scores of less than 2 should be closely examined.

The study proposal was scrutinized and approved by the Medical Research Committee of Qassim University College of Medicine. Anonymity was maintained throughout.

Data analysis:

All questionnaires were coded and entered into an electronic database. For the purpose of analysis, the total score for each item was computed as 4 strongly agree, 3 agree, 2 unsure, 1 disagree and 0 strongly disagree. The scores for the statements relating to negative attributes were computed in the reverse order. Data analysis was carried out using SPSS version 17. Descriptive statistics were computed to present distribution of study participants by gender and student’s class level. Analysis of variances was used to analyze variance of group means.

Results:

Out of 467 students enrolled at QUCOM 454 students participated in the study with a response rate of 97%. The mean age (and Standard Deviation) of the participants were

21.4 (2.2); 61% of the students were males and 39% were females.

The total mean DREEM score was 112 out of 200. Students gave a score of more than 3 for item no. 15 “*I have good friends in this school*” which has scored the best (3.244) and Item no. 46 “*My accommodation is pleasant*” which has a score of (3.148). On the other hand, the students scored less than 2 for 11 items which are;

- *This school is well timetabled*
- *The atmosphere is relaxed during lectures*
- *The teaching is often stimulating*
- *The atmosphere is relaxed during the ward teaching*
- *The teaching is too teacher centered*
- *The atmosphere motivates me as a learner*
- *The enjoyment outweighs the stress of studying medicine*
- *The teaching over-emphasizes factual learning*
- *I am too tired to enjoy this course*
- *I am rarely bored on this course*
- *There is a good support system for students who get stressed*

Table 1 presents the subscale for Students’ Perceptions of Learning in which the mean total for the subscale was 26 out of a possible 48 while **Table 2** reports the subscale for Students’ Perceptions of Teaching, in which the mean total score was 25 out of a possible score of 44.

Table 1. Students’ perceptions of learning.

Item No.	Items	n	Mean (SD)
1	I am encouraged to participate	452	2.1593(1.04926)
7	The teaching is often stimulating	450	1.9267(1.04953)
13	The teaching is student centered	452	2.0354(1.07525)
16	The teaching is sufficiently concerned to develop my competence	451	2.3282(1.10899)
20	The teaching is well focused	436	2.2110(1.02001)
22	The teaching is sufficiently concerned to develop my confidence	442	2.5747(1.06696)

24	The teaching time is put to good use	442	2.0566(1.07916)
25	The teaching over-emphasizes factual learning	437	1.4760(1.07835)
38	I am clear about the learning objectives of the course	448	2.2946(1.21981)
44	The teaching encourages me to be an active learner	446	2.1323(1.11092)
47	Long-term learning is emphasized over short-term	444	2.4122(1.10363)
48	The teaching is too teacher centered	445	1.8899(1.12667)

Mean total score 26 out of 48 Note: *n=number of respondents

Table 2. Students' perceptions of teaching.

Item No.	Items	n	Mean (SD)
2	The teachers are knowledgeable	452	2.4867(.95221)
6	The teachers are patient with the patients	443	2.5282(.87499)
8	The teachers ridicule the students	448	2.3393(1.20627)
9	The teachers are authoritarian	448	2.2455(1.17676)
18	The teachers have good communication skills with patients	433	2.4319(.81967)
29	The teachers are good at providing feedback to students	443	2.0858(1.11219)
32	The teachers provide constructive criticism here	445	2.0360(1.16386)
37	The teachers give clear examples	442	2.4932(1.04814)
39	The teachers get angry in class	448	2.1094(1.15822)
40	The teachers are well prepared for their classes	441	2.2177(1.12523)
50	The students irritate the teachers	447	2.5190(1.14193)

Mean total score 25 out of 44 Note: *n=number of respondents

Table 3. Students' academic self-perceptions.

Students' Academic Self-perceptions mean total score was 20 out of a possible 32

Item No.	Items	n	Mean(SD)
5	Learning strategies which worked for me before continue to work for me now	446	2.1704(1.00900)
10	I am confident about my passing this year	446	2.8072(.98004)
21	I am feel am being well prepared for my profession	441	2.3583(1.10515)
26	Last year work has been a good preparation for this year's work	440	2.1205(1.18130)
27	I am able to memorize all I need	441	2.0317(1.13574)
31	I have learned a lot about empathy in my profession	442	2.7443(1.07551)
41	My problem-solving skills are being well developed here	448	2.6451(.99278)
45	Much of what I have to learn seems relevant to a career in medicine	445	2.5506(1.03117)

Mean total score 20 out of 32 Note: *n=number of respondents

Table 4 reports Students' Perceptions of Atmosphere total score was 26 out of a possible 48 (**Table 4**).

Table 4. Students' perceptions of atmosphere.

Item No.	Items	<i>n</i>	Mean (SD)
11	The atmosphere is relaxed during the ward teaching	443	1.9142(1.19647)
12	This school is well timetabled	451	1.9357(1.25533)
17	Cheating is a problem in this school	444	2.7410(1.20497)
23	The atmosphere is relaxed during lectures	442	1.9276(1.20814)
30	There are opportunities for me to develop interpersonal skills	442	2.4774(1.04792)
33	I feel comfortable in class socially	442	2.4434(1.07443)
34	The atmosphere is relaxed during seminars/tutorials	443	2.1941(1.11682)
35	I find the experience disappointing	440	2.3409(1.21012)
36	I am able to concentrate well	440	2.2182(1.10399)
42	The enjoyment outweighs the stress of studying medicine	447	1.6890(1.24722)
43	The atmosphere motivates me as a learner	447	1.8166(1.15692)
49	I feel able to ask the questions I want	446	2.0785(1.19197)

Mean total score 26 out of 48 Note: **n*=number of respondents

The subscale of Students' Social Self-perceptions means total score was 15 out of a possible 28 (**Table 5**).

Table 5. Students' social self-perceptions.

Item No.	Items	<i>n</i>	Mean (SD)
3	There is a good support system for students who get stressed	452	1.1394(1.02108)
4	I am too tired to enjoy this course	450	1.4400(1.16833)
14	I am rarely bored on this course	452	1.3451(1.22444)
15	I have good friends in this school	451	3.2439(.83954)
19	My social life is good	444	2.9054(1.13832)
28	I seldom feel lonely	444	2.1779(1.25967)
46	My accommodation is pleasant	446	3.1480(1.06869)

Mean total score 15 out of 28 Note: **n*=number of respondents

Table 6. Shows comparison of mean of the DREEM domain scores between class levels. Students from clinical phase showed significant better academic self-perception ($P < 0.05$)

Table 6. Comparison of mean DREEM domain scores between class levels

Domain	Basic Science Phase	Clinical Phase	Interpretation
Students perception of learning (SPL)	25.6/48	25.1/48	minimal change to negative perception
Students perception of teachers (SPT)	25.3/44	25.3/44	No change
Students academic self-perception (SASP)*	19.1/32	20.1/32	Feeling more on the positive side
Students perceptions of atmosphere (SPA)	25.9/48	25.4/48	minimal change to negative perception
Students social self-perceptions (SSSP)	15.6/28	15.1/28	minimal change to negative perception
Total DREEM item score for the group	112.5/200	110.5/200	minimal change to negative perception

* $P < 0.05$

Table 7. Shows comparison of mean of the DREEM domain scores between genders. No significant differences were elicited.

Table 7. Comparison of mean DREEM domain scores between genders

Domain	Male	Female	Interpretation
Students perception of learning (SPL)	24.9/48	26.3/48	A more positive perception with females
Students perception of teachers (SPT)	25/44	25.9/44	Females have better perception of teaching
Students academic self-perception (SASP)	19.4/32	19.5/32	No obvious difference
Students perceptions of atmosphere (SPA)	25.9/48	25.5/48	males have better perception of atmosphere
Students social self-perceptions (SSSP)	15.3/28	15.7/28	No obvious difference
Total DREEM item score for the group	111/200	112/200	Females have better perception of educational environment

Discussion:

The mean total score 112/200 is more positive than negative though not "excellent" (excellent is an overall mean of 151–200 out of 200).^(19, 20) It compares less favorably with the total mean scores achieved in Dundee (139), Birmingham Medical School (139), Koirala Institute of Health Sciences, Dharan, Nepal (130), and some medical schools in the Middle

East for example, Gulf Medical University-UAE (120), and KSAU-HS- Saudi Arabia (131), Nigerian Medical School (118), but compares more favorably with other medical schools in Saudi Arabia, Umm Al-Qura University (107), King Abdul Aziz University (102), [11] King Saud University (89.9) and (100) in 2 different studies, and other regional schools like Sana'a University (100) and Kuwait University (105).

Table 8

Table 8. Comparison of DREEM total scores with other regional and international universities			
References	Country	University	Total DREEM Score
Roff and McAleer (2001)²¹	Nigeria	Nigeria Undergraduate Medical School	118
	Nepal	Koirala Institute of Health Sciences, Dharan	130
Till (2004)¹⁷	Canada	Canadian Memorial Chiropractic College	97
Mayya and Rolf (2004)¹	India	Kasturba Medical College	107
Varma et al (2005)²²	UK	Birmingham University	139
Abraham et al. (2008)²³	India	Melaka Manipal Medical College	117
Al-Hazimi et al (2004)¹⁰	Dundee	Dundee Medical School	139
	KSA	Umm Al-Qura University	107
	KSA	King Abdulaziz University	102
	Yemen	Sana'a University	100
Al-Ayed and Sheik (2008)¹¹	KSA	KSU	89.9
Bouhaimed et al (2009)²⁴	Kuwait	Kuwait University	105
Makhdoom et al (2009)²⁵	KSA	Taiba University	109
Shehnaz and Sreedharan (2011)²⁶	United Arab Emirates	Gulf Medical University	120
Alshehri et al (2012)²⁷	KSA	King Khalid University	112.95
Zawawi and Elzubeir(2012)¹³	KSA	KSAU-HS	131
	KSA	KSU	100
This study (2013)	KSA	Qassim University	112

Considering the degree of learning autonomy the student community enjoys in a PBL or a hybrid-PBL environment, one would expect that students would evaluate their learning environment more positively than students from a purely traditional one. However, the mean total score at QUCOM was less than 120/200 which, interestingly, makes it closer to the usual scores of traditional medical schools.⁽²⁸⁾

One of the items that scored a mean of more than 3.0 was related to students 'having good friends at QUCOM', – which shows the presence of positive and friendly relationships amongst students. This may be explained by the nature of study at a PBL school which usually encourages interaction between peers which in turn brings them closer to one another.^(29, 30) Additionally, the network of friends formed as a result of cooperative learning environment and the resulting social interaction serve as a coping mechanism to

mitigate the effects of stress generated by the study load. Hence, a high rating for this item was not unexpected.

Of overwhelming concern was the poor rating of some of the items, one of which was - *The teaching is too teacher centered*-. The connotation of this low rating is that students feel disempowered in matters related to their learning. It appears that students perceive teachers as the dominant partners in the learning transaction. Interestingly, it gives rise to a number of other questions. Could it be related to the adoption of hybrid curriculum where the educational philosophy has not been clearly defined? Is the delivery of the curriculum at QUCOM, in actual practice, closer to traditional system rather than a hybrid PBL? Is there an issue with teachers' competencies and capacities? Is there a weakness in the monitoring and evaluation system that is unable to highlight this issue? Apparently, that leads us to believe that

QUCOM is faced with the situation where teachers are still giving lectures as a way to deliver the curriculum. Also there could be a sizeable undercurrent of the usual teacher-centeredness. In this situation students' learning behaviors may deviate from being student-centered to spoon feeding teacher-centered conduct.

Another important item which was also rated poorly by students is *-The enjoyment outweighs the stress of studying medicine-* although it is quite common problem especially among first year students, ⁽³¹⁾ further studies needed to know what are the actual sources of this stress? However, one thing that could be deduced with reasonable certainty is that the stress is so huge that it completely overshadows the enjoyment and highlights the need for introducing healthy extracurricular activities.

According to the guide ^(19, 20) students' perceptions of learning, teaching, atmosphere, academic self-perceptions, and social self-perceptions are within acceptable range. Their rating of these areas is slightly better than those reported by students in other Saudi Arabian schools ^(10, 25) and some other regional school. ^(10, 24)

Conclusion:

Overall the positive perceptions outnumber the negative perceptions about the educational environment at QUCOM, although the scores are lower than one would expect from a PBL-based learning environment. A deeper qualitative study is needed to further explore and plan curricular reformation strategies. The assessment provides a useful guide into areas that the students felt 'good' about, which should be reinforced and the weaker areas need improvements.

Now that this study has established a baseline, subsequent studies could assess the results of the corrective strategies.

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