Students' Perception of the 'Educational Climate' at the Faculty of Medical Sciences, The University of the West Indies, Jamaica

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ABSTRACT

Background: *In 2001, the Faculty of Medical Sciences at the Mona Campus of The University of the West Indies (UWI) introduced a restructured curriculum in keeping with advances in the philosophy of medical education.*

Objectives: *To explore the quality of the educational environment in the Undergraduate Medical Programme at the Mona campus of the UWI to identify areas for improvement and examine for any differences in student perception in a transitional medical curriculum.*

Methods: *The Dundee Ready Education Environment Measure (DREEM) was self-administered and completed anonymously during April 2004 by 278 (70%) undergraduate medical students (cohorts 2004 – 2007) registered in the Faculty of Medical Sciences, Mona Campus, Jamaica.*

Results: *The overall mean DREEM score was 102.80 ± 21.88 (maximum score 200; the higher the score, the more favourable the perception) and there was no significant difference by year of study. Teacher knowledge was highly rated by students but this was overshadowed by concerns about attitudes and behaviour toward students. The quality of the learning atmosphere was poorly rated with general concerns of an overcrowded curriculum, time-table issues and lack of adequate support systems to deal with student stress.*

Conclusions: *Curriculum managers must identify strategies to improve the student-centredness and student-friendliness of the school's educational environment.*

Keywords: Curriculum, Medical education, undergraduate, Jamaica

Percepción de los Estudiantes Sobre el "Clima Educacional" en la Facultad de Ciencias Médicas, de la Universidad de West Indies, Jamaica

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RESUMEN

Antecedentes: *En el año 2001, la Facultad de Ciencias Médicas en el Campus de Mona de La Universidad de West Indies (UWI) introdujo un currículo reestructurado siguiendo los adelantos en filosofía de la educación médica.*

Objetivos: *Explorar la calidad del ambiente educacional en el Programa de Medicina de Pregrado en el Campus Mona de UWI a fin de identificar las áreas a mejorar, y detectar diferencias en la percepción del estudiante en el plan de transición para los estudios de medicina.*

Métodos: *Una encuesta Dundee para la medición del ambiente educacional (DREEM) fue auto-administrada y llenada anónimamente durante abril de 2004 por 278 (70%) estudiantes de pregrado de medicina (cohortes 2004 – 2007) matriculados en la Facultad de Ciencias Médicas, Campus de Mona, Jamaica.*

Resultados: *El promedio general de la puntuación en DREEM fue 102.80 ± 21.88 (la puntuación máxima fue 200; mientras más alta fue la puntuación, más favorable fue la percepción) y no hubo diferencia significativa por año de estudio. El conocimiento del maestro recibió una alta puntuación*

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por parte de los estudiantes, pero fue eclipsado por la aún mayor puntuación cuando se trataba de las preocupaciones sobre las actitudes y comportamiento hacia los estudiantes. La calidad de la atmósfera del aprendizaje recibió una puntuación pobre, acompañada de preocupaciones generales por un currículo atiborrado, problemas de horarios, y falta de sistemas de apoyo adecuados para tratar con el estrés estudiantil.

Conclusiones: *Los administradores del currículo tienen que identificar estrategias para mejorar el ambiente educacional de la escuela, en el sentido de lograr que sea más amigable y más centrado en el estudiante.*

Palabras claves: *Currículo, educación médica, pregrado, Jamaica*

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INTRODUCTION

Medical school curricula must respond to an array of multidimensional factors including society's changing needs, advancing knowledge, technology and innovations in education. Critical to the development process is the participation of students, whose opinions are sometimes ignored in the flurry of activity and faculty discussions. When students enter medical school, through exposure to the curriculum and interactions with faculty and peers, they become aware of the 'educational environment' or 'climate' of the institution (1) and several factors can affect how they perceive and function within the learning environment.

In 1997, the Faculty of Medical Sciences (FMS) at the Mona Campus of The University of the West Indies (UWI), Jamaica, began an extensive review of its undergraduate degree programme. A restructured curriculum was introduced on a phased basis in 2001, based partly on the recommendations of the 1993 UK General Medical Council document 'Tomorrow's Doctors' (2). Pursuant to the phased approach, for five years, students registered in both the old (traditional) and new curricula and proceeded at different stages through their respective programmes.

At this period of transition and evolution, the Faculty became aware of the Dundee Ready Education Environment Measure (DREEM), an inventory developed by a Delphi panel of nearly 100 medical and health educators from 20 countries to measure the educational environment (3). The scale had previously been validated and found to be reliable through research in different cultural contexts including the Caribbean (4, 5).

We decided to use the DREEM inventory (3) to explore the quality of the educational environment in the Undergraduate Medical Programme at Mona, to identify areas for improvement and examine for any differences in student perception between the traditional and restructured curricula. It was hypothesized that faculty members were knowledgeable, friendly, approachable and supportive of student concerns, that the FMS fostered and supported self-directed student learning and that the academic atmosphere was generally relaxed with opportunities for psychosocial support.

METHODS

The Dundee Ready Education Environment Measure (DREEM) consists of a 50-item inventory using a 5-point Likert-type scale ranging from strongly agree to strongly disagree (scored 0 – 4) for each statement (3). Negative items are scored in reverse for analysis so that the higher a 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 (maximum score 200) for each of its five subscales, and individual item mean scores for each of the 50 items. In conjunction with variables such as gender and year or site of study, the results can be used 'diagnostically' to identify strengths and weaknesses in the institution's educational environment as perceived by the student respondents.

All registered students attending the Faculty of Medical Sciences, The University of the West Indies, Mona, Jamaica, during April 2004 were eligible to participate in the study. The DREEM questionnaire was simultaneously administered to the following groups of students: Year 2 (108), Year 3 (105), Year 4 (89) and Year 5 (95). The cohorts of 2006 – 2007 (Year 2 – 3) were in Stage I of the programme and represented the restructured curriculum. Those of 2004 – 2005 (Year 4 – 5) were participating in the clinical-based Stage II of the programme and represented the 'traditional' curriculum. Working through the executive body of the Medical Students Association, student representatives for each respective cohort facilitated the process of questionnaire distribution and collection. Each questionnaire was accompanied by an introductory letter explaining the purpose of the study, need to complete all items, assurance of the anonymity and voluntary nature of the process. Completed questionnaires were collated by personnel attached to the Faculty Office for Undergraduate Studies. Statistical analysis was performed with the Statistical Package for the Social

Sciences for Windows 11.0 and utilized single sample *t*-test and one-way analysis of variance (ANOVA).

Ethical approval was obtained from the Faculty of Medical Sciences of the University Hospital of the West Indies/The University of the West Indies Ethics Committee.

RESULTS

Missing data

Seventy-three per cent of Year 2, 54% of Year 3, 85 % of Year 4 and 69% of Year 5 students completed the questionnaire. Age was not recorded by 134 students and 59 students did not identify their gender. Seventy-four students were identified as male and 145 as female.

Overall DREEM Score

Overall mean DREEM score was 102.80 (± 21.88); 95% Confidence Interval (100.22, 105.38), $p < 0.001$, one-sample *t*-test. Mean score was highest among Year 3 students (104.77 ± 22.60) [Table 1]. There was no statistical difference in mean score between academic years (F = 0.213, $p = 0.887$, ANOVA).

Table 1: DREEM score by academic year

Academic Year	Response rate %	Mean DREEM Score (± SD)	Median	Range
Year 2	73 [79/108]	102.09 [23.02]	103.00	44.00 – 154.00
Year 3	54 [57/105]	104.77 [22.60]	105.00	58.00 – 146.00
Year 4	85 [76/89]	102.79 [22.31]	104.00	48.00 – 154.00
Year 5	69 [66/95]	101.95 [19.23]	105.50	53.00 – 137.00
All Years (2–5)	70 [278/397]	102.80 [21.88]	105.00	44.00 – 154.00

Score scale; 0–50: poor; 51–100: problematic; 101–150: more positive; 151–200: excellent

Score by Subscale

Students had a good rating for the teachers (58%) suggesting that they were 'moving in the right direction' (Table 2). Students in Year 2 and 3 had a better perception of their teachers than those in the other years ($p < 0.001$).

They were ambivalent about perceptions of their learning environment (51%) and academic self-perceptions (50%). However, Year 5 students were more positive and confident about their academic self-perceptions compared to students in the other years ($p = 0$ .036).

Table 2: DREEM score by subscale and academic year (N = 278)

Subscale	Academic Year	Mean Score (±SD)	Percentage of maximum score (%)	Variance ratio (F)*	*p value**
Students' perception of learning (max score 48)	Year 2	23.29 [6.35]	48.52	1.817	.144
	Year 3	24.73 [6.83]	51.52		
	Year 4	25.82 [7.29]	53.79		
	Year 5	25.08 [6.41]	52.25		
	All Years	24.70 [6.95]	51.46		
Students' perception of teachers (max score 44)	Year 2	27.41 [4.51]	62.30	9.522	<.001
	Year 3	26.46 [5.21]	60.14		
	Year 4	23.95 [5.57]	54.43		
	Year 5	23.97 [4.01]	54.48		
	All Years	25.45 [5.08]	57.84		
Students' academic self-perceptions (max score 32)	Year 2	14.85 [4.87]	46.41	2.891	.036
	Year 3	16.05 [4.35]	50.16		
	Year 4	16.63 [4.38]	51.97		
	Year 5	16.79 [4.29]	52.47		
	All Years	16.04 [4.55]	50.13		
Students' perceptions of atmosphere (max score 48)	Year 2	21.75 [6.35]	45.31	1.159	.326
	Year 3	21.11 [6.30]	43.98		
	Year 4	20.14 [6.24]	41.96		
	Year 5	20.23 [5.52]	42.15		
	All Years	20.82 [6.13]	43.38		
Students' social self-perceptions (max score 28)	Year 2	12.28 [4.05]	43.86	2.014	.112
	Year 3	13.72 [4.03]	49.00		
	Year 4	13.59 [3.86]	48.54		
	Year 5	13.27 [3.85]	47.39		
	All Years	13.17 [3.97]	47.04		

*ANOVA statistic

Students had poor rating of the atmosphere (43%) and students' social perception had the majority of students perceiving that it was poor (47%, $p = 0.112$).

Perceived strengths and weaknesses within the educational environment

Students felt that teachers were knowledgeable, well prepared for classes and enabled students' understanding of material and development of empathy (Table 3). They believed that the curriculum was relevant to their career and cheating was not a problem in the medical faculty. They also seemed to foster good relationships within the school.

However, students were quite stressed by what they perceived as an over-burdened curriculum that was poorly timetabled (Table 3). They also felt that the current system did not provide adequate support to deal with stress.

Table 3: Items in DREEM Inventory ranked by mean score

	N	Mean	Standard Deviation	*p value**
I am able to memorise all I need	275	.64	.800	.002
There is a good support system for students who get stressed	277	.96	.833	.536
The enjoyment outweighs the stress of the course	273	1.00	1.052	.858
This school is well timetabled	277	1.26	1.119	.158
I am too tired to enjoy the course	274	1.27	1.048	.537
The atmosphere is relaxed during the ward teaching	276	1.44	1.037	<.001
Learning strategies which worked for me before continue to work for me now	276	1.53	1.032	.002
The teaching is student centred	273	1.62	1.102	.926
The teachers are good at providing feedback to students	274	1.68	1.034	.089
The atmosphere motivates me as a learner	272	1.68	1.037	.944
The teachers are authoritarian	275	1.70	1.087	< .001
I am able to concentrate well	271	1.72	1.052	.063
I seldom feel lonely	272	1.77	1.187	.286
I am rarely bored on this course	276	1.84	1.148	.978
My social life is good	278	1.90	1.300	.296
The teaching over-emphasises factual learning	276	1.91	1.028	.320
The teaching is too teacher-centred	274	1.93	1.032	.770
Long term learning is emphasized over short term learning	271	1.96	1.212	< .001
The teachers ridicule the students	272	2.06	1.157	< .001
The teaching encourages me to be an active learner	272	2.08	1.070	.130
The teaching helps to develop my confidence	274	2.10	1.054	.094
I am confident about passing this year	274	2.12	1.159	< .001
I feel able to ask the questions I want	273	2.13	1.104	.149
I am clear about the learning objectives of the course	273	2.13	.999	.070
My problem solving skills are being well developed here	273	2.13	.999	.394
The teaching is well focused	274	2.14	.956	.890
I feel I am being well prepared for my profession	276	2.15	1.068	.037
The teaching is often stimulating	276	2.16	1.013	.217
Last year's work has been a good preparation for this year's work	271	2.17	1.027	.924
The students irritate the teachers	274	2.19	1.069	.003
The teachers provide constructive criticism here	273	2.19	1.011	.072
The atmosphere is relaxed during lectures	275	2.22	1.059	.644
The teaching time is put to good use	274	2.24	.980	.201
I am encouraged to participate in class	272	2.25	.981	.164
The atmosphere is relaxed during seminars/tutorials	273	2.25	1.060	.183
There are opportunities for me to develop interpersonal skills	273	2.31	1.044	.399
I find the experience disappointing	272	2.32	1.139	.608
The teachers are patient with patients	276	2.42	.825	.472
The teachers have good communications skills with patients	274	2.43	.837	.837
The teachers get angry in class	273	2.43	1.034	<.001
I have learned a lot about empathy in my profession	274	2.53	1.013	.006
The teaching helps to develop my competence	276	2.56	.934	.077
The teachers give clear examples	271	2.57	.790	.928
My accommodation is pleasant	274	2.61	1.061	<.001
I feel comfortable in class socially	273	2.67	.901	.558
Cheating is a problem is this school	277	2.79	.971	<.001
The teachers are well prepared for their classes	274	2.92	.719	.294
I have good friends in this school	274	2.96	.816	.725
Much of what I have to learn seems relevant to a career in healthcare	272	3.02	.741	.775
The teachers are knowledgeable	278	3.22	.517	.522

*ANOVA statistic, mean score difference by academic year; Negative statements (*italics*)

Perceived strengths (items with mean score> 2.50); perceived weaknesses (items with mean score < 1.50)

Although all students were overwhelmed by the curriculum, this was especially so for the Year 2 students who were least confident about passing (mean score 1.67, F = 7.615, $p < 0$ .001) and struggled with a perceived over-loaded curriculum (mean score 0.41, F = 4.998, $p = 0.002$) and ineffectual learning strategies (mean score 1.17, F = 5.163, $p = 0.002$). They also felt that short-term learning was emphasized over long-term learning and felt least prepared for a profession in medicine.

Students in the primarily clinical years (Year 4, 5) had concerns about teacher-student relationships. They felt that teachers were authoritarian (mean score 1.30, F = 21.937, $p < 0.001$), got angry in class and would ridicule students (mean score 1.56, F = 22.987, $p < 0.001$).

DISCUSSION

The overall mean DREEM score of 102.8 is comparable to a score of 102.2 reported for a Saudi Arabian medical school (6) and 109.9 for another Caribbean medical school (7). This is lower than that reported for schools in Nigeria and Nepal (scores of 118 and 130, respectively) which can be described as having a 'traditional' curricula (5). Assessment at innovative United Kingdom (UK) medical schools found an overall mean score of 139 (8, 9).

At the time of evaluation, the faculty was undergoing phased implementation of a restructured curriculum, beginning in the academic year 2001. The emphasis of the 'new' curriculum was an integrated, system-based approach to learning and assessment, augmented by case-based, problem oriented seminars. The core curriculum was supplemented by special study modules and early patient contact (2). Students in Years 4 and 5 represented the 'old' curriculum and those in Years 2 and 3 the 'new', transitional curriculum. It is arguable that current student perception of the environment reflects the multidimensional complexities experienced in promoting change in medical curricula (10).

Students had favourable perceptions about teachers, especially their knowledge and preparation of teaching material, and felt that the curricular content was relevant to a career in medicine. This is encouraging, since several faculty members have benefitted from medical education courses and workshops. It was overshadowed by perceived concerns about teacher-student relationship in the clinical years.

Of overwhelming concern was the poor rating of the learning atmosphere, in which students perceived that the curriculum was overcrowded and had time-table issues. Students also felt stressed by the academic demands of the course and teacher-student interactions and that the system was not supportive of their needs. This perception was similarly expressed by students in another Caribbean (7) and in Saudi Arabian schools (6).

The study was somewhat limited by the difference in response rate between years (Year 2 being much lower than the others) and incomplete data for age and gender. It is understood that students felt uncomfortable about frankly voicing their opinions, despite the confidential and non-identifying nature of the questionnaire.

In summary, the study highlights some of the perceived strengths and weaknesses in the evolving medical curricula at the FMS, Jamaica, and emphasizes the importance of student participation in curriculum development and quality assurance processes (11). Curriculum managers need to continually review course content and structure and urgently address issues of a perceived over-burdened, inadequately timetabled curriculum. The student-centredness and student-friendliness of the educational environment needs to be optimized.

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