International J. Soc. Sci. & Education
2014 Vol.4 Issue 2, ISSN: 2223-4934 E and 2227-393X Print

Students' Perspectives on the Educational Environment in a Caribbean dental School during Pre-clinical Years

By

William Smith and Bidyadhar Sa
The University of the West Indies, St Augustine, Faculty of Medical Sciences,
School of Dentistry, Trinidad and Tobago.

Abstract

This study aims to elicit student perspectives of the learning environment at the University of the West Indies, St Augustine dental school during their pre-clinical years of undergraduate training. A questionnaire was administered to all pre-clinical students of the dental school in 2009. The data collected were analyzed using SPSS. Library and learning resources, student-faculty-administration relationships, meaningful experience and breath-of-interest were the survey subheadings rated most favourably. Student support, flexibility and emotional climate were the survey subheadings which received the most unfavourable ratings. These findings were in congruence of that of similar studies of US and UK medical and dental Schools. Trinidadian students rated library and learning resources significantly lower than non-Trinidadian students. Males rated student-student interaction significantly higher than females. The UWI School of Dentistry needs to focus on the allocation of resources to increase student awareness of its student support systems that are available to them - especially those that deal with student stress and coping skills. It also needs to re-examine its learning environment as it pertains to flexibility.

Keywords: *Educational environment, Caribbean, Dental School, pre-clinical*

1. Introduction

In the delivery of undergraduate curricula, dental educators place a lot of emphasis on curriculum content, scheduling of courses of courses, setting of examinations, and analyzing student performance on examinations. In the past, very little emphasis has been placed on obtaining feedback from students on their learning experience(Henzi, Davis, Jasinevicius, & Hendricson, 2006).

The importance and validity of student feedback is becoming more important in dental education and there have been a number of studies in the literature that have reported students' feedback on their educational experience (Al-Hazimi, Al-Hyiani, & Roff, 2004; Avalos, Freeman, & Dunne, 2007; Divaris et al., 2008; Harden, 1986; Henzi, Davis, Jasinevicius, & Hendricson, 2007; Henzi et al., 2005; Mayya & Roff, 2004; Pierre, Branday, Pottinger, & Wierenga, 2010; Schwartz & Loten, 2004; Sobral, 2004; Thomas, Abraham, Alexander, & Ramnarayan, 2009). The international association for medical education's publication "Curriculum, environment, climate, quality and change in medical education: a unifying perspective." describes students 'perception of the educational environment as the "soul and spirit of the medical school environment and curriculum" and further states that this perception is related to student behaviour, achievements, satisfaction and success(Genn, 2001). The importance of the students as "consumers" of dental education and their importance as a key stakeholder in the education process are becoming more recognized.

Accrediting agencies also recognize the importance of student feedback. The Commission on Dental Accreditation of the USA recommends the use of student feedback as one of the means of assessing the effectiveness of curricula. They further state that to "improve curricula, assessment involves a dialogue between and among faculty, students and administrators that is grounded in the scholarship of teaching and learning"("Accreditation standards for Dental Education Programmes.," 2010).

The Caribbean Accreditation Authority for Medicine and other Health Professions, (CAAM-HP) assesses student feedback as part of their accreditation exercise of undergraduate programmes. The CAAM-HP states that "Students provide a unique perspective on the environment for teaching and learning, the quality of the educational programme, and the availability of support services. By participating in the accreditation process, students contribute to validating or improving their school's educational programme and insure that legacy for their successors"("Students' role in the Caribbean Accreditation Authority for Education in Medicine and other Health Professions," 2007).

The University of the West Indies (UWI) was founded in 1948 at Mona, Jamaica. It started first as a College of the University of London. In that year 33 students from nine Caribbean countries were admitted to the founding Faculty of Medicine. In 1961, UWI became an independent entity and about that time it established two more campuses, one in Trinidad at St. Augustine and other at Cave Hill, Barbados (UWI, 2012). The University of the West Indies School of Dentistry was opened at St Augustine campus in 1989. The current preclinical programme comprises 18 months of basic medical and dental sciences. The teaching modalities for these preclinical years include problem-based learning, didactic lectures, preclinical laboratory sessions, online course delivery and clinical observation. The University conducts end-of-course assessments of teaching and learning providing direct feedback to lecturers and professors. However, there have been no published surveys of student opinions on the educational environment.

The twin island Republic of Trinidad and Tobago is located at the end of the eastern islands which border the Caribbean Sea. It is northeast of the South American Coast, Venezuela. The country covers an area of 5,128 square kilometres and consists of two main islands Trinidad and Tobago. Trinidad and Tobago is a multi-ethnic, multi-cultural society with a population of 1.3 million in 2011. The composition of the population is approximately 40% of East Indian descent; 37.5% African descent and 20.5% Mixed. The minority ethnic groups such as Chinese, Syrian/Lebanese, and White Caucasians comprise less than 1%("Population Statistics, Trinidad and Tobago," 2000).

Aim

This study aims to elicit students' perspectives of dental school educational environment with regard to sex, nationality and year of study. The purpose of the study is to gain an understanding into the student's perception of their learning environment so that measures can be put in place to improve student learning.

2. Method

A paper-based questionnaire was developed based on the "Sample questionnaire for student analysis" from the CAAM-HP("Students' role in the Caribbean Accreditation Authority for Education in Medicine and other Health Professions," 2007)and on the Dental Student Learning Environment Survey(DSLES)(Henzi et al., 2005) (Appendix 1).

A number of assessment instruments have been developed to measure student perception of their educational experience(Feletti & Clarke, 1981; Pierre et al., 2010; Schwartz & Loten, 2004; Sobral, 2004). One such instrument is the DSLES which was developed to measure Dental School Learning Environments(Henzi et al., 2005). The CAAM-HP also publishes its own questionnaire for a student-administered survey as part of its accreditation exercise("Students' role in the Caribbean Accreditation Authority for Education in Medicine and other Health Professions," 2007). The DSLES was selected for this study as it more closely resembles that of the CAAM-HP questionnaire and was thought to be a closer match to the aim of the study.

Ethical approval was not required as the data collection was part of CAAM-HP accreditation exercise (2010) for the UWI School of Dentistry. The questionnaires were administered to all students in semester one (September-December) in October, 2009. Class presidents were responsible for distributing and collecting the questionnaires. They were administered in the student classroom at the end of morning

classes. Students were expected to report on their last academic year's experiences - that is, the year 2 students reported on their year one experiences. Similarly, the year 3 students reported on their year 2 experiences.

The CAAM-HP questions elicited information on the students' opinions on learning environment under the subheadings of student-faculty-administration relationships, student support, student health, library and learning resources, learning environment and educational programme. Each of the 40 questions in this section asked the respondent to rate aspects of their learning environment on a scale of 1 to 5 - 5 being the best.

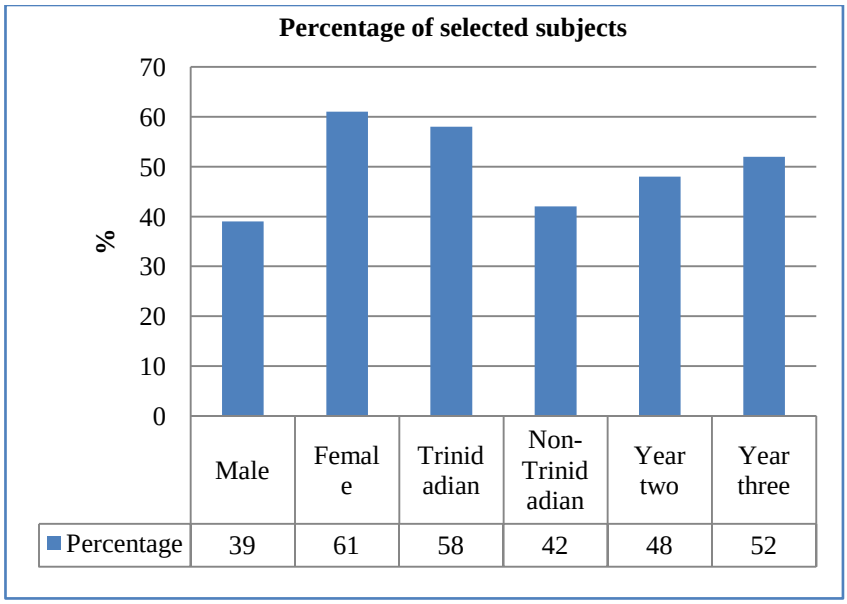
The DSLES questions elicited information on learning environment under the subheadings of flexibility, student to student interaction, emotional climate, supportiveness, meaningful experience, organization and breath of interest. Each of the 55 questions in this section asked the respondent questions about their learning environment using a 4- point scale: seldom, often, fairly often and very often. These answers were assigned a score 1-4 depending on the question asked. For questions asked in a positive form e.g., "Instructors outline course objectives at the beginning of their course" the scores are 1 for seldom and 4 for very often. For questions asked in the negative form e.g., "Students' anxiety hinders them from achieving up to their full potential" the scores are 4 for seldom and 1 for very often.

The data was analysed using SPSS version 18. Independent sample t-tests were calculated to see the significant effect of selected variables on the students' perspectives of the dental school educational environment as measured by CAAM-HP and DSLES standards.

3. Results

Sixty-four responses were obtained out of sixty-five students which represented a 98% response rate. The mean age of the respondents was 22.3 years. Twenty-five (39%) respondents were male and 39(61%) were female. Thirty-seven respondents (58%) were Trinidadian and 27(42%) non-Trinidadian. This is shown in Figure 1. Thirty-one respondents (48%) were year two students and 33(52%) were year three students.

Figure 1 – Characteristics of Respondents.



`

The mean scores and standard deviations of the CAAM subheadings are shown in Table 2. The student population rated "library and learning resources" the highest (mean score 3.86) and "student support" the lowest (mean score 2.90). Male students, Trinidadian students and year two students rated "student-faculty-administration relationships" highest and "learning environment" the lowest. Female students, non-Trinidadian students and year three students rated "library and learning resources" the highest and "student support" the lowest. Non-Trinidadians rated "library and learning resources" significantly higher than Trinidadians ($t=2.13$, $p<0.05$).

Table 1 Students' perspectives of dental school educational environment with regard to sex, nationality and year of study (CAAM-HP standards)

Subheading **Maximum Score =5**		**Student-Faculty-Adminis-tration Relationships**		**Student Support**		**Student Health**		**Library and Learning Resources**		**Learning Environment**		**Educational Programme**	
		Mean	SD	**Mean**	SD	**Mean**	SD	**Mean**	SD	**Mean**	SD	**Mean**	SD
Overall n=64		**3.84**	0.68	**2.90**	1.15	**3.21**	1.16	**3.86**	0.80	**3.06**	1.01	**3.52**	0.99
Sex	Male n=25	**3.91**	0.58	**3.10**	1.17	**3.27**	1.02	**3.69**	0.94	**2.94**	1.14	**3.69**	1.03
	Female n=39	**3.80**	0.75	**2.77**	1.13	**3.18**	1.24	**3.97**	0.69	**3.13**	0.93	**3.41**	0.96
Nationa-lity	Trinidadian n=37	**3.90**	0.61	**2.95**	1.25	**3.07**	1.28	**3.82**	0.85	**2.82**	1.15	**3.55**	1.13
	Non-Trinidadian n=27	**3.77**	0.77	**2.82**	1.03	**3.41**	0.95	**3.93**	0.74	**3.38**	0.68	**3.48**	0.76
Year	Two n=31	**3.98**	0.63	**2.91**	1.08	**3.28**	1.12	**3.80**	0.87	**2.90**	1.06	**3.32**	1.14
	Three n=33	**3.71**	0.71	**2.89**	1.23	**3.15**	1.20	**3.93**	0.74	**3.21**	0.95	**3.71**	0.79

Significant difference between Trinidadians and Non Trinidadians in Learning Environment $t=2.13$,
Level of Significance = 0.05

The mean scores and standard deviations of the DSLES subheadings are shown in Table 2. The student population rated "meaningful experience" highest (mean score 2.74) and "emotional climate" lowest (mean score 1.95). All subcategories of students followed this trend. The subheading "student-student interaction" was rated significantly higher in males than in females ($t=2.27$,$p<0.05$).

Table 2 Students' perspectives of dental school educational environment with regard to sex, nationality and year of study (DSLES standards)

Subheading **Maximum Score = 4**		**Flexibility**		**Student/ Student Interaction**		**Emotional Climate**		**Supportive-ness**		**Meaningful Experience**		**Organiz-ation**		**Breath of Interest**	
		Mean	SD	**Mean**	SD	**Mean**	SD	**Mean**	SD	**Mean**	SD	**Mean**	SD	**Mean**	SD
Overall n=64		**1.79**	0.59	**2.21**	0.44	**1.95**	0.51	**2.41**	0.46	**2.74**	0.37	**2.58**	0.29	**2.60**	0.64
Sex	Male n=25	**1.91**	0.53	**2.36**	0.43	**2.05**	0.55	**2.52**	0.48	**2.80**	0.39	**2.67**	0.30	**2.63**	0.74
	Female n=39	**1.70**	0.62	**2.12**	0.43	**1.89**	0.49	**2.33**	0.43	**2.71**	0.35	**2.52**	0.28	**2.58**	0.58
Nation ality	Trinidadian n=37	**1.70**	0.60	**2.22**	0.51	**1.93**	0.56	**2.40**	0.50	**2.72**	0.30	**2.57**	0.32	**2.56**	0.68
	Non-Trinidadian n=27	**1.90**	0.56	**2.21**	0.36	**1.99**	0.45	**2.42**	0.41	**2.78**	0.45	**2.60**	0.26	**2.66**	0.59
Year	Two n=31	**1.70**	0.63	**2.24**	0.40	**2.02**	0.58	**2.41**	0.54	**2.69**	0.38	**2.51**	0.30	**2.64**	0.70
	Three n=33	**1.86**	0.54	**2.19**	0.49	**1.89**	0.44	**2.41**	0.37	**2.80**	0.35	**2.65**	0.27	**2.57**	0.59

Significant difference between male and Female Student/student interaction t=2.27 Level of Significance = 0.05

4. Discussion

A good response rate (98%) was obtained. This high response rate might be as a result of the students' motivation to play a key role in the university's CAAM-HP accreditation process. The numbers of males (39%) and females (61%) reflect the proportions of students being admitted into the UWI Faculty of Medical Sciences. Forty-two percent of the population were students from other Caribbean islands, USA, Canada and Botswana.

Students rated items under the subheading "library and learning resources" (mean 3.86 SD 0.80) and "student-faculty-administration relationships" (mean 3.84 SD 0.68) the highest of all the subheadings of the CAAM-HP survey which speaks to the adequacy and quality of library and computer-based resources, access to faculty, faculty awareness of student problems and the adequacy of student input on school committees. Non-Trinidadians also rated items under the subheading "learning environment" significantly higher than the Trinidadian students. This may suggest either that the non-Trinidadian students are easier to please when it comes to items under this sub heading or it may be that the Trinidadian students are more demanding of a more facilitative learning environment.

The lowest rated subheading was "student support" (mean 2.9, SD 1.15). However this mean is still in the upper 50% of the score range. This might suggest that the dental school needs improvement in the provision of academic counselling, tutorial help, career counselling, personal counselling, financial aid and debt counselling or in making the students more aware of the availability of these services.
The data from this part of the survey suggests that the university is aware of student problems and that they have a voice in administration. This might be as a result of the size of the school - just 64 students in combined years 1 and 2. Paradoxically, the lowest rating went to student support. This may speak to the perceived unresponsiveness of the administration to student needs or perhaps due to a fault in the questionnaire design.

In the DSLES portion of the survey, the students gave highest scores to questions under the subheading "meaningful experience" (mean 2.74, SD 0.46) and breath-of-interest (mean 2.60, SD 0.64). It was also

the highest rated in both the year 2 and year 3 groups of respondents. The high score under these subheadings speak to the extent to which the students feel that their curriculum and learning activities are relevant to the practice of dentistry and extent to which the students are encouraged to develop a variety of activities within and outside regular coursework. These high scores are in keeping with the scores obtained in a US survey of freshmen dental students who rated breath of interest (mean 2.68 SD 0.96) and meaningful experience (mean 2.66 SD 0.93) highest and second highest respectively(Henzi et al., 2005).
The lowest rated subheadings were "flexibility" (mean 1.79 SD 0.59) and "emotional climate" (mean 1.95 SD 0.46). These scores were in the lower 50% of the range of scores. Flexibility in the DSLES refers to the opportunities for faculty and students to modify the learning environment – e.g., frequency of faculty trying out new teaching methods and materials, the extent to which students can shape the academic program to meet their individual needs and the extent to which students participate in decisions about their academic life. The low scores for 'flexibility" is not surprising as the academic programme at UWI offers very little in terms of adaptation to meet individual needs. Student representation is however mandated on school and faculty committees. Nevertheless, this should be examined by the administration as students may find that more flexible programmes facilitate better learning.

Emotional climate is described by DSLES as "the way in which students' experiences affects their perception of dental education." The low scores of this subheading is in keeping with other studies that identify support systems for students as being problematic and others that identify stress including psychological and psychosomatic manifestations as prevalent among medical and dental students(Al-Hazimi et al., 2004; Avalos et al., 2007; Naidu, Adams, Simeon, & Persad, 2002; Pierre et al., 2010). In a survey of medical students at UWI medical school in Jamaica, the authors found that the learning atmosphere was "poorly rated" and mentioned the "lack of support systems to deal with student stress"(Pierre et al., 2010). Dental schools need to examine why the study of dentistry is so stressful and solicit student input on ways they can improve the emotional climate of their institutions.

UWI's students' poor ratings of flexibility and emotional climate are in keeping with a DSLES survey of Dental Schools in the US(Henzi et al., 2005). The lowest scores in this survey were the subheadings emotional climate (mean 2.22, SD 1.01) and flexibility (mean 2.40, SD 1.00). However in the US study, the average scores were in the upper 50% of the range of scores available while UWI's scores were in the lower 50%. UWI may need to prioritize investigating these data as it is not in keeping with the international trend. It might also be prudent for UWI administration to objectively measure emotional climate on a regular basis so that they can be more aware of the learning environment of its students.
The subheading "student-student interaction" was rated significantly higher by male compared to female students. Male students seem to be more adept at mixing socially and academically than the female students at this institution. This may be a reflection of the higher number of females enrolled in the programme compared to males or might be related to gender, cultural or societal factors not examined in this study. This finding warrants further investigation.

5. Conclusions

The UWI School of Dentistry needs to focus on the allocation of resources to increase student awareness of its student support systems that are available to them - especially those that deal with student stress and coping skills. It also needs to re-examine its learning environment as it pertains to flexibility. The results will be shared with the UWI administration with a view to improving the overall learning environment of its students.

Acknowledgements

The authors wish to acknowledge the Dental Students Association of Trinidad & Tobago who was instrumental in administering the questionnaires to the target student body and performing the data entry for this project. The authors declare no conflict of interest.

References

Accreditation standards for Dental Education Programmes. (2010). from http://www.ada.org/sections/educationAndCareers/pdfs/predoc.pdf

Al-Hazimi, A., Al-Hyiani, A., & Roff, S. (2004). Perceptions of the educational environment of the medical school in King Abdul Aziz University,saudi Arabia. *Med Teach, 26*(6), 570-573. doi: LXJXGD96PB4E9N7Y [pii]

10.1080/01421590410001711625

Avalos, G., Freeman, C., & Dunne, F. (2007). Determining the quality of the medical educational environment at an Irish medical school using the DREEM inventory. *Ir Med J, 100*(7), 522-525.

Divaris, K., Barlow, P. J., Chendea, S. A., Cheong, W. S., Dounis, A., Dragan, I. F., . . . Vrazic, D. (2008). The academic environment: the students' perspective. *Eur J Dent Educ, 12 Suppl 1*, 120-130. doi: EJE494 [pii]

10.1111/j.1600-0579.2007.00494.x

Feletti, G. I., & Clarke, R. M. (1981). Review of psychometric features of the Medical School Learning Environment Survey. *Med Educ, 15*(2), 92-96.

Genn, J. M. (2001). AMEE Medical Education Guide No. 23 (Part 1): Curriculum, environment, climate, quality and change in medical education-a unifying perspective. *Med Teach, 23*(4), 337-344. doi: 10.1080/01421590120063330

Harden, R. M. (1986). Ten questions to ask when planning a course or curriculum. *Med Educ, 20*(4), 356-365.

Henzi, D., Davis, E., Jasinevicius, R., & Hendricson, W. (2006). North American dental students' perspectives about their clinical education. *J Dent Educ, 70*(4), 361-377. doi: 70/4/361 [pii]

Henzi, D., Davis, E., Jasinevicius, R., & Hendricson, W. (2007). In the students' own words: what are the strengths and weaknesses of the dental school curriculum? *J Dent Educ, 71*(5), 632-645. doi: 71/5/632 [pii]

Henzi, D., Davis, E., Jasinevicius, R., Hendricson, W., Cintron, L., & Isaacs, M. (2005). Appraisal of the dental school learning environment: the students' view. *J Dent Educ, 69*(10), 1137-1147. doi: 69/10/1137 [pii]

Mayya, S., & Roff, S. (2004). Students' perceptions of educational environment: a comparison of academic achievers and under-achievers at kasturba medical college, India. *Educ Health (Abingdon), 17*(3), 280-291. doi: KUD72RMDD08KE68T [pii]

10.1080/13576280400002445

Naidu, R. S., Adams, J. S., Simeon, D., & Persad, S. (2002). Sources of stress and psychological disturbance among dental students in the West Indies. *J Dent Educ, 66*(9), 1021-1030.

Pierre, R. B., Branday, J. M., Pottinger, A., & Wierenga, A. (2010). Students' perception of the 'educational climate' at the Faculty of Medical Sciences, The University of the West Indies, Jamaica. *West Indian Med J, 59*(1), 45-49.

. Population Statistics, Trinidad and Tobago. (2000). Port of Spain: Central Statistical Office.

Schwartz, P. L., & Loten, E. G. (2004). Effect of year in school on medical students' perceptions evaluated with the Cognitive Behavior Survey, Attitudes Toward Social Issues in Medicine Survey, and Learning Environment Questionnaire. *Teach Learn Med, 16*(4), 333-344. doi: 10.1207/s15328015tlm1604_6

Sobral, D. T. (2004). Medical students' self-appraisal of first-year learning outcomes: use of the course valuing inventory. *Med Teach, 26*(3), 234-238. doi: 10.1080/0142159042000192028

RGBKF89092AV62V0 [pii]

Students' role in the Caribbean Accreditation Authority for Education in Medicine and other Health Professions. (2007). Retrieved July, 2011, from http://www.caam-hp.org/documents/3.2_StudentsRoleintheCAAM.pdf

Thomas, B. S., Abraham, R. R., Alexander, M., & Ramnarayan, K. (2009). Students' perceptions regarding educational environment in an Indian dental school. *Med Teach, 31*(5), e185-186. doi: 909521206 [pii] 10.1080/01421590802516749

UWI. (2012). About the UWI - An institution with a rich history. Retrieved January, 31, 2013, from http://www.uwi.edu/history.asp