

# The Assessment of Undergraduate Physiotherapy Education in Sri Lanka.

Dilani Perera

Department of Physiotherapy, Faculty of Allied Health Sciences, General Sir John Kotelawala Defence University, Sri Lanka

**Abstract- Background:** Learning environment in any degree program is found to be important in determining students' academic success. It has been suggested that a positive learning environment as a student can lead to increase satisfaction, achievement and success as a practitioner post-graduation. The purpose of this cross sectional study is to investigate student perceptions of learning environment among B.Sc. Physiotherapy undergraduate students in Sri Lanka. Various aspects of environments are compared between year of levels and gender. **Methods:** The Dundee Ready Educational Environment Measure (DREEM) and demographic questionnaire were completed by 104 undergraduate students enrolled in B.Sc. Physiotherapy degree program, Allied Health Sciences Unit, Faculty of Medicine, University of Colombo from first year to fourth year. Convenient sampling was used and scores were compared across different grouping variable identified in demographic information. **Results:** Total DREEM scores across the sample were fairly high (M= 141.02; SD = 47.86), indicating an overall perception of learning environment among students. Total scores were higher for males (M= 140.16; SD= 47.12) than females (M= 136.09; SD= 43.89) but it is not significant ( $p>0.05$ ). Perception of environment was varied between year-level of enrolment, with second and fourth year students producing more positive DREEM scores than first year students, but it is not significant ( $p>0.05$ ). **Discussion:** This study suggested that students enrolled in B.Sc. Physiotherapy degree program generally hold positive perceptions toward their course environment while males held superior perceptions than females for overall DREEM scores. All the students produced higher ratings for their atmosphere than the other environmental perceptions and finding was similar across gender and year of enrolment. This suggests that the educational atmosphere or background may lead to positive outcomes for the students.

**Index Terms-** Educational environment, Learning, Teaching, Academic perception.

## I. INTRODUCTION

Innovation and quality improvement are essential for any health professional degree program<sup>[1]</sup>. Health professional student's level of competence is a reflection of their educational institution they attended; and it is utmost important to all their future patients and to the community. The positive learning environment can lead the student to increase satisfaction, achievement and success as a health professional practitioner post graduation<sup>[2]</sup>. Medicine and health sciences degree programs have moved in recent decades to more student-

centered curriculum<sup>[3,4]</sup>. The DREEM had been used in medical and healthcare related courses many countries across Europe, Asia, Africa, North America, South America, and the Middle East<sup>[5,6]</sup>. Their findings of above studies have been able to generate a profile of their institution / course's strengths and weaknesses within their institution and another institution and test and apply it as a predictor of student performance. The assessment of education environment in any degree program can assist to identify the development areas and evaluate the changes in the program to be implemented<sup>[7,8]</sup>.

Faculty members from around the world involved to generate criteria for the desirable education climates for health professions in the new curriculum standards<sup>[10]</sup>. Even though the DREEM has been used mainly for medical students,<sup>[11]</sup> few past studies had shown that DREEM is applicable to several undergraduate courses for health professionals worldwide<sup>[6]</sup>. The recent Australian study had shown that the DREEM is very much applicable to the health science setting, but the application of DREEM questionnaire has not been more widespread across Australian health sciences courses<sup>[10]</sup>. There were some occasions where the DREEM has been applied the disciplines such as Nursing,<sup>[7]</sup> Dentistry<sup>[12]</sup> and Chiro-practic<sup>[13,14]</sup>. The DREEM was refined into 50-item self-report questionnaire using a 5-point Likert scale, with scores reflecting a student's overall perception of the environment as well as their perceptions of 5 main aspects of this environment, namely: their learning, the teachers, academic self-perception, atmosphere, and social self-perception.

There is no any previous studies has used the DREEM to assess the perceptions of Physiotherapy education in Sri Lanka other than evaluating medical student's perceptions on their degree program. In Sri Lanka, the Allied Health Sciences degree courses are still in the development phase. Therefore it would be valuable to investigate the perception towards education environment among undergraduate physiotherapy students in Sri Lanka.

## II. METHODS

The Dundee Ready Educational Environment Measure (DREEM) and demographic questionnaire were completed by 104 undergraduate students enrolled in B.Sc. Physiotherapy degree program, Allied Health Sciences Unit, Faculty of Medicine, Colombo. Ethical clearance was obtained from the Faculty of Medicine, University of Colombo, Sri Lanka. The development and validation of the 50-item Dundee Ready Education Environment Measure (DREEM) has been reported<sup>[7]</sup>

using a 5-point Likert scale, with scores reflecting a student's overall perception of the environment as well as their perceptions of 5 main aspects of this environment, namely: Student's perception of learning (SPL), Student's perception of teachers (SPT), Students' academic self perception (SAP), Students' perceptions of atmosphere (SPA) and Students' social self-perception (SASP) [7]. Each item is scored 4–0 with 4 = strongly agree, 3 = Agree, 2 = Unsure, 1 = Disagree and 0 = strongly disagree by the respondents. The students enrolled in different year of level from first year to fourth year. Convenient sampling was used and scores were compared across different grouping variable identified in demographic information. The data analyzed using SPSS. The data will be initially analyzed using descriptive statistics. Independent sample t test was used to compare responses between male and female students. ANOVA was used to compare responses of different groups. Ethical clearance was obtained from the Faculty of Medicine, University of Colombo, Sri Lanka.

### III. RESULTS

Table 1 shows the total DREEM scores across the sample were fairly high (M= 141.02; SD = 46.86), compared with Dundee Medical School (139). This is indicating an overall perception of learning environment among physiotherapy students. This was 70.0% of the maximum DREEM score. Students produced maximum percentage (72.2%) for the perception of teaching while mean scores ranged from 57% to 72% for each subscale.

**Table 1: Physiotherapy students' perception to learning environment**

Students' perception	Total DREEM Mean (SD)	Percentage
SPL	35.29 (10.9)	57.15%
SPT	31.77 (10.28)	72.20%
SAP	18.63 (6.41)	58.21%
SPA	36.14 (11.93)	60.23%
SASP	19.19 (7.34)	68.53%
<b>Total DREEM</b>	<b>141.02 (46.86)</b>	<b>70%</b>

The DREEM score by gender is presented in Table 2. The Total DREEM scores for male and female were (M= 140.16; SD= 47.63) and (M= 136.09; SD= 43.89) respectively. It was not significant for total DREEM score (P= 0.403) and its subscales.

**Table 2: Physiotherapy students' perception to learning environment according to the gender**

Students' perception	Mean (SD)		t	P value
	Male	Female		
SPL	37.97 (11.68)	28.78 (10.26)	0.58	0.47
SPT	28.72 (10.45)	28.00 (8.13)	0.10	0.29
SAP	17.94 (6.56)	19.14 (6.20)	-1.06	0.48
SPA	36.01 (11.89)	36.22 (11.82)	0.41	0.13
SASP	19.52 (7.05)	18.95 (7.48)	0.34	0.28
<b>Total DREEM</b>	<b>140.16 (47.63)</b>	<b>136.09 (43.89)</b>	<b>0.010</b>	<b>0.403</b>

Both male and female students produced the highest mean scores for the perception of atmosphere. It was noted that female percentage (57.7%) was higher than male percentage (42.3%) in the sample and the finding was similar for all the year of enrolment except in 3<sup>rd</sup> year (Table 4).

**Table 3: The number and percentage of participants by gender, and year-level of enrolment.**

Gender	1 <sup>st</sup> Year (2010)	2 <sup>nd</sup> Year (2009)	3 <sup>rd</sup> Year (2008)	4 <sup>th</sup> Year (2007)	Total
Male	10	05	16	13	44 (42.3%)
Female	15	19	12	14	60 (57.7%)
<b>Total</b>	<b>25</b>	<b>24</b>	<b>28</b>	<b>27</b>	<b>104 (100%)</b>

Physiotherapy students' perception to academic environment by year of enrolment is presented in Table 5. Perception of environment was varied between year-level of enrolment, with second and fourth year students producing more positive DREEM scores than first year students. Third year students produced positive DREEM scores than first year students, but less than 2<sup>nd</sup> and 4<sup>th</sup> year students. But significance differences were not found between year levels and total DREEM score or its subscales. When considering, individual subscales, first year students indicated low ratings for SPL and SPT than fourth year students.

**Table 5: Physiotherapy students' perception to academic environment by year of enrolment**

Students' perception	Mean (SD)				F	P value
	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year		
SPL	31.59 (8.14)	35.48 (10.04)	33.59 (9.96)	37.49 (13.00)	1.764	0.272
SPT	26.30 (6.70)	27.94 (8.41)	27.58 (8.36)	31.29 (10.59)	4.942	0.060
SAP	17.48 (4.80)	21.05 (6.01)	18.08 (6.38)	18.09 (6.96)	3.816	0.281
SPA	35.08 (11.14)	38.29 (11.82)	34.54 (10.77)	36.87 (12.74)	1.956	0.256
SASP	18.40 (6.35)	19.02 (7.62)	19.32 (6.67)	19.93 (7.94)	1.964	0.394
<b>Total DREEM</b>	<b>128.85 (37.13)</b>	<b>141.78 (43.90)</b>	<b>133.11 (42.14)</b>	<b>143.67 (51.23)</b>	<b>2.962</b>	<b>0.216</b>

### IV. DISCUSSION

Total DREEM scores were high (M= 141.02; SD = 46.86) across the study, indicating that students' perceptions of classroom learning environments were quite positive across the sample study. This was fairly consistent with previous studies that the mean of 141.02 (70.0%) fell well inside the range (101-150) said to indicate a "more positive than negative" perception of environment [1,15]. The global mean score was higher than what was observed in studies from University of Dundee (139) and the results from Faculty of Medicine, University of Colombo in Sri

Lanka (107)<sup>[16]</sup>. Similar DREEM score (140) was shown by Physiotherapy undergraduate students in Australia<sup>[10]</sup>. A few studies have yielded higher total DREEM scores than the present study<sup>[17]</sup> which may indicate that these institutions are fairly innovative in terms of providing a student centered approach to education<sup>[11]</sup>. The higher averages scores in the present study also suggest that the education environment is perceived positively by the students and it also suggest that B.Sc. Physiotherapy degree course is also student-centred.

As a percentage of the maximum possible score, mean scores ranged from 57% to 72% for each subscale in the present study and vast majority of past studies appear to have also yielded mean overall scores within this range<sup>[11]</sup>. However, most published studies have yielded mean scores lower than the present study – anything from 45% to 65% of the maximum score<sup>[1,14,18]</sup>.

Total scores were higher for males (M= 140.16; SD= 47.63) than females (M= 136.09; SD= 43.89). Male students indicated a more positive perception of their environment than females but this trend was not statistically significant for overall DREEM scores and across all aspects of environment subscales. This finding was not consistent with previous studies which had shown that female students showed more positive environment than males<sup>[10,11]</sup>.

Though there were higher proportions of females in the present study, male students showed higher means score for perception of learning than females. But, this was not consistent with previous studies done by Lokuhetty,<sup>[16]</sup> with the medical students in Sri Lanka and different health professional students in Australia<sup>[10]</sup> showed that the males scored more negatively on several aspects of the educational environment than females. This difference makes evidence that males and females typically exhibit different learning styles<sup>[19]</sup>. However, this gender based difference of perception was not analyzed for subsequent DREEM analysis; as it was not statistically significant. The present study indicated that female students require more support to develop the learning skills in comparison to males.

In the present study, the perception of environment was varied between year-level of enrolment, with second and fourth year students producing more positive DREEM scores than first year students but this trend was not significant for overall DREEM score and any DREEM subscales. The Allied health degree courses are in initial stage in Sri Lankan health context; Therefore, Physiotherapy students faced lot of difficulties in infrastructure facilities and there were lack of qualified lectures to deliver the physiotherapy lectures. This reality is not satisfying the student's needs especially for first year students who just entered to the university; will create negative attitudes towards low DREEM scores about their learning environment. But, when there are getting enter to the 2<sup>nd</sup> year onwards; they will be able to understand the challenges in Sri Lankan health context to conduct the Allied Health Sciences degree courses and therefore 4<sup>th</sup> year students will show the highest DREEM score in 4<sup>th</sup> year. Third year students showed low DREEM ratings might be due to heavy workload and commencement of daily clinical practice in the third year. The above findings were not consistent with previous study done by Brown,<sup>[11]</sup> had shown that second year

students producing more positive DREEM results than fourth year students and it also indicated that fourth year students generating the lowest ratings on most the DREEM subscales. Therefore, further analysis is required to explain these differences in Sri Lankan educational setting not only physiotherapy students but for other health professional students too.

## V. CONCLUSION

The data presented in the present study will be useful in Sri Lankan Allied Health programs and Physiotherapy education around the world. In addition, this is the first time data using DREEM has been presented in Physiotherapy education in Sri Lanka. This study suggested that students enrolled in B.Sc. Physiotherapy degree program generally hold positive perceptions towards their course environment while males held superior perceptions than females for overall DREEM scores. All the students produced higher ratings for their atmosphere than the other environmental perceptions and finding was similar across gender and year of enrolment. This study also suggests that the educational atmosphere or background may lead to positive outcomes for the students.

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#### AUTHORS

**First Author** – Dilani Perera, BSc, (Hons) Physiotherapy; MSc Exercise & Sport Science. Lecturer, Department of Physiotherapy, Faculty of Allied Health Sciences, General Sir John Kotelawala Defence University, Sri Lanka.  
E mail: [dperera85@yahoo.com](mailto:dperera85@yahoo.com).

**Correspondence Author** – Dilani Perera, email address: [dperera85@yahoo.com](mailto:dperera85@yahoo.com) , alternate email address : [dilaniperera1985@gmail.com](mailto:dilaniperera1985@gmail.com) ,  
Contact number: 0094774935051.