

# Perceptions of the Educational Environment Among Undergraduate Health Sciences Students at a Malaysian Private University Using the DREEM Tool

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## ABSTRACT

### Background

A supportive educational environment (EE) is essential for effective learning and professional development among health sciences students. This study aimed to evaluate the students' perceptions of medical, nursing, and pharmacy programs regarding their EE at Widad University College (WUC) and to explore the relationship between perceptions at programs and year-levels.

### Methods

A cross-sectional study was conducted in 2025 involving 165 undergraduate students across medicine, nursing, and pharmacy programs. The 50-item Dundee Ready Education Environment Measure (DREEM) questionnaire assessed perceptions across five subscales: students' perceptions of learning (SPL), students' perceptions of teachers (SPT), students' academic self-perception (SAP), students' perceptions of atmosphere (SPA), and students' social self-perception (SSP). One-way Analysis of Variance (ANOVA) with post hoc Tukey test was performed to compare mean scores between academic-programs and year-levels.

### Results

The study's response rate was 93.75%. Males constituted 16.36%, while females were 83.64%. The overall mean DREEM score was 144.35/200, indicating a generally positive EE. Medical students reported the highest mean score (147.43), followed by nursing (145.81) and pharmacy (136.70), with a significant difference between medical and pharmacy students. Year-3 students achieved significantly higher overall scores (148.54) and recorded the highest mean scores in SPL, SAP, and SSP compared to Year-2 students. Meanwhile, Year-1 students reported significantly higher scores in SPT and SPA than Year-2 students.

### Conclusion

Students perceived the EE at WUC as more positive than negative. Program and year-specific issues highlight the need for faculty development. Faculty training and improved student support systems are recommended to strengthen students' learning experience, and foster a more supportive EE.

### Keywords

DREEM; educational environment; health sciences; medical students; pharmacy; nursing; Malaysia

## INTRODUCTION

The educational environment (EE), also referred to as the learning environment, is described by Bloom as a dynamic ecosystem encompassing physical, social, emotional, cultural and educational factors that collectively influence students' learning outcome, engagement and student development.<sup>1</sup> The EE of an institution includes all teaching and learning activities, assessment methods, physical facilities, equipment, as well as psychosocial, financial, and other elements experienced by students and stakeholders. The EE can be measured and modified to improve students' learning outcomes. Assessment of students' perceptions of EE has been widely used as an indicator for enhancing educational quality<sup>2</sup>. A competitive, authoritarian, and stressful EE demotivates students, while collaborative, collegial, and supportive EE promotes greater student

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engagement. A well-balanced and positive EE is associated with good academic outcomes and higher levels of students' satisfaction with the curriculum<sup>3</sup>.

The Dundee Ready Education Environment Measure (DREEM) was developed in 1997 to measure the EE specifically for medical students and other health professional students<sup>4</sup>. As a non-culture-specific and universally applicable tool, DREEM is considered highly suitable for evaluating undergraduate health professional education, particularly in medical programs<sup>5</sup>. It has been translated into eight languages and used in at least 20 countries for evaluation-related purposes, including diagnostic, group comparison, and examining the relationship of the EE with other academic measures<sup>6</sup>. In Malaysia, DREEM has primarily been utilised to evaluate the perception of the EE among undergraduate medical students. Previous studies have been conducted in Malaysian universities to examine the perceptions of both preclinical<sup>7</sup> and clinical students<sup>3,8-9</sup>. Comparative studies between preclinical and clinical students have been conducted as well<sup>10, 11</sup>. In addition, two studies have assessed the EE among Malaysian nursing students<sup>1,12</sup> and one study focused on pharmacy students<sup>13</sup>.

Monitoring students' perceptions on EE is crucial that allows institutions to identify specific, actionable areas for improvement in teaching methods, curriculum, and overall student experience. At WUC, no such previous studies were conducted to evaluate the EE. This study was conducted to evaluate the EE among medical, nursing, and pharmacy students at a single institution.

## MATERIALS AND METHODS

### Study design, period, place and participants

A cross-sectional study was conducted between January and December 2025 at Widad University College (WUC), located in Kuantan, Pahang, Malaysia. The medical, nursing, and pharmacy programs are operated by their respective faculties and share a single campus, utilising shared physical resources for academic activities.

The Bachelor of Medicine and Bachelor of Surgery (MBBS) degree is a 5-year program offered by the Faculty of Medicine at WUC since its establishment in 2011<sup>14</sup>. During the first two years (preclinical phase), students study basic science subjects such as human anatomy, physiology, biochemistry, microbiology, and pathology. The final three years (clinical phase)

focus on developing the clinical knowledge and skills required to become competent, compassionate, and effective doctors. The medical curriculum is designed to be integrated, student-centred, system-based, problem-based, community-oriented, and has incorporated mentoring program as a part of its support system<sup>15,16</sup>.

Both the Diploma in Nursing and the Diploma in Pharmacy are three-year programs designed to equip students with essential knowledge, practical skills, and clinical experience. These programs combine academic components through lectures, tutorials, seminars, and demonstrations with clinical training, primarily conducted in hospital wards and clinics. The curriculum is non-integrated and largely teacher-centered, structured to meet healthcare sector standards.

The participants in this study were all medical, nursing, and pharmacy students who were enrolled in their first, second, or third academic year during the 2024-2025 academic session comprising of 176 students in total.

### Study instrument, data collection, and analysis

#### Instrument

The instrument used in this study was the DREEM questionnaire. Additional demographic questions were included to gather information such as the participant's gender, academic year, and program of study.

The DREEM questionnaire consists of a 50-item inventory divided into five subscales:

- Students' perception of learning (SPL) - 12 items (Maximum score - 48)
- Students' perception of teachers (SPT) - 11 items (Maximum score - 44)
- Students' academic self-perception (SAP) - 8 items (Maximum score - 32)
- Students' perception of atmosphere (SPA) - 12 items (Maximum score - 48)
- Students' social self-perception (SSP) - 7 items (Maximum score - 28)

Each item is scored using a 5-point Likert scale with a score of 4 = strongly agree, 3 = agree, 2 = uncertain, 1 = disagree, 0 = strongly disagree. Items with negative phrasing (items 4, 8, 9, 17, 25, 35, 39, 48, and 50) are reverse-scored before analysis.

Scoring interpretation is as follows:

An item with a mean score of 3.5 or above is considered a

strong positive point. Scores between 2.0 and 3.0 suggest areas to be improved, and scores of 2.0 or less indicate problem areas. Total and subscale scores were interpreted according to the practical guidelines established by McAleer and Roff<sup>17</sup>, as presented in Table 1.

**Table 1:** Guidelines for the interpretation of DREEM scores

Total and Subscales	Score range	Interpretation
Total DREEM 50 items (200)	0-50 51-100 101-150 151-200	Very poor Many problems More positive than negative Excellent
SPL subscale 12 items (48)	0-12 13-24 25-36 37-48	Very poor Teaching is viewed negatively A more positive perception Teaching is highly thought of
SPT subscale 11 items (44)	0-11 12-22 23-33 34-44	Abysmal Need retraining Moving in the right direction Model course organisers
SAP subscale 8 items (32)	0-8 9-16 17-24 25-32	Feelings of total failure Many negative aspects More positive feelings Confident
SPA subscale 12 items (48)	0-12 13-24 25-36 37-48	A terrible environment Many issues need to be changed A more positive attitude A good feeling overall
SSP subscale 7 items (28)	0-7 8-14 15-21 22-28	Miserable Not a nice place Not too bad Very good socially

### Data collection

Participants were briefed by the researcher before questionnaire distribution regarding the study objectives, data collection procedure, clarification of potentially ambiguous terms, and assured that all information provided would remain confidential, anonymous, and used solely for research purposes. The DREEM questionnaire was distributed only to those who consented to participate in the study at the end of a class. Participants required approximately 20 minutes to

complete the questionnaire, and the researcher collected them immediately. Data from year-3 medical students, were collected by administering the questionnaire through electronic mail.

### Data analysis

After collection, all the data were compiled and analysed using SPSS for Windows, version 24.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics were used to calculate the mean and standard deviation of total and subscale DREEM scores for all students, as well as for specific program and year-level cohorts. One-way Analysis of Variance (ANOVA) was used to examine group differences. Where significant differences were found, Tukey's post hoc test was used for pairwise comparisons. A p-value of <0.05 was considered statistically significant.

This research proposal was approved by the WUC Research and Ethics Committee (Ref No. EAC/2025/HS/004 dated 2nd January 2025).

## RESULTS

### Characteristics of Participants

Among the total 176 students, 165 responded, giving a response rate of 93.75%. Most of them were female (83.64%), year-2 students (39.40%), and from the medical program (46.06%). The demographic distribution of participants by gender, academic level, and program is presented in Table 2.

**Table 2:** Demographic profile of participants, n=165

Category	Subgroup	Frequency	Percentage (%)
Gender	Male	27	16.36
	Female	138	83.64
Academic level	Year-1	63	38.18
	Year-2	65	39.40
	Year-3	37	22.42
Program	Medicine	76	46.06
	Nursing	49	29.70
	Pharmacy	40	24.24

### DREEM scores by Program

Table 3 summarises the subscale and total DREEM scores for medical, nursing, and pharmacy students.

**Table 3:** DREEM scores by program, n=165

Subscale	Medical (M) (n=76)		Nursing (N) (n=49)		Pharmacy (P) (n=40)		Total (n=165)		P-value	Tukey's post hoc tests < .05
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
SPL (48)	36.81	5.61	35.81	5.77	33.12	3.24	35.62	5.37	.002*	M-P N-P
SPT (44)	32.46	4.04	31.24	5.61	29.65	3.91	31.41	4.65	.008*	M-P
SAP (32)	23.31	3.95	24.79	3.96	23.22	2.93	23.73	3.78	.051	-
SPA (48)	35.56	6.50	34.83	6.32	32.80	5.30	34.67	6.24	.077	-
SSP (28)	19.27	3.70	19.12	2.60	17.90	2.99	18.89	3.27	.078	-
<b>TOTAL (200)</b>	<b>147.43</b>	<b>19.18</b>	<b>145.81</b>	<b>21.98</b>	<b>136.70</b>	<b>15.52</b>	<b>144.35</b>	<b>19.65</b>	<b>.016*</b>	<b>M-P</b>

SPL: students' perceptions of learning; SPT: students' perceptions of teachers; SAP: students' academic self-perception; SPA: students' perception of atmosphere; SSP: students' social self-perception; SD: standard deviation; \*= statistically significant ( $p < .05$ )

The overall mean DREEM score across all participants was 144.35, indicating a generally positive perception of the EE. Medical students reported the highest total mean score, followed by nursing students, while pharmacy students reported comparatively lower scores. The difference among programs was statistically significant ( $p = .016$ ), with post hoc analysis revealing that medical students had significantly higher perceptions than pharmacy students.

Across subscales, medical students consistently

reported higher mean scores in SPL, SPT, SPA, and SSP. However, nursing students recorded the highest score in SAP. Statistically significant differences were observed in SPL ( $p = .002$ ) and SPT ( $p = .008$ ), with medical and nursing students scoring significantly higher than pharmacy students.

#### DREEM Scores by Academic Year

Table 4 presents the subscale and total DREEM scores across academic year levels.

**Table 4:** Mean DREEM scores by year-level, n=165

Subscale	YEAR 1 (Y1) (n=63)		YEAR 2 (Y2) (n=65)		YEAR 3 (Y3) (n=37)		P-value	Tukey's post hoc tests < .05
	Mean	SD	Mean	SD	Mean	SD		
SPL (48)	36.50	5.59	34.07	5.19	36.83	4.74	.010*	Y3 - Y1 Y3 - Y2
SPT (44)	34.31	5.40	29.83	4.04	31.94	3.92	.001*	Y1 - Y2
SAP (32)	24.17	4.35	22.78	3.37	24.60	3.03	.027*	Y3 - Y2
SPA (48)	34.57	6.36	33.23	6.37	34.72	4.91	.030*	Y1 - Y2

Subscale	YEAR 1 (Y1) (n=63)		YEAR 2 (Y2) (n=65)		YEAR 3 (Y3) (n=37)		P-value	Tukey's post hoc tests < .05
	Mean	SD	Mean	SD	Mean	SD		
SSP (28)	18.60	3.45	18.33	2.94	20.37	3.13	.006*	Y3 - Y1 Y3 - Y2
<b>TOTAL (200)</b>	<b>148.17</b>	<b>21.78</b>	<b>138.26</b>	<b>18.32</b>	<b>148.54</b>	<b>15.35</b>	<b>.005*</b>	<b>Y1 - Y2 Y3 - Y2</b>

SPL: students' perceptions of learning; SPT: students' perceptions of teachers; SAP: students' academic self-perception; SPA: students' perception of atmosphere; SSP: students' social self-perception; SD: standard deviation; \*= statistically significant ( $p < .05$ )

Year 3 students achieved significantly higher overall scores (148.54) and recorded the highest mean scores in SPL, SAP, and SSP compared to Year 2 students. Meanwhile, Year 1 students reported significantly higher scores in SPT and SPA than Year 2 students.

Post hoc analysis showed Year 3 students had significantly higher total DREEM, SPL, SAP, and SSP scores than Year 2 students. Year 1 students had significantly higher scores in SPT and SPA compared to Year 2 students.

## DISCUSSION

### Overall, DREEM Score

This study provides an overview of undergraduate medical, nursing, and pharmacy students' perceptions regarding the EE in a private university in Malaysia. The average total DREEM score was 144.35 out of 200, indicating that the EE is 'more positive than negative'. This score is comparatively higher than those reported in similar studies conducted in institutions in Malaysia such as Universiti Teknologi MARA (131.81)<sup>10</sup>, SEGi university (126.78)<sup>7</sup>, University Sains Malaysia (128.36)<sup>11</sup>, and also in different countries such as KLE university, India (120.21)<sup>18</sup>, Saint Louis University, Philippines (121.26)<sup>19</sup>, Hamdard University, Pakistan (130.5)<sup>20</sup>, and Monash University, Australia (137.3)<sup>21</sup>.

Among the three programs, medical students reported the highest mean DREEM score, followed by nursing and pharmacy students. A significant difference was noted between the medical and pharmacy groups in overall DREEM scores ( $p = .016$ ). These findings align with a study from Australia, where pharmacy students reported a less favourable learning environment compared to students from other health-related programs<sup>21</sup>.

However, a study from Karachi found similar scores between medical and pharmacy students<sup>20</sup>. In contrast, pharmacy students at King Bin Abdulaziz University rated their EE more positively than medical students across all subscales<sup>22</sup>.

### DREEM Subscales by Academic Programs

Overall, students across all three programs had positive views of their learning experience (SPL). Medical students rated their learning most favourably, with a mean score of 36.81. Significant differences were observed in SPL subscale between medical and pharmacy as well as nursing and pharmacy students. Similarly, medical, nursing, and pharmacy students believe that their educators (SPT) are moving in the right direction; a significant difference was observed only between medical and pharmacy students. Overall, medical students scored higher on four out of five subscales: SPL, SPT, SPA, and SSP, compared to their peers in nursing and pharmacy. These results differ from studies in Pakistan<sup>20</sup> and Zambia<sup>23</sup>, which reported similar perceptions between disciplines.

Variations in scores might be attributed to curriculum structure, faculty characteristics, academic requirements, and teaching methods. The integrated, student-centred medical curriculum may contribute to higher satisfaction levels compared with the more teacher-centred diploma programs. Research suggests that students in non-integrated, teacher-centered programs tend to view the learning environment less positively than those in integrated, student-centered curricula<sup>24</sup>. The higher satisfaction levels reported by medical students regarding their perceptions of EE at WUC in the present study are consistent with findings from earlier research. Previous studies showed that fresh medical graduates from WUC reported positive

perceptions of their skills in communication in various aspects<sup>14</sup>. They also demonstrated favourable views toward core professionalism values<sup>25</sup>. These consistent findings reflect the strong reputation of the medical program at WUC. It is worth noting that the teaching of professionalism is given significant importance by incorporating medical ethics course into the WUC MBBS curriculum<sup>25</sup>.

There was no significant difference observed in other subscales of SAP, SPA, and SSP. In SAP subscale, medical and pharmacy students had moderately positive academic self-perceptions, while nursing students recorded the highest academic self-perceptions (SAP mean: 24.79), suggesting strong confidence in their academic abilities despite differences in curriculum design. All groups rated the institutional atmosphere positively and reported moderately favourable social experiences. Educational managers need to give more emphasis on enhancing students' SSP by strengthening support systems, providing accessible mental health resources, and encouraging positive peer-staff relationships. Effective strategies include implementing peer mentorship, creating safe, inclusive environments, and offering accessible, proactive counselling services to boost students' confidence and resilience.

#### *DREEM Subscales by Academic Year*

Past research has shown inconsistent findings when comparing DREEM scores across academic years. Some studies<sup>24,26,27</sup> found that first-year students held the most positive perceptions. In contrast, Brown et al. (2011)<sup>21</sup> reported that second-year students in Australia had higher DREEM scores than those in their fourth year. Similarly, other studies among dental and medical students identified second-year students as having the most favourable views<sup>28,29</sup>.

In our study, third-year students rated the EE most positively across total and subscale scores, while second-year students gave significantly lower ratings than both first- and third-year cohorts. These findings are similar to those from a study in Saudi Arabia<sup>22</sup>. Possible reasons for second-year students' lower ratings may include increased academic load and transitional stress which warrants further exploration.

## LIMITATION

Our study had limitations. It was a cross-sectional design without randomisation. The participants were recruited from a single institution, which may restrict the generalizability of the findings to other universities or educational settings. Unequal sample sizes among the programs represented a minor limitation of the study. Additionally, reliance on a single data source (DREEM questionnaires) may introduce response bias and restrict a more in-depth understanding of the factors influencing students' perceptions. Future research should consider incorporating a longitudinal study design complemented by qualitative approaches such as interviews or focus group discussions.

## CONCLUSION

Students at Widad University College generally perceived their EE positively. Medical students reported the most favourable perceptions compared to nursing and pharmacy students, particularly the subscales related to learning and teaching. Nursing students had the highest score in academic self-perception. All groups rated the institutional atmosphere positively and reported moderately favourable social experiences. There were significant differences in perception based on academic year, with third-year students reporting the most positive experience. In contrast, Year-2 students rated the EE less favourably. To enhance the educational climate, targeted interventions such as faculty training, curriculum review, and improved student support systems are recommended. Implementing these improvements could enhance student satisfaction, academic achievement, and overall educational quality at Widad University College.

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## Conflicts of Interest

The authors declared no conflicts of interest.

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## Authors' Contribution

*Conception and design of the study:* TZH, Jamaludin, Salam, Mohammad.

*Data gathering, analysis and interpretation:* TZH, Sumathi, Shahriruddin, Mohammad.

*Drafting of the manuscript:* TZH, Sumathi, Shahriruddin.

*Revising the manuscript for important intellectual content:* Salam, Jamaludin, Mohammad.

All authors have approved the final version of the manuscript to be published and accountable for all aspects of the work.

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