

## Evaluation of Educational Environment: Perceptions of Preclinical and Clinical Year Medical Students from Malaysia

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### Abstract

**Background:** Educational environment of an education institution is where teaching and learning activities occur. Educational environment plays an important role in academic achievements, satisfaction and successes of student and it is a major determinant of developing effective learning.

**Aims:** The aims of the study were to determine the perceptions of educational environment among all medical students at and to compare these perceptions between pre-clinical and clinical year students.

**Settings and Design:** This cross-sectional study involved all medical students (from Year 1 to Year 5) of University Tunku Abdul Rahman. Year 1 and Year 2 were pre-clinical years and Year 3 to Year 5 were clinical years.

**Methods and Material:** Dundee Ready Educational Environment Measure (DREEM) was used to determine the educational environment. Statistical analysis used: SPSS 26 was used to analyse the data. Analysis of variance was used to compare the mean scores of the domains of DREEM.

**Results:** Two-hundred-and-seven (n = 207) students responded to the questionnaires. Perceptions of medical students on educational environment showed that there were more positive than negative aspects (M = 123.41). Highest rated item was item 2; "The teachers are knowledgeable" (M = 3.43) and lowest rated item was item 27; "I am able to memorize all I need" (M = 1.27). Meanwhile, upon comparison, pre-clinical year students were more satisfied than clinical year students did in all the five domains of DREEM. In addition, social self-perception (Domain 5) in pre-clinical years was significantly greater than clinical years.

**Conclusion:** This study identified strengths and areas for improvement of the educational environment at UTAR. Strengths should be maintained to continue satisfying learning needs of the medical students. It was recommended that educational environment related with social life of clinical year students should be monitored closely.

**Keywords:** Educational Environment; DREEM; Perception; Medical Students; Malaysia

### Abbreviations

UTAR: University Tunku Abdul Rahman; DREEM: Dundee Ready Educational Environment Measure

### Introduction

Educational environment of an education institution is where teaching and learning activities occur to transpire learning.

Perceptions regarding educational environment influences academic achievements, satisfaction and successes of students and demonstrated to be a major determinant of developing motivation in students for their effective learning [1]. Although there exists a planned curriculum for every educational program, staff and students might experience the educational environment

differently and their subjective perceptions would constitute the educational climate [2,3]. In past decades, student evaluation of educational environment in medical programmes has been carried out for various purposes: to identify strengths and weaknesses of the educational environment, to monitor changes at times of a curriculum reform, to compare educational environments across teaching sites and to compare staff and student perceptions [4,5]. Studies on perceptions of the educational environment have shown that it has significant impact on student behaviours, their academic progress and sense of well-being [6,7].

Influence of educational environment on student learning could be possibly explained by two learning theories that are the Social Development Theory [8] and Self-Determination Theory [9]. According to Vygotsky's social development theory, Zone of Proximal Development (ZPD), which is an area where learning occurs develops within and influenced by the educational environment or ZPD could be the perceived educational environment. The ZPD is the distance between a student's ability to perform a task under adult guidance and/or with peer collaboration and the student's ability solving the problem independently after graduated from medical school [10]. Vygotsky's theory focuses on the social interactions of learners with tutor or peers and the theory emphasizes the profound influence of social contexts in the process of cognitive development. This emphasizes the influence of an educational environment, which can perceive positively or negatively affecting students learning and competency. According to Self Determination Theory, learning environment effects the student motivation. Students who have positive perception on learning environment would receive a thrust on their intrinsic motivation and would be further motivated in becoming self-determined lifelong learners; and vice versa.

In an education institution, it is important to evaluate the medical programme for quality assurance, accreditation [11] funding sources, for educators to gain useful knowledge about their programme, and sustain ongoing program development and improvement [12]. The University of Tunku Abdul Rahman (UTAR) is one of the well-known private universities in Malaysia and it has a newly established medical programme. Since commencement of the medical programme, there were modifications to the curriculum based on feedback from stakeholders such as the quality assurance team, staff, and students. The modifications aimed to produce competent medical graduates to serve the community.

It is important to monitor student perceptions of educational environment as a part of curriculum evaluation as perceived educational environment is the manifestation of the implemented curriculum. Students are primary users of a curriculum; their perceptions of the curriculum could be a valid and reliable insight on utility of it. Monitoring is essential in implementation of any modification or introduction of new curriculum or programme because it would help to identify lacunae, and corresponding measures could be taken for improvement. Curriculum evaluation plays an important role in creating an effective educational environment that would enhance prospects of success of the students [13]. Evaluation results are useful for educators to make decisions about values of an educational program [14] and this justifies the need for evaluating the newly established medical program in UTAR. In view of all these, the desired objectives of the study were (a) to determine perceptions of educational environment among medical students and (b) to compare perceptions of educational environment between pre-clinical and clinical year students.

## Materials and Methods

A cross sectional study was conducted at UTAR from September 2019 to November 2019. The study population was all 226 medical students studying from Year 1 to Year 5 during the academic year 2019/2020. There were 90 pre-clinical (Year 1 and Year 2) and 136 clinical year (Year 3, Year 4 and Year 5) students. All students were invited to participate in the study through an electronic invitation (email). The participation was voluntarily. The invitation included participant information leaflets and digital consent forms. This was a self-administered questionnaire. Responses were anonymized and informed consents were taken.

The study used Dundee Ready Education Environment Measure (DREEM, 50 items) which is one of the most widely used instrument to measure educational environment. [15] The instrument consisted of 50 items. Responses were collected in a Likert scale format ranging from "0" strongly disagree to "4" strongly agree. The DREEM consists of five domains: Domain 1 (Students' perceptions of learning), Domain 2 (Students' perceptions of teachers), Domain 3 (Students' academic self-perception), Domain 4 (Students' perceptions of atmosphere) and Domain 5 (Students' social self-perceptions) [13]. In this study, general demographic information of respondent such as age, gender and academic year of study were also collected.

Interpretation of DREEM scores could be categorised into three levels. Higher scores indicate a more positive evaluation [13]. First, at the item level, items with a mean score of 3.5 or more were “real positive”; whereas item with a mean score in between 3.0 and 3.5 were taken as “positive”; items with mean score of 2.0 to 3.0 were aspects of climate that could be enhanced; and any item with a mean score of 2.0 or less should be examined more closely as it indicates problem areas [1]. Nine of the items (i.e. 4, 8, 9, 17, 25, 35, 39, 40 and 50) were scored in reverse.

Second, at the domain level, Domain 1 has 12 items with a maximum score of 48; Domain 2 has 11 items with a maximum score of 44; Domain 3 has 8 items with a maximum score of 32; Domain 4 has 12 items with a maximum score of 48 and Domain 5 has 7 items with a maximum score of 28 (Table 1). Third, at the overall score level, scores were grouped into four categories (i.e. 0-50, 51-100, 101-150, and 151-200), and each category was associated with an interpretation (Table 1) [16].

Domain	Number of items	Score	Interpretation
Students’ perception of learning (D1)	12	0-12	Very Poor
		13-24	Teaching is viewed negatively
		25-36	A more positive perception
		37-48	Learning highly effective
Students’ perception of teachers (D2)	11	0-11	Bad
		12-22	In need of revision
		23-33	Moving in the right direction
		34-44	Model teachers
Students’ academic self-perception (D3)	8	0-8	Feelings of total failure
		9-16	Many negative aspects
		17-24	Feeling more on the positive side
		25-32	Confident

Students’ perception of atmosphere (D4)	12	0-12	A terrible environment
		13-24	There are many issues that need change
		25-36	A more positive attitude
		37-48	A good overall perception
Students’ perception of social life (D5)	7	0-7	Miserable
		8-14	Not a nice place
		15-21	Not too bad
		22-28	Very good socially
Overall	50	0-50	Very poor environment
		51-100	Plenty of problems in environment
		101-150	More positive than negative
		150-200	Excellent environment

**Table 1:** Guide for interpreting DREEM scores.

Data were analysed by using SPSS (Statistical Package for Social Science) for Windows version 26.0. Descriptive analysis was performed using mean and standard deviation for continuous variables. Categorical variables were described by frequencies and percentages. Next, the data were explored for normality using the Kolmogorov-Smirnov tests. The data were not normally distributed. Mann Whitney U tests were used to compare perceptions between pre-clinical years and clinical years students. A p value < 0.05 with a confidence interval of 95% were considered statistically significant for all tests. Internal consistency for five domains for DREEM were examined by Cronbach alpha coefficients, which is one of the most commonly methods used for determining the reliability of multiple-rating scale questionnaires. Cronbach alpha coefficients ranged from 0.70 to 0.83, for the five domains; and the coefficients were considered acceptable [17].

Ethical approval was acquired from Ethical Review Board of the University of Malaya and Ethical Review Board of the UTAR.

**Results**

There were 207 students participated in the study with the response rate of 91.6%. Respectively, there were 41 (19.8%) Year 1 students, 38 (18.4%) Year 2 students, 49 (23.7%) Year 3 students, 44 (21.3%) Year 4 students and 35 (16.9%) Year 5 students who completed the questionnaire. Approximately 70% students were aged between 21 to 25 years and 63% were female students.

Among these students, 79 (38.2%) were pre-clinical year students (Year 1 and Year 2) and 128 (61.8%) were clinical year students (Year 3, Year 4 and Year 5). Table 1 reveals general demographic information of the participants for each year of studies. The sample well represented the population in terms of gender, age group and year of studies (Table 2).

Year 1		Pre-clinical Year		Clinical year			
		Year 2	Year 3	Year 4	Year 5	Total	
Gender	Male	13 (31.7%)	16 (42.1%)	16 (32.7)	19 (43.2%)	12 (34.3%)	76
	Female	28 (68.3%)	22 (57.9%)	33 (67.3)	25 (56.8%)	23 (65.7%)	131
Age group	16-20	41 (100.0%)	17 (44.7%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	58
	21-25	0 (0.00%)	20 (52.6%)	48 (97.9%)	44 (100 %)	33 (94.3%)	135
	26-30	0 (0.00%)	1 (2.6%)	1 (2.04%)	0 (0.00%)	2 (5.7%)	4
Total		41 (19.8%)	38 (18.4%)	49 (23.7%)	44 (21.3%)	35 (16.9%)	207

**Table 2:** General demographic information.

**Educational environment at UTAR**

The overall score and scores for each domain are reported in Table 3. In this study, the overall score of DREEM was 123.41. The result indicates that the medical students’ perceptions of the educational environment of UTAR were more positive than negative. The score for Domain 1 was 31.62; the students had perceptions that were more positive on learning. The score for

Domain 2 was 28.53; teachers were moving in right direction. The score for Domain 3 was 17.77; the students were feeling more on positive side. The score for Domain 4 was 28.98; the students experienced a good society. The score for Domain 5 was 16.51; their social life was not too bad. The Domain 1 was the most highly rated, whereas the Domain 3 was the lowest.

Domain of DREEM	No. of questions	Max score	Mean	(SD)	Interpretation
Students’ perception of learning (D1)	12	48	31.62	4.67	More positive perception
Perception on teachers (D2)	11	44	28.53	4.44	Moving in a right decision
Academic self-perception (D3)	8	32	17.77	3.90	Feeling more on positive side
Perception on atmosphere (D4)	12	48	28.98	6.66	Very good society
Students’ perception of teachers (D2)	7	28	16.51	3.63	Not too bad
Overall	50	200	123.41	17.9	More positive perception

**Table 3:** The overall and domain scores of DREEM.

Each item in DREEM could be used to pinpoint a specific strength and weakness in the educational environment. In this study, there were four items, which scored more than 3.0 indicating

the most positive areas of the UTAR learning environment. The items were “I am encouraged to participate in class”, “The teachers are knowledgeable”, “The teachers are well prepared for their

classes” and “I have good friends in this faculty. There was no specific strength in Domain 3 and Domain 4 (Table 4). On the other hand, there were six items, which scored less than 2.0 indicating the problem areas. The items were “The teaching over-emphasizes factual learning”, “The teachers are authoritarian”, “I feel I am being well prepared for my career”, “I am able to memorize all I need”,

“There is a good support system for students who get stressed” and “I am too tired to enjoy the course”. There was no specific weakness in Domain 4. The rest of the 40 items scored between 2.0 and 3.0; these were aspects of the educational environment that could be enhanced.

Domain	Item	Mean	SD	Interpretation
Students’ perception of learning (D1)	1. I am encouraged to participate in class	3.02	0.68	Strength
	25. The teaching over-emphasizes factual learning	1.90	0.88	Weakness
Students’ perception of teachers (D2)	2. The teachers are knowledgeable	3.43	0.57	Strength
	40. The teachers are well prepared for their classes	3.16	0.61	Strength
	9. The teachers are authoritarian	1.92	0.96	Weakness
Students’ academic self-perception (D3)	21. I feel I am being well prepared for my career	1.89	0.88	Weakness
	27. I am able to memorize all I need	1.27	0.97	Weakness
Students’ perception of atmosphere (D4)	No item in the specified ranges of strengths or weakness			
Students’ perception of social life (D5)	15. I have good friends in this faculty	3.16	0.95	Strength
	3. There is a good support system for students who get stressed	1.82	0.93	Weakness
	4. I am too tired to enjoy the course	1.98	1.05	Weakness

**Table 4:** Analysis on Individual Items.

**Comparison between Pre-Clinical Year and Clinical Year Students**

Table 5 shows the comparison of overall and domain scores between preclinical and clinical years. Pre-clinical year students had more positive perceptions than clinical year students in overall score and individual domain score than clinical year students did,

but only the difference in terms of students’ perception on social life (D5) was significant (p<.05). The UTAR medical programme is conducted at two sites. The result implies that clinical year students who were placed at the Ampang clinical teaching hospital experienced different social life from what the pre-clinical year students had experienced in Sungai Long main campus.

Domain	Pre-clinical Year Mean (SD)	Clinical Year Mean (SD)	P-value
Students’ perception on learning (D1)	37.37 (4.58)	31.376 (4.72)	0.90
Students’ perception on teachers (D2)	29.02 (3.89)	28.22 (4.73)	0.28
Students’ academic self-perception (D3)	18.07 (3.46)	17.58 (4.14)	0.35
Students’ perception on atmosphere (D4)	30.20 (5.43)	28.23 (7.23)	0.65
Students’ perception on social life (D5)	17.17 (2.94)	16.09 (3.95)	0.04
Overall	125.86 (16.10)	121.89 (18.84)	0.08

**Table 5:** Comparison of overall and domain scores between pre-clinical year and clinical year students.

In terms of students’ perception on learning, only item 24 “The teaching time is put to good use” had significant difference ( $p < .05$ ), which can be interpreted that clinical year students had more positive perception regarding teaching time (Table 6). The lowest score for both pre-clinical year and clinical year students was item 25 “The teaching over-emphasizes factual learning”.

Next, there was a significant difference between preclinical year and clinical year students for the items 2, 8, 32, 39 and 50 ( $p < .05$ ), in terms of the students’ perception on teachers (Table 6). Pre-clinical year students perceived the items “The teachers ridicule the students”, “The teachers are authoritarian” and “The teachers get angry in class” significantly better. In contrast, clinical year students experienced significantly better for the items “The teachers are knowledgeable” and “The teachers provide constructive criticism here”.

There were significant differences between pre-clinical and clinical years for the items 10, 31 and 45 ( $p < .05$ ), in terms of domain students’ academic self-perception (Table 6). Pre-clinical year students had significant greater perception for “I have learned a lot about the way scientific research is carried out” and “Much of what I have to learn seems relevant to a career in biological sciences”; whereas clinical year students had significant greater perception for “I am confident about passing this year”. Clinical year students were more confident to pass their examinations as compared to pre-clinical year students.

In terms of students’ perception on atmosphere, items 11, 12 and 49 revealed significant difference between pre-clinical year and clinical year students ( $p < .05$ ) (Table 5). Pre-clinical year students had positive perception than clinical year students for “The atmosphere is relaxed during practical/lab classes” and “The course is well timetabled”. Furthermore, the clinical year students scored less than 2.0 for the issue related to timetable. Nevertheless, clinical year students felt better for “I feel able to ask the questions I want” as compared to pre-clinical year students.

There were significant difference in scores of items 14 “I have good friends in this faculty” and 19 “My social life is good” ( $p < .05$ ), in terms of students’ perception on social life (Table 6). Pre-clinical year students had good friends and better social life as compared to clinical year students. It may be due to pre-clinical year students

were in social association with students from other programmes who were studying in Sungai Long main campus. There were more social activities conducted at the main campus and pre-clinical year students had a greater chance to enjoy the social activities with friends. Clinical year students who stayed nearby to the Ampang clinical teaching hospital, had limited interactions with students from other programmes.

Domain 1	Preclinical Year Mean (SD)	Clinical Year Mean (SD)	P- value
1. I am encouraged to participate in class	3.05 (0.62)	3.00 (0.71)	0.88
7. The teaching is often stimulating	2.67 (0.73)	2.69 (0.85)	0.47
13. The teaching is student centered	2.57 (0.73)	2.66 (0.74)	0.42
16. The teaching helps to develop my competence	2.82 (0.75)	2.98 (0.74)	0.09
20. The teaching is well focused	2.77 (0.70)	2.682(0.68)	0.68
22. The teaching helps to develop my confidence	2.39 (0.82)	2.38 (0.83)	0.93
24. The teaching time is put to good use	2.39 (0.88)	2.72 (0.82)	0.01
25. The teaching over-emphasizes factual learning	1.91 (0.82)	1.90 (0.91)	0.87
38. I am clear about the learning objectives	2.75 (0.81)	2.59 (0.84)	0.15
44. The teaching encourages me to be an active learner	2.72 (0.70)	2.71 (0.86)	0.70
47. Long term learning is emphasized over short term learning	2.92 (0.84)	2.94 (0.74)	0.92
48. The teaching is too teacher centered	2.39 (0.83)	2.38 (0.75)	0.50
Domain 2			



2. The teachers are knowledgeable	3.33 (0.52)	3.48 (0.59)	0.03	41. My problem-solving skills are being well developed here	2.46 (0.77)	2.64 (0.78)	0.11
6. The teachers deliver research-led teaching	2.56 (0.66)	2.43 (0.84)	0.33	45. Much of what I have to learn seems relevant to a career in biological sciences	2.97 (0.72)	2.66 (0.85)	0.00
8. The teachers ridicule the students	2.47 (0.83)	2.05 (1.04)	0.00	Domain 4			
9. The teachers are authoritarian	2.15 (0.90)	1.78 (0.96)	0.01	11. The atmosphere is relaxed during practical/ lab classes	2.58 (0.94)	2.24 (1.01)	0.01
18. The teachers help me to develop my practical skills	2.86 (0.71)	2.97 (0.86)	0.11	12. The course is well timetabled	2.29 (1.12)	1.88 (1.24)	0.01
29. The teachers are good at providing feedback to students	2.51 (0.75)	2.53 (0.95)	0.43	17. Cheating is a problem in this faculty	2.82 (1.22)	2.52 (1.24)	0.06
32. The teachers provide constructive criticism here	2.35 (0.85)	2.62 (0.80)	0.02	23. The atmosphere is relaxed during lectures	2.47 (0.86)	2.21 (0.98)	0.06
37. The teachers give clear examples	2.84 (0.10)	2.91 (0.63)	0.35	30. There are opportunities for me to develop my interpersonal skills	2.68 (0.78)	2.48 (0.99)	0.41
39. The teachers get angry in class	2.42 (1.10)	2.08 (1.16)	0.04	33. I feel comfortable in class socially	2.72 (0.78)	2.63 (0.82)	0.61
40. The teachers are well prepared for their classes	3.08 (0.60)	3.021(0.62)	0.09	34. The atmosphere is relaxed during seminars/tutorials	2.63 (0.68)	2.38 (1.05)	0.08
50. The students irritate the teacher	2.647(1.14)	2.16 (1.10)	0.05	35. I find the experience disappointing	2.56 (0.91)	2.38 (1.00)	0.25
Domain 3				36. I am able to concentrate well	2.30 (0.87)	2.19 (0.96)	0.37
5. Learning strategies worked for me before continue to work for me now	2.39 (0.94)	2.42 (0.98)	0.54	42. The enjoyment outweighs the stress of the course	2.03 (0.95)	2.03 (0.98)	1.00
10. I am confident about passing this year	2.19 (0.97)	2.50 (0.99)	0.02	43. The atmosphere motivates me as a learner	2.63 (0.83)	2.49 (0.92)	0.23
21. I feel I am being well prepared for my career	1.80 (0.88)	1.95 (0.87)	0.26	49. I feel able to ask the questions I want	2.71 (0.72)	2.77 (0.98)	0.01
26. Last year's work has been a good preparation for this year's work	2.35 (0.78)	2.22 (0.96)	0.54	Domain 5			
27. I am able to memories all I need	1.16 (0.88)	1.34 (1.01)	0.26	3. There is a good support system for students who get stressed	1.96 (0.72)	1.73 (1.03)	0.06
31. I have learned a lot about the way scientific research is carried out	2.76 (0.80)	1.98 (0.90)	0.00	4. I am too tired to enjoy the course	2.10 (1.00)	1.91 (1.06)	0.21

14. I am rarely bored on this course	1.87 (0.98)	2.11 (0.98)	0.15
15. I have good friends in this faculty	3.38 (0.80)*	3.02 (1.05)*	0.01
19. My social life is good	2.72 (0.78)*	2.38 (1.05)*	0.02
28. I seldom feel lonely	2.29 (0.90)	2.16 (0.15)	0.13
46. My accommodation is pleasant	2.83 (0.70)	3.00 (0.99)	0.39

**Table 6:** Comparison of item scores in Domain 1, Domain 2, Domain 3, Domain 4 and Domain 5 between pre-clinical year and clinical year students.

### Discussion

Perceived educational environment is an important area in determining the effectiveness and success of a medical curriculum in enhancing student learning, and it has been consistently demonstrated in the field of medical education worldwide [18,19].

#### Overall scores of the educational environment

The overall DREEM score of UTAR was 123.41, which fall within the range of 101-150 indicating that there were more positive perceptions than negative perceptions of the educational environment [16] The result was slightly lower as compared to some studies conducted in Malaysia. The results were 125.3 in Management and Science University, 126.78 in SEGi University, 129 and 133 in in University Sains Malaysia and 134 in International Medical University [13,20-23].

Similar scores as a comparison with this study were found in other studies overseas. An Indian study reported 123 [1]. Higher overall scores were found in medical universities of different parts of the world. These past studies were 125.3 [13] in medical schools in India, 129 in a medical school in Spain [24], 132 in medical school in Sudan [25], 135.37 in Victoria University of Melbourne, Australia [26], 135.1 in a medical school in Brazil [27], 138.2 in a medical school in Nigeria [28], 139 in Dundee Faculty of Medicine, United Kingdom [29]. The highest score reported till date was 144 [30]. Higher overall scores may indicate that these institutions adopted a more innovative and student-centred approach to medical education [15].

As a comparison with this study, overall scores of a number of past studies were lower. These studies were 105, 112 and 121.01

in three different medical schools in Pakistan [31,35,38], 106 in a medical university in Iran [32], 108 in a medical school at Sri Lanka [33], 109.9 in a medical school at Trinidad [34], 116.2 in a Spanish medical school [26], 118 in a medical school at Nigeria [15], 119 in two medical universities in India [18], and 120 in a medical school at Bangladesh [37].

Overall scores below 100 indicate more negative perceptions than positive perceptions of educational environment. An overall score lower than 100 was reported at the College of Medicine at King Saud University, in Saudi Arabia, that was 89 [39]. The scenario could be interpreted as plenty of problems in environment according to McAleer’s guidelines. 16 Disparities of overall scores reported in different universities suggest that the educational environment may be influenced by types of curriculum adopted, learning opportunities, teacher student interactions and social context in the respective universities. High overall scores could indicate that curriculum development was based on modern medical education principles and training providing learners with positive experiences at par with their expectations, whereas total scores lower than 120 might depict adoption of a traditional education system [31].

#### Items scores of educational environment

In this study, the problem areas were: the students perceived that their curriculum has over-emphasis on factual learning (M = 1.90), the teachers were authoritarian (M = 1.92); they feel not being well prepare for the career (M = 1.89), they cannot memorized all they need (M = 1.27), they were too tired to enjoy the course (M = 1.98), and finally the students perceived there was a lack of support for students who get stressed (M = 1.82) These findings indicate that these areas should be examined more closely, as they relate to problem areas. In parallel with this study, a lack of support for students who get stressed was found in a number of previous studies [13,20,21,24,28,31,32,35,37,40]. Similar results which was items score less than 2.0 had seen in other studies were “Students irritate the teachers”, “The teacher ridicules the students, and “I feel bored in the course” [40-42]. The items indicated towards the need for closely examining the graduate readiness for practice, awareness and practice of student centred teaching learning strategies by faculty members and the students’ awareness of effective learning strategies and approaches. All these can be achieved through effective student support systems



and faculty development programs. Targeted interventions in these areas would result in enhancing the perceptions of educational environment leading to better achievement of required competencies for a safe practicing doctor.

There were 40 items scored between 2.0 and 3.0 in this study, indicating that the aspects of the educational environment could be enhanced [16]. A majority of the items scoring in this range also indicates the need of continuous monitoring of these aspects for variations using DREEM. This will help in identifying issues if these items fall to lower ranges. As a comparison, Khan (2019) reported 44 items, which scored between 2.0 and 3.0. In this study, four items scored more than 3.0 that indicated the most positive and strong areas of the learning environment (i.e. item 1, 2, 40 and 15). The results were similar to the studies conducted by Azruman (2016) and Palomo-Lopez, *et al.* (2018) [24,37].

### Comparison between the pre-clinical year and clinical year students

According to results of this study, pre-clinical year students had more positive perception of the educational environment than clinical year students in all the domains. In terms of students' perception of social life, pre-clinical year students studied at Sungai Long main campus were in proximity and social connection with students from other programmes such as Engineering, Nursing, Physiotherapy, Accounting, Creative arts and Languages. Social activities were organized by students and faculties almost every day and pre-clinical year students could enjoy the activities. In addition, pre-clinical year students could access to all facilities at the main campus such as gym, library and cafeteria. However, for clinical year students, their campus (i.e. Ampang clinical teaching hospital) had limited leisure facilities.

Similar findings where pre-clinical year students had a more positive perception of the educational environment than clinical year students were found in literature. These studies were Pakistan, Nepal, Sudan and King Saud University [25,31,36,39,45]. These studies explained that the differences could be related to the high motivation level of pre-clinical year students as they were newly enrolled and were still exploring the educational environment. In contrast, for several studies conducted in University of Dundee, UK [43] and Pakistan [34], the educational environment was perceived significantly greater by clinical year students as compared to the

pre-clinical year students. In a study conducted by Dunne, McAleer and Roff (2006), older students appear to be more satisfied with their educational environment [43].

### Limitations of the study

The study had several limitations. First, the study was conducted only at one medical school in a private university. Although the study method could be generalisable and findings relatable, the findings may not represent general nature of medical programmes in Malaysia. Purpose of the study was to evaluate the UTAR medical programme in an attempt to enhance the effectiveness of the programme. Second, quantitative approach has its limitations in examining a complex environment as the findings do not explain how and why of findings. An example of this could be; why clinical year students were more confident to pass their examinations as compared to pre-clinical year students?. Therefore, a mixed methods approach that produces both quantitative and qualitative data is recommended for future investigations

### Implication of the study

Malaysian higher education sector is known for its quality and medical education and medical services provided are at par with best medical services available different parts of the world. This is because of the stringent quality assurance ensured through continuous monitoring and alignment with Malaysian Qualifications Framework guidelines. The present study reiterates the quality of educational environment experienced in Malaysian medical schools as they are poised to become the most preferred and safe destination for medical career aspirants.

### Conclusion

Findings of this study provide guidance on what needs to be maintained and addressed in the UTAR medical programme. The DREEM was again found to be a useful tool to identify strengths and weaknesses of the educational environment and it serves as a monitoring tool to permit timely interventions to remediate problematic educational environments. Hence, the DREEM could be used to conduct annual evaluation for the UTAR medical programme and for similar programmes to ensure healthy educational environment supporting the nurturing of future medical practitioners.

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## Conflict of Interest

No conflicts of interest.

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