

**PERCEPTIONS OF EDUCATIONAL ENVIRONMENT  
AMONG MEDICAL STUDENTS OF  
UNIVERSITY TUNKU ABDUL RAHMAN:  
A CROSS SECTIONAL STUDY**

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**FACULTY OF MEDICINE  
UNIVERSITY OF MALAYA  
KUALA LUMPUR**

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**RESEARCH PROJECT SUBMITTED IN FULFILMENT  
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Tunku Abdul Rahman: A cross sectional study

Field of Study: Medical Education

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## ABSTRACT

Educational environment of an education institution is where teaching and learning activities occur and it is a major determinant of developing motivation in students for their effective learning. Educational environment plays an important role in academic achievements, satisfaction and successes of students. Objectives of the research study were to determine the perceptions of educational environment among medical students of University Tunku Abdul Rahman (UTAR) and to compare perceptions of educational environment between pre-clinical and clinical year students. This study was a cross-sectional study involving all the medical students (year 1 to year 5). Dundee Ready Educational Environment Measure (DREEM) was used to determine the educational environment of medical students of UTAR. Data was analyzed by using SPSS. Two-hundred-and-seven (n=207) students responded to the questionnaires. Amongst the respondents, 63.3% were female students, while 70.0% of them were between 21-25 years of age. There were 79 or 38.2% students studying in the preclinical phase (year 1 to year 2) while 128 or 61.8% were studying in the clinical phase (year 3 to year 5). Perceptions of medical students on educational environment of UTAR showed that there were more positive than negative aspects (M=123.41, SD =17.09). 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, student’s social self-perception (Domain 5) in pre-clinical years was significant greater than clinical years. In conclusion, this study identified strengths and areas for improvement of the educational environment at UTAR. UTAR medical students have positive perceptions on educational environment of UTAR. It was recommended that educational environment of UTAR related with social life of clinical year students should be monitored closely and maintain an educational environment that would satisfy for all MBBS students studying in UTAR.

**Key words:** Educational environment, DREEM, perception, medical students, Malaysia

## **ABSTRAK**

*Persekitaran pendidikan institusi pendidikan adalah di mana aktiviti pengajaran dan pembelajaran berlaku dan ia merupakan penentu utama untuk memajukan motivasi pelajar untuk pembelajaran mereka yang berkesan. Persekitaran pendidikan memainkan peranan penting dalam pencapaian akademik, kepuasan dan kejayaan pelajar. Objektif kajian ini adalah untuk menentukan persepsi persekitaran pendidikan di kalangan pelajar perubatan di Universiti Tunku Abdul Rahman (UTAR) dan membandingkan persepsi persekitaran pendidikan antara pelajar tahun pra dan klinikal. Kajian ini adalah kajian rentas meluas yang melibatkan semua pelajar perubatan (tahun 1 hingga tahun 5). Dundee Ready Educational Environment Measure (DREEM) digunakan untuk menentukan persekitaran pendidikan pelajar perubatan UTAR. Data dianalisis menggunakan SPSS. Seramai dua ratus dan tujuh ( $n = 207$ ) menjawab soalan-soalan. Antara responden, 63.3% adalah pelajar wanita, manakala 70.0% daripadanya adalah antara 21-25 tahun. Terdapat 79 atau 38.2% pelajar yang belajar dalam fasa praplinikal (tahun 1 hingga 2 tahun) manakala 128 atau 61.8% belajar dalam fasa klinikal (tahun 3 hingga tahun 5). Persepsi pelajar perubatan mengenai persekitaran pendidikan UTAR menunjukkan bahawa terdapat lebih positif daripada aspek negatif ( $M = 123.41$ ,  $S.D. = 17.09$ ). Item undian tertinggi ialah item 2; "Guru berpengetahuan" ( $M = 3.43$ ) dan item yang paling rendah ialah item 27; "Saya dapat menghafal semua yang saya perlukan" ( $M = 1.27$ ). Sementara itu, dengan perbandingan, pelajar tahun pra-klinikal lebih berpuas hati daripada pelajar tahun klinikal dalam semua lima domain DREEM. Di samping itu, persepsi pelajar terhadap kehidupan sosial (Domain 5) dalam tahun pra-klinikal adalah lebih besar daripada tahun klinikal. Kesimpulannya, kajian ini mengenal pasti kekuatan dan bidang untuk memperbaiki persekitaran pendidikan di UTAR. Pelajar perubatan UTAR mempunyai persepsi positif terhadap persekitaran pendidikan UTAR. Adalah disyorkan bahawa persekitaran pendidikan UTAR yang berkaitan dengan kehidupan sosial pelajar tahun klinikal perlu dipantau dengan teliti dan mengekalkan persekitaran pendidikan yang akan memuaskan semua pelajar MBBS yang belajar di UTAR.*

*Kata kunci: Persekitaran pendidikan, DREEM, persepsi, pelajar perubatan, Malaysia.*

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## TABLE OF CONTENTS

Abstract.....	iii
Abstrak.....	iv
Acknowledgements.....	v
Table of Contents.....	vi
List of Figures.....	x
List of Tables .....	xi
List of Symbols and Abbreviations .....	xii
List of Appendices.....	xiii
<b>CHAPTER 1: INTRODUCTION .....</b>	<b>1</b>
1.1 Introduction.....	1
1.2 Problem statement.....	1
1.3 Research Objectives .....	3
<b>CHAPTER 2: LITERATURE REVIEW .....</b>	<b>7</b>
2.1 Introduction.....	7
2.2 Educational environment.....	7
2.3 Components of educational environment.....	8
2.3.1 Components of an effective educational environment.....	9
2.4 Perception.....	9
2.4.1 Perception related to behaviour.....	10
2.5 Evaluation of educational program and measurement of educational environment..	11
2.6 Dundee Ready Education Environment Measure (DREEM) inventory .....	12
2.7 Determinants of perception of educational environment based on various studies...	13
2.8 Self-determination theory (Deci & Ryan, 1991).....	14



2.9	Vygotsky social development theory (Vygotsky,1896-1934).....	15
2.10	Summary .....	16
<b>CHAPTER 3: THEORETICAL FRAMEWORK .....</b>		<b>17</b>
3.1	Introduction .....	17
3.2	Theoretical framework of the study .....	17
3.3	Conceptual Framework .....	21
3.4	Summary .....	23
<b>CHAPTER 4: RESEARCH METHODOLOGY .....</b>		<b>24</b>
4.1	Introduction .....	24
4.2	Site of Study .....	24
4.3	Study population .....	24
4.4	Study design .....	24
4.5	Study Period .....	24
4.6	Sampling technique and procedure .....	25
4.7	Inclusion criteria.....	25
4.8	Exclusion criteria.....	25
4.9	Data collection tools.....	25
4.10	Data collection procedures .....	25
4.11	Data Analysis .....	26
4.11.1	Analysis of reliability of DREEM questionnaire .....	27
4.11.2	Scoring system for perception of students on learning environment.....	27
4.12	Ethical Consideration .....	30
4.13	Summary .....	30
<b>CHAPTER 5: FINDINGS AND DISCUSSION.....</b>		<b>31</b>

5.1	Introduction .....	31
5.2	Findings .....	31
5.2.1	Answering Research Question 1: What were the perceptions of educational environment among medical students of University Tunku Abdul Rahman (UTAR)? .....	31
5.2.1.1	Descriptive Analysis .....	31
5.2.1.2	Socio demographic character of students .....	31
5.2.1.3	Findings of total and domain scores of DREEM .....	33
5.2.1.4	Findings of item scores of DREEM .....	34
5.2.1.5	Findings on item scores of each domain of DREEM .....	36
5.2.2	Answering research question 2: Was there any difference in perceptions of educational environment between preclinical and clinical year students? .....	41
5.2.2.1	Comparison of overall and domain scores of DREEM among preclinical and clinical years .....	41
5.2.2.2	Comparison of each domain scores of DREEM among preclinical and clinical years .....	42
5.3	Discussion .....	49
5.3.1	Introduction .....	49
5.3.2	Discussion on socio demographic character of participants .....	49
5.3.3	Discussion on research question 1: What were the perceptions of educational environment among medical students of University Tunku Abdul Rahman (UTAR)? .....	50
5.3.3.1	Discussion on total DREEM score of the educational environment .....	50
5.3.3.2	Discussion on domains scores of DREEM .....	52

5.3.3.3	Discussion on the items scores of DREEM .....	53
5.3.3.4	Discussion on items scores of each domain of DREEM .....	54
5.3.4	Discussion on research question 2: Is there any difference in perceptions between pre-clinical and clinical year students?.....	59
5.3.4.1	The comparison of domains scores of DREEM among the preclinical and clinical years students.....	59
5.3.4.2	Discussion on comparison of each domain score among preclinical and clinical years students of UTAR .....	60
5.3.5	Theories related with educational environment .....	64
5.4	Summary .....	67
<b>CHAPTER 6: CONCLUSION AND IMPLICATION OF STUDY.....</b>		<b>68</b>
6.1	Introduction .....	68
6.2	Conclusion.....	68
6.3	Implication of the study.....	69
6.4	Limitations of the study.....	70
6.5	Recommendations .....	70
References.....		71
Appendix.....		77

## LIST OF FIGURES

Figure 3.1: Applications of Self-Determination Theory and Vygotsky Social developmental theory in present study .....	19
Figure 3.2: Theoretical Framework .....	20
Figure 3.3: Conceptual Framework .....	22

University of Malaya

## LIST OF TABLES

Table 4.1: The analysis method conducted according to research objectives .....	7
Table 4.2: Scoring system for perception of student on learning environment.....	7
Table 4.3: Guide for interpreting domain score of DREEM .....	7
Table 4.4: Guide for interpreting overall DREEM score.....	30
Table 5.1: Sociodemographic character of participants.....	32
Table 5.2: Sociodemographic character of participants of each academic years .....	32
Table 5.3: The overall and domain scores of DREEM .....	33
Table 5.4: Item scores more than 3.0 of DREEM .....	35
Table 5.5: Item scores less than 2.0 of DREEM.....	35
Table 5.6: The mean scores of items of Domain 1; Student's perception of learning ....	36
Table 5.7: The mean scores of items of Domain 2; Student's perception of teachers ....	37
Table 5.8: The mean scores of items of Domain 3; Student's academic self-perception	38
Table 5.9: The mean scores of items of Domain 4; Student's perception of atmosphere	40
Table 5.10: The mean scores of items of Domain 5; Student's social self-perception ...	41
Table 5.11: Comparison of overall DREEM scores of preclinical and clinical years ...	42
Table 5.12: Comparisons of items scores of Domain 1; Student's perception of learning among preclinical and clinical students of UTAR.....	43
Table 5.13: Comparisons of items scores of Domain 2; Student's perception of teachers among preclinical and clinical students of UTAR.....	45
Table 5.14: Comparisons of items scores of Domain 3; Student's academic self-perception among preclinical and clinical students of UTAR.....	46
Table 5.15: Comparisons of items scores of Domain 4; Student's perception of atmosphere among preclinical and clinical students of UTAR .....	47
Table 5.15: Comparisons of items scores of Domain 5; Student's social self-perception among preclinical and clinical students of UTAR.....	49

## LIST OF SYMBOLS AND ABBREVIATIONS

CTC	:	Clinical Teaching Centre
DREEM	:	Dundee Ready Educational Environment Measures
D	:	Domain
IBM	:	International Business Machines
M	:	Mean
MOHE	:	Ministry of Higher Education
N	:	Number of students
SD	:	Standard deviation
SDT	:	Self Determination Theory
SPSS	:	Statistical Package for social Science
UTAR	:	University Tunku Abdul Rahman
ZPD	:	Zone of proximal development

## LIST OF APPENDICES

Appendix A: Gant Chart.....	75
Appendix B: Questionnaires.....	76
Appendix C: Participant information sheet.....	79
Appendix D: Informed consent form.....	80
Appendix E: Items of DREEM linked with learning theories.....	81

University of Malaya

## **CHAPTER 1: INTRODUCTION**

### **1.1 Introduction**

Educational environment of an education institution is where teaching and learning activities occurs and it is a major determinant of developing motivation in students for their effective learning. Learning environment plays an important role in academic achievements, satisfaction and successes of students (Pai et al., 2014).

Although there was planned curriculum for every educational program, the staff and students experienced the educational environment of the institution and their subjective perceptions constitute the climates (Roff, 2001; Till et al., 2005). The evaluation of learning environment of medical students has been carried out to identify strengths and weaknesses of learning environment, to monitor changes at times of curriculum reform, to compare learning environments across teaching sites and to compare staff and students' perceptions (Edgren et al, 2010; Miles et al., 2009). The perception of these students of the environment within which they study has been shown to have a significant impact on their behaviour, academic progress and sense of well-being (Genn et al., 2001; Audin et al., 2003).

### **1.2 Problem statement**

In educational institution, it is important to evaluate the program for quality assurance for medical education accreditation (ACGME 2010b; LCME 2010), for funding sources, and for educators to gain useful knowledge about their program and sustain ongoing program development. (Goldie et al., 2006).

University of Tunku Abdul Rahman, Malaysia, is one of the well-known university in Malaysia and the faculty of medical science has been delivering MBBS program since year 2009. As newly established medical curriculum, there were modifications to the curriculum according to feedback from stakeholders such as



medical quality assurance team, staff, and students to produce competent medical graduates to serve the community. There are existing program evaluation for MBBS program such as student evaluation for learning and syllabus evaluation which the students have to fill up online after completing each module. The existing program evaluation does not measure specific areas such as the teaching and learning strategies, assessment methods and social constructs of educational environment. Meanwhile, there are evaluations, done at the departmental level with different evaluation methods. Standardization on the programme evaluation among four different departments is necessary because the MBBS program should ultimately presented as one entity. Meanwhile, the evaluation results need to be properly documented and transparent among faculty members. It was recommended to implement program evaluation that reflects entire educational environment of MBBS program.

It is important to monitor the student's perceptions of educational environment as part of curriculum evaluation especially if there is any modification or introduction of new curriculum or program and it will help to identify areas with deficiencies so that measures can be taken to improve them if required. The evaluation of curriculum plays important role to create effective educational environment that will enhance the prospects of success of the students. (Al-Naggar et al., 2014) The information from the results of evaluation of educational program are useful to make a decision about the value or worth of an educational program (Cook et al., 2010) and by provide evidence to support the need for implementation of effective evaluation tools for the MBBS program in UTAR.

To evaluate an educational environment, it is important to choose appropriate evaluation model, measurement tools, strategies based on the objectives of the evaluation and educational theory applied for the evaluation program. There are

various evaluation instruments to measure educational environment (Schoenrock-Adema et al., 2012) and the most widely used instrument is Dundee Ready Education Environment Measure (DREEM) (Roff, 1997) which has been demonstrated as an internationally useful tool in a variety of health care settings (Roff, 2005).

### **1.3 Research Objectives**

The objectives of the research study were

1. To determine the perceptions of educational environment among medical students of University Tunku Abdul Rahman (UTAR)
2. To compare perceptions of educational environment between preclinical and clinical year students

### **1.4 Research questions)**

1. What were the perceptions of educational environment among medical students of University Tunku Abdul Rahman (UTAR)?
2. Was there any difference in perceptions of educational environment between preclinical and clinical year students?

### **1.5 Significance of the study**

The study was conducted at one of the leading progressive private universities in Malaysia, University Tunku Abdul Rahman, which was established in 2002 as a not-for-profit private university. With the first intake of only 411 students in one campus in 2002, the university now has more than a total of 24,000 students in 2 campuses. UTAR has graduated over 56,000 students since its inaugural convocation in 2005 and has made impressive strides in establishing a strong reputation as a

comprehensive University with dedication to achieving excellence in teaching and research. The University was awarded self-accreditation status by the Ministry of Higher Education in 2017, an indication of UTAR's quality and efficient administration of its programmes and operations. With this self-accreditation status, it implied that the University has to govern its program monitoring, review and continual quality improvement.

The University currently offers more than 110 academic programmes in its nine faculties, four centres and three institutes. The programmes offered are from Foundation to Bachelor's, Master's, and PhD degrees. Its diverse range of quality and industry-focused programmes are all approved by the Ministry of Higher Education (MOHE). UTAR's programmes have also received accreditation from more than 20 international and Malaysian professional bodies. In year 2019 UTAR ranked 501-600 among world university ranking, 111 among Asian university and ranked between 101-150 among young universities (World University Ranking, 2019). Hence, findings of the study will contribute towards planning and implementation of the review of MBBS program at UTAR enabling institution to continue its academic excellence.

## **1.6 Definition of Terms**

### **a) Educational environment**

The climate of university where the whole range of components and activities within which learning happens which includes infrastructure of the campus, learning opportunities, teachers' skills and attitudes, their interaction with peers, teaching and learning methods, learning resources, monitoring and evaluation.

### **b) Student's perception of educational environment**

Medical student's perception on their learning environment is how the students perceived on their study environment and it has shown that the learning environment have a significant impact on their behavior, academic progress and sense of well-being. In the context of this study, student's perception of educational environment was measured using 50 items of Dundee Ready Educational Environment Measures (DREEM). The DREEM has five domains.

c) Student's perception of learning

Student's perception of learning is referred to Domain 1 of DREEM which contains 12 items that are the medical student's perception on their learning opportunities.

d) Student's perception of teachers

Student's perception of teachers is referred to Domain 2 of DREEM which contains 11 items that are the medical student's perception on their teacher's skills and attitudes.

e) Student's academic self- perception

Student's academic self- perception is referred to Domain 3 of DREEM which contains 8 items that are the medical student's self-perception of academic competencies.

f) Student's perception of atmosphere

Student's perception of atmosphere is referred to Domain 4 of DREEM which contains 12 items that are the medical student's perception on the infrastructure and learning resources.

g) Student's social self- perception

Student's social self- perception is referred to Domain 5 of DREEM which contains 7 items. Medical student's perception on their social life and their interaction with peers

h) Pre-clinical year students

Pre-clinical year students are referred to year 1 and year 2 medical students studying at UTAR. Preclinical teaching sessions are mainly conducted at UTAR Sungai Long (main campus).

i) Clinical year students

Clinical year students are referred to year 3, year 4 and year 5 medical students studying at UTAR. Clinical teaching sessions are mainly conducted at Clinical Teaching Centre (CTC) Ampang.

## **1.7 Summary**

This chapter presented the research background, problem statement, purpose of the study, research questions, research significance, and definition of the terms. Chapter Two will give a review of the literature in relation to definition of educational environment and its components, perception and related behaviour, evaluation of educational program and measurements of educational environment, DREEM inventory, learning theories such as self-determination theory, Vygotsky socio development theory.

## CHAPTER 2: LITERATURE REVIEW

### 2.1 Introduction

This chapter provides literature review of studies done in the past, both locally and globally, that are relevant to this study.

### 2.2 Educational environment

Educational environment refers to the climate of institution as the whole range of components and activities within which learning happens. This includes infrastructure of the campus, learning opportunities, teacher's skills and attitudes, their interaction with peers, teaching and learning methods, learning resources, monitoring and evaluation. Learning environment is a major determinant of developing motivation in students for their effective learning. Learning environment plays an important role in student's academic achievement, satisfaction and success. (Pai et al., 2014) The learning environments have influence on student learning, including their engagement in what is being taught, their motivation to learn, and their sense of well-being, belonging, and personal safety. (Glossary of educational reform, 2014)

Educational environment has been shown to directly affect students' performance and an excellent environment is reflective of a quality curriculum. (Audin et al., 2003) which influences on how, why and what students learn which is crucial in the success of the curriculum. An ideal and positive educational environment prepares students for professional life in the future. (Henrik et al., 2005, Damaris et al., 2008) In 1988, the World Federation of Medical Education considered the educational environment as an assessment area in medical training programs. (Raquel et al., 2009) Learning environment significantly affects the learning and behaviours of students and there is a strong relationship between learning environment and valuable components such as students' satisfaction and success. (Farajpour et al., 2017)

Educational environment is also defined as the social context, psychological and pedagogical which can affect learning, achievement and attitudes of the students. Educational environment and features that are in it played a major role in improving learning in schools and is identified as major determinants of student learning. Educational environment capable of stimulating students to engage in the learning process and be able to influence the behaviour of students as well as to assist in the development of their skills or cognitive perception (Amirul et al., 2013).

### **2.3 Components of educational environment**

The term educational environment expresses that learning is dependent on various environmental factors, which are created to various degrees by external factors. A learning environment is made up of an arrangement of teaching strategies and methods, learning materials, and media (Mandl et al., 2001). A well planned and well-designed curriculum includes aims, objectives, and assessments that are aligned with teaching methods to build learners' experience. Moreover, the learning environment represents the current temporal, spatial, and social learning situation and also includes the relevant cultural context. The basis for concrete measures to create learning environments provides a fundamental concept for teaching and learning. To maximize educational environment, it need to fulfil basic need of infra structure such as classrooms to have basic needs of room temperature, comfort of seating, etc which can affect concentration and motivation of learners. Teachers play an important role in controlling the learning environment in meaningful manner. The use of effective instructional design would create effective teaching and learning sessions, and the respect for the learners to their needs and encouragement of participation would lead to a positive learning experience. (Hutchison et al., 2003)

### **2.3.1 Components of an effective educational environment**

The components of effective educational environment includes, the characteristics of the learners; the goals for teaching and learning; the activities that will best support learning; the assessment strategies that will best measure and make learning the culture that effect the learning environment. The effective educational environment included other components, such as developing ethical behaviour, institutional factors, or external accreditation which also affect the educational environment. (Collin et al., 2013)

## **2.4 Perception**

Perception is "the way you notice things, especially with the sense or an idea, a belief or an image you have as a result of how you see or understand" (Eliza et al., 2002). Perception is the way how the people think about or understand someone or something, the ability to understand or notice something easily and the way that someone notice or understand something using one of your senses. (Webster, 2017) Perceptions include beliefs, expectations, evaluations, and other cognitive elements. The definition of "perception" has long been regarded with much disagreement among psychologists, particularly in giving it a more scientific meaning (Attneave, 1962). Perception falls under socio-cognitive skills, and even under this category it can be divided into two categories; emotional perception and theory of mind (Mitchell & Phillips, 2014) where the former is regarded as a low-level perceptual process derived from affective cues and the latter is seen a higher-level cognitive process involving mental state reasoning.

This study focuses on the simpler meaning of perception, where perception is defined as interpretation made from received stimuli to produce meaningful insight (Boeree, 2009). Medical student's perception on their learning environment is how



the students perceived on their study environment and it has shown that the learning environment have a significant impact on their behaviour, academic progress and sense of well-being.

#### **2.4.1 Perception related to behavior**

Human's health behaviour is motivated primarily by a desire to protect himself against threats to the health and safety. A person's way of life is closely related to the illness that he perceives as threatening. Whether or not a person takes, a particular health action depends on whether he believes that he can contract the disease and whether he believes that the disease would have some undesirable consequence.

Sometimes, the action that a person perceives as effective and available may be easy and convenient. But, it may be inconvenient, undesirable, and unpleasant. If such negative characteristics seem to outweigh the presumed benefits to his health, he may choose some other less unpleasant action, or he may not do anything. Another factor to be considered is individual's sense of urgency. It means that he believes the action to be needed immediately. The further in the future a threat to one's health lies, the less urgent it tends to appear. Considering all of these factors, one can recognize how people are torn between conflicting beliefs and motives. The most crucial conflicts are those that occur between contradictory emotions and those arise between a person's emotions and what he knows right. What an individual will ultimately do depends on how he resolves such conflicts. Some of perceptions and beliefs stem from early childhood experiences and the influences of parents' attitudes and practices; and these, in turn are greatly influenced by cultural influences. Others are learned later from peers. (Hochbaum, 1970)

## **2.5 Evaluation of educational program and measurement of educational environment**

The process of educational program evaluation can be defined as systematic collection and analysis of information related to the design, implementation, and outcomes of a program, for the purpose of monitoring and improving the quality and effectiveness of the program. (ACGME 2010a) The program evaluation is importance for quality assurance, funding for innovation, educators to gain useful knowledge about the program and sustain ongoing program development. (Goldie et al., 2006) It is important to choose appropriate evaluation model, measurement tools and strategies based on the objectives of the evaluation and educational theory that applied for the evaluation program. (Schönrock-Adema et al., 2012)

There were various educational evaluation model for education program evaluation such as logic model, experimental model, Kirkpatrick model, CIPP (context, input, process, and product) model. (Frye et al., 2012) And there are various evaluation instruments to measure educational environment such as Dutch residency educational climate test (DIRECT), surgical theatre educational environment measure (STEEM), the anaesthetic theatre educational environment measure (ATEEM), practice-based educational environment measure (PEEM) postgraduate hospital educational environment measure (PHEEM), medical school learning environment questionnaire (LEQ), medical school's environment questionnaire (MSEQ) and Dundee ready education environment measure (DREEM). (Schönrock-Adema et al., 2012) Among them the most widely used instrument was Dundee Ready Education Environment Measure (DREEM) (Roff, 1997) which has been demonstrated as an internationally useful tool in a variety of health care settings. (Roff, 2005) The reliability of DREEM questionnaires is calculated in most of the

studies and it has been reported that (DREEM) questionnaires have high level of internal consistency with the overall Cronbach's alpha coefficient being more than 0.7 and the validity of (DREEM) inventory questionnaires was also conducted and it was shown that DREEM is a valid tool to measure educational environments.

## **2.6 Dundee Ready Education Environment Measure (DREEM) inventory**

The DREEM inventory was developed by the international Delphi panel, involving more than eighty health and medical profession educators from all continents all over the world. The DREEM instrument is used to determine the strengths and weaknesses of educational environments by asking students perception. DREEM inventory is used to measure the learning environments of educational institution. The instrument is supposed to measure the education environments, highlight the weaknesses and strengths of any educational institution, compare the performance and success of medical schools, and make comparisons among students in different levels of study. (Al-Naggar et al., 2014)

The DREEM inventory contains 50 closed questionnaires divided into 5 domains: student's perception of learning, student's perceptions of teachers, students' academic self-perceptions, student's perceptions of atmosphere and students' social self-perceptions. (Al-Naggar et al., 2014) Each of the 50 statements is scored on a five-point scale, and nine items were scored in reverse, a maximum of 200 which represents an ideal educational environment. The development and validation of the DREEM has been reported. A higher score indicated a positive evaluation meaning the good educational environment. Items with mean score of 3.5 or over were classed as real positive points. (Roff, 1997)

The reliability of DREEM inventory questionnaires is calculated in most of the studies and it has been reported that (DREEM) inventory questionnaires have high level of internal consistency with the overall Cronbach's alpha coefficient being more than 0.7. And it was also found to have a high level of stability with a test-retest correlation coefficient of more than 0.8. The validity of (DREEM) inventory questionnaires was also conducted and it was shown that DREEM is a valid tool to measure educational environments.

## **2.7 Determinants of perception of educational environment based on various studies**

Perception of educational environment was influenced by age of students, gender (Dunne, McAleer & Roff, 2006; Abraham et al., 2007; Al-Ayad & Sheik, 2008; Bourhaimed et al., 2009) and different academic years (Dunne, McAleer & Roff, 2006, Abraham et al, 2008), preclinical and clinical years (Varma et al., 2005; Denz-Penhey & Murdoch, 2010), undergraduate and graduate students of same institution (Bassaw et al., 2003).

The educational environments were differed from different medical education institutions (Roff, 2001; Al-Hazimi et al., 2004b), different clinical environment and different curriculum design (Roff, 2001, Bassaw et al., 2003; Dunne, McAleer & Roff, 2006) that can be determined by using DREEM inventory. There were studies that compared actual educational environment experienced by students with what they expected on starting medical school (Miles & Leinster, 2007) and actual educational environment experienced by students with their ideal or preferred environment (Till et al., 2005).

DREEM inventory was used to measure the perception of existing educational environment in the established medical schools as a precursor to curriculum change (Al-Hazimi et al., 2004a, Al-Ayed & Sheik, 2008) as well as the impact of a new or revised curriculum on perception of educational environment (Till et al., 2004; Edgren et al., 2010) by using both quantitative and qualitative methods.

Qualitative studies find out the concealed and hidden aspects of educational environment and all the evaluation results provide insights to improve educational environment (Salam et al., 2016) as well as for teachers who wish to enhance their teaching and their student learning (Odole et al., 2014).

## **2.8 Self-determination theory (Deci & Ryan, 1991)**

The study was based on two theories; the self-determination theory by Edward L. Deci and Richard M. Ryan, (Ryan & Deci, 2000). It is one of the theories of human motivation and the key factor of the theory is based on three psychological human needs: competence, autonomy, and psychological relatedness. Intrinsic motivation occurs when all three psychological needs are met. Evidence suggests that teachers' support of students' basic psychological needs for autonomy, competence, and relatedness facilitates students' autonomous self-regulation for learning, academic performance, and well-being. (Niemiec & Ryan, 2009)

Competence can be explained as students need to gain mastery of tasks and learn different skills and when they feel that they have the skills needed for success; they are more likely to take actions that will help them achieve their goals. For example, one of the items of DREEM, "*I am confident about passing this year*" "*I am able to memorize all I need*" explained student's competence. Relatedness: students need to experience a sense of belonging and attachment to peers, for example, the items of

DREEM, *“I have good friends in faculty”* explained relatedness. Autonomy: Students need to feel in control of their own behaviours and goals, for example, *“I am encouraged to participate in the class”* *“I find the experience disappointing”* explained students autonomy. The presence or absence of environmental conditions would decide whether these basic needs are satisfied. When students satisfy the three needs, they would become self-determined and intrinsically motivated to pursue their interests. (Ryan & Deci, 2008)

Application of the theory on education is promoting the student’s interest in learning by creating favourable learning environment, a valuing of education, and a confidence in their own capacities and attributes (Niemic & Ryan, 2009)

## **2.9 Vygotsky social development theory (Vygotsky, 1896-1934)**

Vygotsky’s Social Development Theory is the work of Russian psychologist Lev Vygotsky published in 1962. Vygotsky’s theory is one of the foundations of constructivism. It asserts three major themes regarding social interaction, the more knowledgeable other, and the zone of proximal development. Vygotsky theory focuses on the social interactions of learners and emphasized the profound influence of social contexts in the process of cognitive development. Learning occurs through social interaction with skilful tutor/peers who are more Knowledgeable Other who has a better understanding or a higher ability level than the learner, with respect to a particular task, process, or concept. (Vygotsky, 1978)

Zone of Proximal Development (ZPD) is an area where learning occurs in this zone. 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 Application of the theory on education is reciprocal teaching

where the learners each other or learners and teacher collaborate in learning and practicing skills. A teacher or more advanced peer helps to structure or arrange a task so that a novice can work on it successfully. (Crawford, 1996)

Some of the items of DREEMS can be applied Vygotsky's Social Development Theory such as "*the teachers are knowledgeable*" "*I am able to ask the questions I want*" which explained the student's social interaction with their teachers.

## **2.10 Summary**

This chapter presented a review of the literature in relation to definition of educational environment and its components, perception and related behavior, evaluation of educational program and measurements of educational environment, DREEM inventory, learning theories such as self-determination theory, Vygotsky socio development theory. Next chapter describes theoretical framework and conceptual framework of this study.

## CHAPTER 3: THEORETICAL FRAMEWORK

### 3.1 Introduction

This chapter presented theoretical framework and conceptual framework of this study.

### 3.2 Theoretical framework of the study

The educational environment is experienced by learners from different demographic characters such as age, gender and academic years and based on their demographic background, their underlying motivation and their social interaction also could be different. For example, learners from preclinical years experienced basic science medical curriculum taught by non-clinical lecturers conducted mainly at university campus with high facilities while clinical students exposed to clinical subjects taught by clinical lecturer conducted at various learning environments such as, hospitals, clinic, and rehabilitation centre.

To evaluate the students perception of educational environment, two learning theories were applied in constructing theoretical framework of study, self-determination theory by Ryan and Deci and Vygotsky's social development theory by Lev Vygotsky.

According to Self Determination Theory by Deci and Ryan (Ryan & Deci, 2008), the students' motivation is effected by their learning environments in which students with positive perception on learning environment promote internal motivation which will be further motivated to self-determined lifelong learners, while students with negative perception on learning environment will have negative effect on their motivation which can effect on becoming self-determine life-long learner. Vygotsky theory focus on the social interactions of learners with tutor or

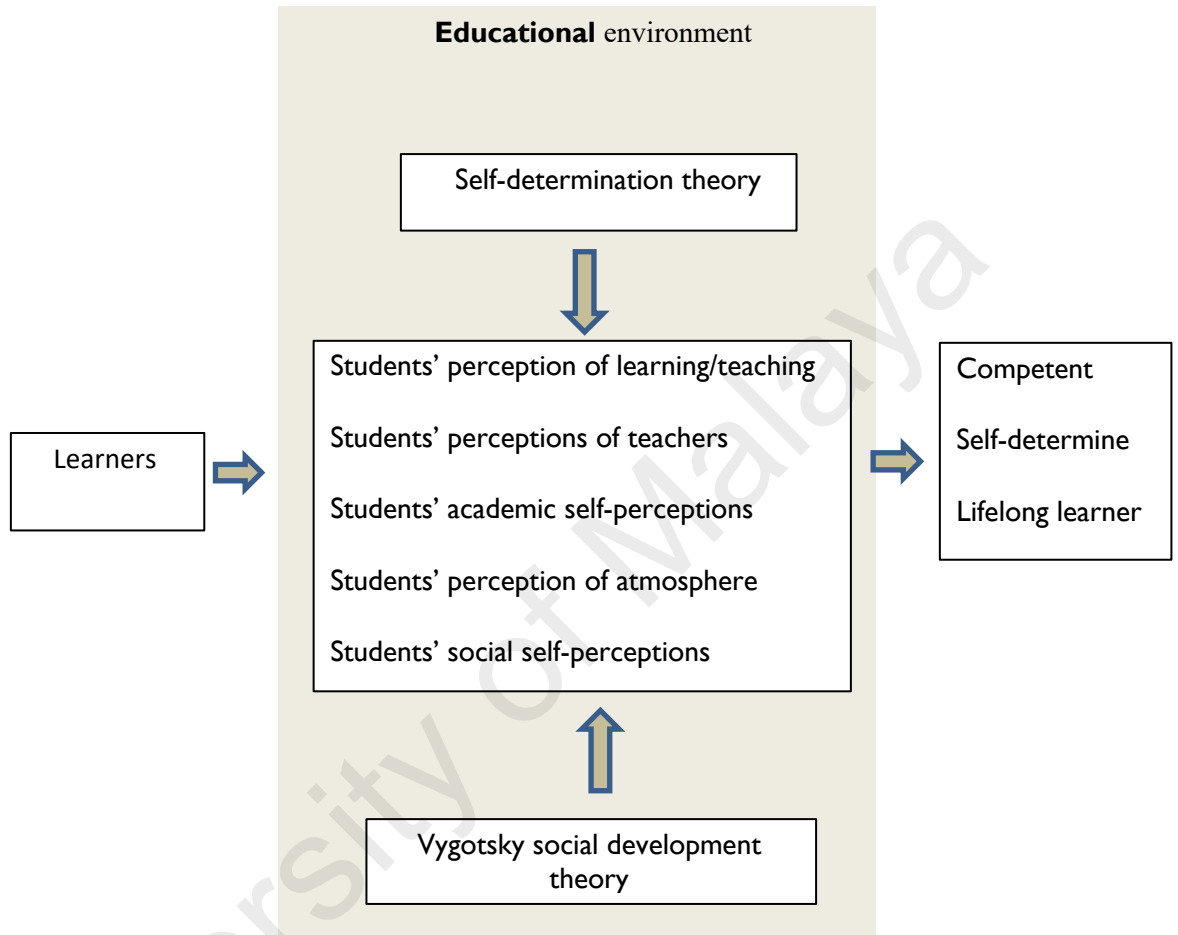


peers and the theory emphasized the profound influence of social contexts in the process of cognitive development.

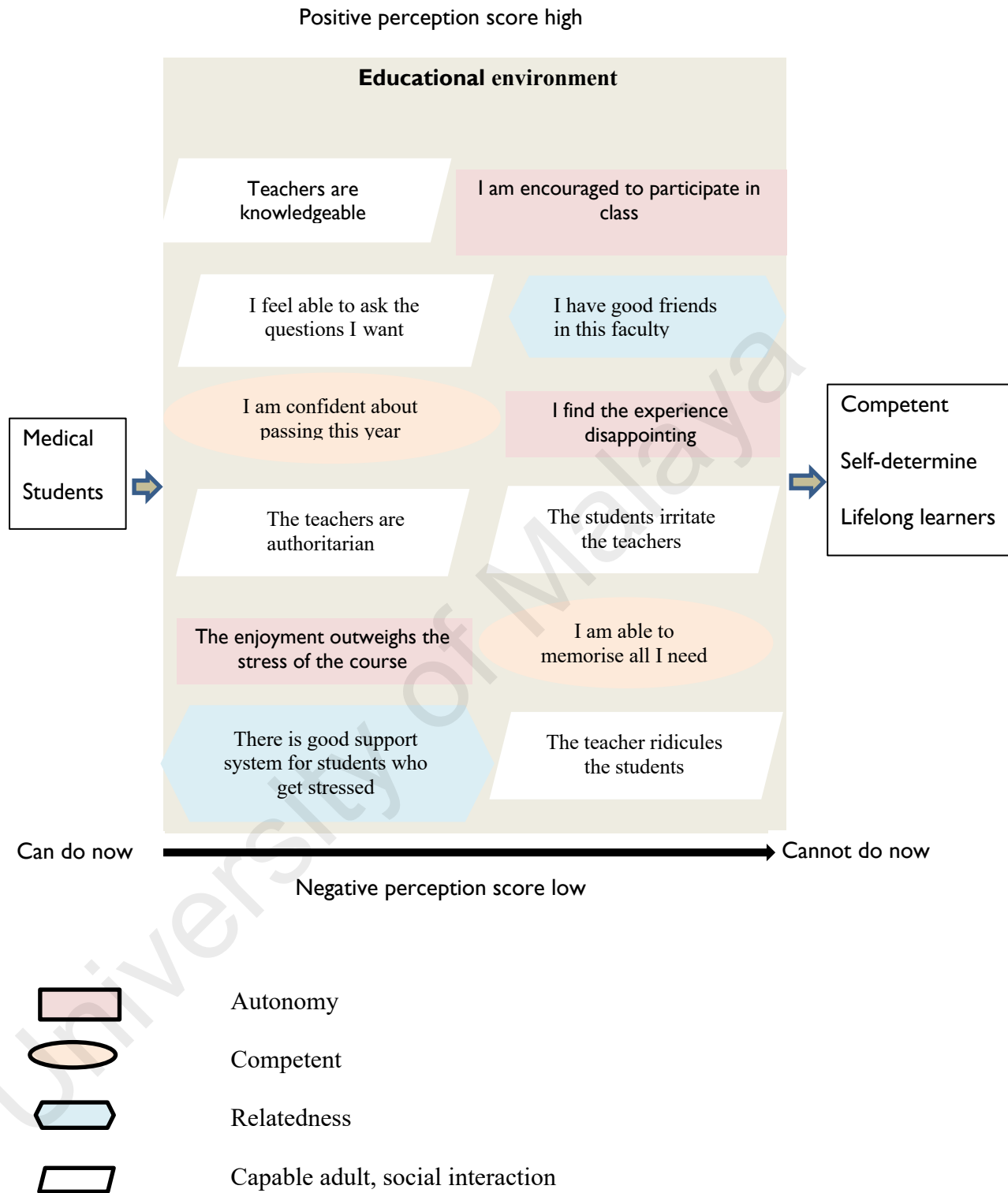
According to the learning theories applied, DREEM inventory was suitable to use as instrument to evaluate student's perception of educational environment and each five domains of DREEM were influenced by one or both of two learning theories, self-determination and Vygotsky social development theory.

For example, one of the domains, evaluation students' perception of learning determine the student's motivation as well as social interaction related with learning for example "*I am encouraged to participate in the class*". The evaluation of students' perceptions of teachers reflects the extent that the teachers encourage the student's ability solving the problem independently according to Vygotsky theory. The evaluation of students' academic self-perceptions related with their competence and autonomy, human universal psychological needs, which are the foundation of Self-Determination Theory. The evaluation of students' perception of atmosphere determines the environment which influence their critical thinking (Vygotsky) as well as their motivation (Self-determination theory). Evaluation of students' social self-perception determines the student motivation which can be explained as relatedness of Self Determination Theory. By evaluating all the important areas of educational environment played an important role to create effective educational environment that will enhance the prospects of the students to become self-determine lifelong learners.

The learning theories applied in this study are self-determination theory and Vygotsky's social development theory.



**Figure (3.1) Applications of Self-Determination Theory and Vygotsky Social Development Theory in the Present Study**



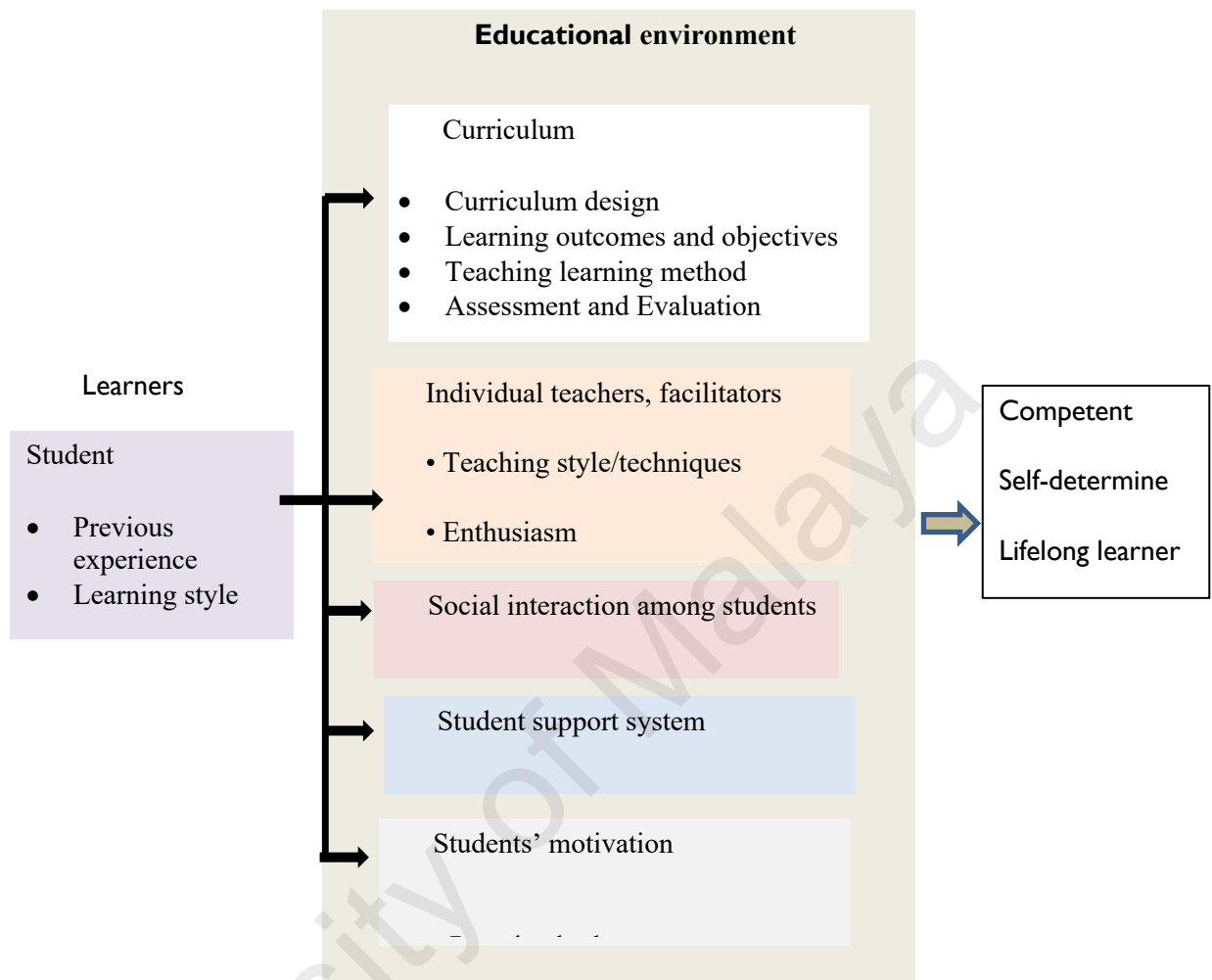
**Figure 3.2: Theoretical framework**

### 3.3 Conceptual Framework

The conceptual framework explained that the learners (medical students) have different sociodemographic backgrounds, learning styles and experiences before entering to the educational environment. The components of educational environment consist of medical curriculum which contains teaching learning methods, assessment to achieve learning objectives, teachers (their skill and attitudes), physical facilities such as classroom, library, recreational facilities, and psychosocial environment such as student's behaviour, motivation, and support system for the students who has stressed, financial and many other elements.

The medical students react diversely to these elements in their learning procedure. Educational environment has an extensive role in promoting student's motivation, satisfaction, healthy competition, independence, self-confidence, learning, and critical thinking abilities (Roff, 2005; Abraham et al., 2008; Brown, 2011). Educational environment has an impact on students learning experiences, their results and the elements deciding the achievement of an effective curriculum to produce competent doctors who can serve the community effectively and efficiently in giving care or treatment (Arzuman et al., 2017).

Assessing educational environment has been recognized as an important element for the delivery of high quality education (Roff, 2001). The student's perceptions about educational environment are considered as indicators of the effectiveness of the curriculum. Each student has unique characteristics such as previous educational experiences and learning style and hence they perceive the educational environment differently (Genn et al., 2001).



*Reference from Hutchison (2003)*

**Figure 3.3: Conceptual framework**

### **3.4 Summary**

This chapter first reviewed learning theories related with educational environment such as self-determination theory and Vygotsky theory, and based on the theoretical foundation; the conceptual framework in this study was developed.

Next chapter involves research methodology used in this study, including research methods, instruments, pilot study, and sample of the study, data collection, data analysis, and ethical issue.

University of Malaya

## **CHAPTER 4: RESEARCH METHODOLOGY**

### **4.1 Introduction**

This chapter discussed the research design, study areas and population and about the research instruments, data collection tools and procedures, data analysis, and ethical issues.

### **4.2 Site of Study**

This study was conducted at University Tunku Abdul Rahman (UTAR), (Sungai long campus and clinical teaching centre Ampang) Selangor, Malaysia.

### **4.3 Study population**

The population was all medical students (year 1 to year 5) (total 226) studying at University Tunku Abdul Rahman (UTAR), Malaysia during academic year 2019/2020. There are 90 pre-clinical students (Year 1 and 2) and 136 clinical year students (Year 3, 4 and 5).

### **4.4 Study design**

This was a cross sectional study. Year 1, 2, 3, 4 and 5 medical students of UTAR were invited to participate in this study. Quantitative data was collected and analysed. Dundee Ready Environmental evaluation Measure (DREEM) was used as tool to conduct the study

### **4.5 Study Period**

The study was conducted from September 2019 to November 2019.

#### **4.6 Sampling technique and procedure**

There were total 226 medical students (year 1 to year 5) studying at academic year of 2019/2020 MBBS program of UTAR. All the students were invited to participate in the study.

#### **4.7 Inclusion criteria**

All medical students of (MBBS years 1 to 5) enrolled for the academic year 2019/2020, and those who were agree to participate in the study.

#### **4.8 Exclusion criteria**

Students who were not willing to participate in the study.

#### **4.9 Data collection tools**

The Dundee Ready Environmental Evaluation Measure (DREEM) inventory was used to gather information about the educational environment of UTAR. The questionnaire consists of two sessions. Section (I) general demographic information such as age, gender and academic year of study, Section (II) contains 50 items of DREEM questionnaires. The DREEM has subdivided into five domains: domain 1; Student's perceptions of learning, domain 2; student's perceptions of teachers, domain 3; student's academic self-perception, domain 4; students' perceptions of atmosphere, and domain 5; student's social self-perceptions (Al-Naggar et al., 2014).

#### **4.10 Data collection procedures**

In October 2019, all the medical students studying at academic year 2019/2020 of UTAR were invited to participate in the study by sending electronic invitation through emails. The invitation included participant information leaflets and informs



consent form. The students aware of all the information about the study from invitation email.

Data was collected by using of self-administered questionnaires, information was anonymized and the students who were willing to participate in the study completed the questionnaires. Data was collected by the researcher at UTAR, Sungai Long campus, for the pre-clinical students (years 1 & 2) after their lecture classes and at Clinical Teaching Centre (CTC Ampang) for clinical year students (years 3, 4 and 5). During data collection, the researcher explained about the aim of the study and any queries raised by the students were explained and those who were willing to participate in study were filled up informed consent forms. This was followed by distribution of the questionnaires and instruction was given clearly to the participants to answer the questionnaires. The whole process took about 15 to 20 minutes.

#### **4.11 Data Analysis**

All data were analysed by using SPSS (Statistical Package for Social Science) for Windows, version 26.0. All data were explored for normality using the Kolmogorov-Smirnov tests, and the data was not normally distributed. Descriptive statistical analysis was performed using mean and standard deviation for quantitative variables. The categorical variables were described by frequency and percentage. To compare perceptions of pre-clinical years and clinical years, Mann Whitney U tests were used. A p value  $< 0.05$  with a confidence interval of 95% was considered statistically significant for all tests.

#### 4.11.1 Analysis of reliability of DREEM questionnaire

The credibility, stability, and internal consistency of domains of DREEM questionnaire were examined by Cronbach alpha coefficient, which was most commonly used for determining the reliability of multiple-rating scale questionnaires. The value of Cronbach alpha coefficient lies between 0-1, and the more it is close to 1, the higher the reliability of the questionnaire. Cronbach alpha was considered separately for domains of DREEM and, the values from 0.70 to 0.83, respectively. In all cases, the lowest values were observed in the social self-perception domain.

**Table 4.1: The analysis methods conducted according to research objectives**

No	Research objective	Data collection technique	Data analysis
1	To determine the perception of DREEM learning environment among medical students of University Tunku Abdul Rahman (UTAR)	Questionnaire	Descriptive statistics
2	To compare the differences of DREEM perception among preclinical and clinical year students	Questionnaire	Mann Whitney U test

#### 4.11.2 Scoring system for level of Perception of students on learning environment

The DREEM contained 50 items evaluated on a 5- point Likert scale. The scoring of items was shown in table 4.2. Higher overall scores indicate a more positive evaluation of each aspect of the educational environment (Al-Naggar et al.,

2014). A brief summary of the methods follows. The 50 items were divided into 5 domains:

Domain 1; Student’s perceptions of learning - 12 items; maximum score is 48;  
 Domain 2; student’s perceptions of teachers- 11 items; maximum score is 44;  
 Domain 3; student’s academic self-perception - 8 items; maximum score is 32;  
 Domain 4; students’ perceptions of atmosphere- 12 items; maximum score is 48; and  
 Domain 5; student’s social self-perceptions - 7 items; maximum score is 2 (Al-nagger et al., 2014). The total score for all subscales is 200.

Results were tallied for each item and each domain; additionally, an overall score was computed. Nine of the items (4, 8, 9, 17, 25, 35, 39, 40 and 50), are scored in reverse. (Table 4.2) Items with a mean score of 3.5 or more were “real positive” point, more than 3.0 and above were taken as “positive” point. Any items with a mean of 2.0 or less should be examined more closely as they indicate problem areas. Items with mean of 2.0-3.0 are the aspects of climate could be enhanced. (McAleer & Roff, 2001) (Table 4.3)

**Table 4.2 Scoring system for Perception of students on learning environment**

<b>Agreement scale</b>	<b>Score for Positive statements</b>	<b>Score for negative statements. (4, 8, 9, 17, 25, 35, 39, 48, and 50)</b>
Strongly agree	4	0
Agree	3	1
Uncertain	2	2
Disagree	1	3
Strongly disagree	0	4

The mean scores at each level of analysis (i.e., item, domain, and overall) are grouped into four categories (0–50, 51–100, 101–150, and 151–200), each associated with a specific interpretation. (McAleer & Roff, 2001) (Table 4.3) (Table 4.4)

**Table 4.3 Guide for interpreting domains scores (McAleer & Roff, 2001)**

<b>Domain</b>	<b>No. of items</b>	<b>Scores</b>	<b>Interpretation</b>
Student's perception of learning	12	0-12	Very Poor
		13-24	Teaching is viewed negatively
		25-36	A more positive perception
		37-48	Learning highly effective
Student's perception of teachers	11	0-11	Bad
		12-22	In need of revision
		23-33	Moving in the right direction
		34-44	Model teachers
Student's academic self-perception	8	0-8	Feelings of total failure
		9-16	Many negative aspects
		17-24	Feeling more on the positive side
		25-32	Confident
Student's perception of atmosphere	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
Student's perception of social life	7	0-7	Miserable
		8-14	Not a nice place
		15-21	Not too bad
		22-28	Very good socially

**Table 4.4: Guide for interpreting overall scores (McAleer & Roff, 2001)**

<b>Domain</b>	<b>No. of items</b>	<b>Scores</b>	<b>Interpretation</b>
Overall	50	0–50	Very poor environment
		51-100	Plenty of problem in environment
		101-150	More positive than negative
		150-200	Excellent environment

#### **4.12 Ethical Consideration**

Before data collection, the purpose of survey was explained and informed consent was taken from each participants. The participants were feel free to participate or withdraw any time throughout the research. All the data were kept confidentially and none of the questionnaires could be traced back to the participants. Ethical approval was acquired from Ethical Review Board University Malaya and Ethical Review Board, UTAR.

#### **4.13 Summary**

This chapter presented the research methodology of this study, including the research design, research instruments, data collection, and data analysis. Quantitative methods were used in this study, and data was collected through questionnaires. SPSS 26.0 was employed to analyze quantitative data, including reliability analysis, descriptive analysis and non-parametric analysis. Finally, ethical issues in this study were discussed. The next chapter will present the findings of data analysis and discussion about the findings.

## **CHAPTER 5: FINDINGS AND DISCUSSION**

### **5.1 Introduction**

This chapter presents the findings from the quantitative data collected from 207 medical students and discussion of findings from this study compare with other similar studies. It aims to answer the research questions in Chapter One. The objectives of the study were to determine the perceptions of educational environment among medical students of University Tunku Abdul Rahman (UTAR) and to compare perceptions of educational environment between preclinical and clinical year students.

### **5.2 Findings**

#### **5.2.1 Answering Research Question 1: What were the perceptions of educational environment among medical students of University Tunku Abdul Rahman (UTAR)?**

##### **5.2.1.1 Descriptive Analysis**

Descriptive statistics, including percentage, frequency, mean, and standard deviation, were adopted to analyse to determine the perceptions of educational environment. Here, frequency means the number of subjects occurs in a given option; mean is an average of a group of data points; and standard deviation is to measure the dispersion of a set of data from its mean.

##### **5.2.1.2 Socio demographic character of students**

There were total 226 (year 1 to year 5) medical students studied at academic year 2019/2020 and 207 students participated in the study with the response rate of 91.6%. The participants by academic year revealed that 41 (19.8%) first-year students, 38 (18.4%) second -year students, 49 (23.7%) third-year students, 44 (21.3%) fourth-year students and 35 (16.9%) fifth-year students completed the

questionnaire. Most of the participants, 14 (70.0%) were aged group between (21-25) and majority of the participants 131 (63.3%) were female students. Among them 79 (38.2%) were preclinical students (year 1, 2) and 128 (61.8%) were clinical years students (Year 3, 4, and 5). The sociodemographic character of the respondents was shown in Table 5.1.

**Table 5.1: Sociodemographic character of the participants (N=207)**

<b>Sociodemographic characters of participants</b>	<b>Frequency</b>	<b>Percent</b>	
<b>Age</b>	16-20 years	58	28.0
<b>Group</b>	21-25 years	145	70.0
	26-30 years	4	1.9
<b>Gender</b>	Male	76	36.7
	Female	131	63.3
<b>Academic years</b>	Preclinical (year 1-2)	79	38.2
	Clinical years (Year 3,4,5)	128	61.8
<b>Total</b>		207	100

*N= number*

**Table 5.2: Socio demographic character of participants of each academic year (N=207)**

		<b>Preclinical Years</b>			<b>Clinical years</b>	
		<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
<b>Gender</b>	<b>Male</b>	13 (31.7%)	16 (42.1%)	16 (32.7)	19(43.2%)	12 (34.3%)
	<b>Female</b>	28 (68.3%)	22 (57.9%)	33(67.3)	25(56.8%)	23 (65.7%)
<b>Age group</b>	<b>16-20</b>	41(100.0%)	17 (44.7%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
	<b>21-25</b>	0 (0.00%)	20 (52.6%)	48(97.9%)	44(100.0%)	33(94.3%)
	<b>26-30</b>	0 (0.00%)	1 (2.6%)	1 (2.04%)	0 (0.00%)	2 (5.7%)
<b>Total</b>		41 (19.8%)	38 (18.4%)	49 (23.7%)	44 (21.3%)	35 (16.9%)

*N= number*

Table 5.2 revealed socio demographic character (gender, age group) of the participants of each academic year. All of the year 1 students were age between 16-20 years, Year 3 to year 5 students were between age group 20-25. There were more female than male students in each academic year.

### 5.2.1.3 Findings of total and domain scores of DREEM

**Table 5.3: The overall and domain scores of DREEM (N=207)**

Domain of DREEM	Number of questions	Maximum score	Mean	(SD)	Interpretation
Perception on 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
Social self-perception (D5)	7	28	16.51	3.63	Not too bad
Perception on overall educational environment	50	200	123.41	17.9	More positive perception

*SD= Standard deviation, D= domain, N=number*

For objective 1; to determine the perceptions of educational environment among medical students, the overall total score of educational environment and each sub domain of educational environment of UTAR medical students such as Domains 1: Student's perceptions of learning, Domains 2: Student's perceptions of teacher, Domains 3: Student's academic perceptions, Domains 4: Student's perceptions of atmospheres and Domains 5: Student's social self-perception were explained in table 5.2.



The practical guide by (McAleer & Roff, 2001) was used as a reference to interpret the total scores and overall all five domains were more positive than negative. The total score of DREEM inventory was 123.41 over 200 (SD = 17.9), indicating that the medical students' perceptions of the educational environment of UTAR were more positive than negative. The total score for domain 1; student's perceptions of learning was 31.62 (SD = 4.67) out of 48 meaning that the medical students have more positive perception on learning; for domain 2, student's perceptions of teachers was 28.53 (SD = 4.44) out of 44 meaning that the teachers were moving in right direction; for domain 3, student's academic self-perceptions was 17.77 (SD = 3.90) which mean the feeling more on positive side; for domain 4; student's perceptions of atmosphere, total score was 28.98 (SD = 6.66) out of 48 meaning that students experienced a good society ; and for domain 5, students perception on social life; total score was 16.51 (SD = 3.63) out of 28 meaning that their social life was not too bad. Domain 1: Students' perception on teaching and learning was the most highly rated, and total scores of domains D3: Students' perception of social life was the lowest.

#### **5.2.1.4 Findings of item scores of DREEM**

The DREEM could be used to pinpoint more specific strength and weaknesses. Items that have mean score of 3.5 or more are real positive points. Any items with a mean score of 2 or less should be examined more closely as they indicate problem areas. Items with mean of 2.0 -3.0 were the areas that could be enhanced. Among 50 items of DREEM, four items scored more than 3 which indicated the most positive and strong areas of the UTAR learning environment (item 1, 2, 40 and 15) (M = 3.02), (M = 3.43), (M = 3.16), (M = 3.17), respectively. There was no strong area in domain 3 and domain 4.

**Table 5.4** Items scored more than 3 in different domain (N=207)

<b>Domains</b>	<b>Items</b>	<b>Mean</b>	<b>SD</b>
Domain 1	1. I am encouraged to participate in class	3.02	0.68
Domain 2	2. The teachers are knowledgeable 40. The teachers are well prepared for their classes	3.43 3.16	0.57 0.61
Domain 3	No items more than 3	NA	NA
Domain 4	No items more than 3	NA	NA
Domain 5	15. I have good friends in this faculty	3.16	0.95

*SD= Standard deviation, D= domain, N=number*

**Table 5.5** Items scored less than 2 in different domain (N=207)

<b>Domains</b>	<b>Items</b>	<b>Mean</b>	<b>SD</b>
Domain 1	25. The teaching over-emphasizes factual learning	1.90	0.88
Domain 2	9. The teachers are authoritarian	1.92	0.96
Domain 3	21. I feel I am being well prepared for my career 27. I am able to memorize all I need	1.89 1.27	0.88 0.97
Domain 4	No items less than 2		
Domain 5	3. There is a good support system for students who get stressed 4. I am too tired to enjoy the course	1.82 1.98	0.93 1.05

*SD= Standard deviation, D= domain, N=Number*

Among total 50 items of DREEM, six items scored less than 2. The items were 2 items from domain 3 and 2 items from the Domain 5 and 1 item each from Domain 1 and 2 (table 5.5) In this study, 40 items scored between 2.00 and 3.00, indicating aspects of the educational environment that could be enhanced (McAlear & Roff, 2001).

### 5.2.1.5 Findings on item scores of each domain of DREEM

#### (a) 5.2.1.5.1 Domain 1. Students' perception of learning

**Table 5.6: The mean score of items of domain 1; Student's perceptions of learning among medical students of UTAR (N=207)**

Items	Mean	SD
1. I am encouraged to participate in class	3.02	0.68
7. The teaching is often stimulating	2.68	0.80
13. The teaching is student centered	2.63	0.73
16. The teaching helps to develop my competence	2.92	0.74
20. The teaching is well focused	2.80	0.69
22. The teaching helps to develop my confidence	2.39	0.83
24. The teaching time is put to good use	2.59	0.86
25. The teaching over-emphasizes factual learning	1.90	0.88
38. I am clear about the learning objectives of the course	2.65	0.83
44. The teaching encourages me to be an active learner	2.71	0.80
47. Long term learning is emphasized over short term learning	2.93	0.78
48. The teaching is too teacher centered	2.39	0.78

*SD= Standard deviation, D= domain, N=number*

Domain 1 contained 12 items, and the mean scores were ranged from 3.02 to 1.90 (Table 5.6). The highest score item was item 1; “*I am encouraged to participate in class*” with total mean score of (M= 3.02, SD = 0.68), while item 25 “*The teaching over-emphasizes factual learning*” received the lowest score (M= 1.90, SD = 0.88).

(b) 5.2.1.5.2 Domain 2. Students' perception of teachers

**Table 5.7: The mean score of items of domain 2; Student's perceptions of teachers among medical students of UTAR (N=207)**

Items	Mean	SD
2. The teachers are knowledgeable	3.43	0.57
6. The teachers deliver research-led teaching	2.48	0.78
8. The teachers ridicule the students	2.21	0.99
9. The teachers are authoritarian	1.92	0.96
18. The teachers help me to develop my practical skills	2.93	0.80
29. The teachers are good at providing feedback to students	2.52	0.88
32. The teachers provide constructive criticism here	2.52	0.83
37. The teachers give clear examples	2.88	0.60
39. The teachers get angry in class	2.21	1.12
40. The teachers are well prepared for their classes	3.16	0.61
50. The students irritate the teacher	2.28	1.12

*SD=standard deviation, N= number*

Domain 2 contained 11 items, and the score ranged from (M= 3.43, SD = 0.57) to (M= 1.92, SD = 0.96) (Table 5.7). The two items, item 2 “the teachers are knowledgeable” and item 40 “The teachers are well prepared for their classes” received the highest scores, total mean score of (M= 3.43, SD = 0.57) , (M= 3.16, SD = 0.61) while item 9 *The teachers are authoritarian* received the lowest score (M= 1.90, SD =0.88).

(c) 5.2.1.5.3 *Domain 3. Students' academic self-perception*

**Table 5.8: The mean score of items of domain 3; Student's academic self-perceptions among medical students of UTAR (N=207)**

Items	Mean	SD
5. Learning strategies which worked for me before continuing to work for me now	2.33	0.92
10. I am confident about passing this year	2.38	0.99
21. I feel I am being well prepared for my career	1.89	0.88
26. Last year's work has been a good preparation for this year's work	2.27	0.90
27. I am able to memorize all I need	1.27	0.97
31. I have learned a lot about the way scientific research is carried out	2.28	0.95
41. My problem-solving skills are being well developed here	2.57	0.78
45. Much of what I have to learn seems relevant to a career in biological sciences	2.78	0.81

*SD= Standard deviation, N= number*

In the analysis of the 8 individual items, item 45 “*Much of what I have to learn seems relevant to a career in biological sciences*” received the highest scores (M=2.78, SD =0.81), and item 21; “*I feel I am being well prepared for my career*” and item 27; “*I am able to memorize all I need*” received lowest score. The students agreed that much of what they have to learn seems relevant to a career in healthcare. Their responses to item 21 were lowest score which indicated that they think they are not being well prepared.

(d) 5.2.1.5.4 Domain 4. Students' perception of atmosphere

**Table 5.9: The mean score of items of domain 4; Student's perceptions of atmosphere among medical students of UTAR (N=207)**

Items	Mean	SD
11. The atmosphere is relaxed during practical/ lab classes	2.37	1.00
12. The course is well timetabled	2.04	1.15
17. Cheating is a problem in this faculty	2.64	1.24
23. The atmosphere is relaxed during lectures	2.31	0.95
30. There are opportunities for me to develop my interpersonal skills	2.55	0.91
33. I feel comfortable in class socially	2.67	0.87
34. The atmosphere is relaxed during seminars/tutorials	2.48	0.97
35. I find the experience disappointing	2.45	1.00
36. I am able to concentrate well	2.23	0.94
42. The enjoyment outweighs the stress of the course	2.03	0.97
43. The atmosphere motivates me as a learner	2.55	0.89
49. I feel able to ask the questions I want	2.67	0.94

*SD= Standard deviation, N= number*

This domain included 12 items and the mean score ranged from 2.67 to 2.03. The highest mean score was item 33: "*I feel comfortable in class socially*"; (M=2.67, SD = 0.87) and item 49 "*I feel able to ask the questions I want*" (M=2.67, SD = 0.94) and we believe that if students feel comfortable socially this will have a positive impact on their learning. Item 42 "*The enjoyment outweighs the stress of the course*" and the item 12: "*This school is well timetabled*" scored lowest (M=2.03, SD = 0.97) and (M=2.04, SD =1.14) indicates an area in which there is room for improvement. (McAlear & Roff, 2001)

(e) 5.2.1.5.5 Domain 5. Students' social self-perception

**Table 5.10: The mean score of items of domain 5; Student's social perceptions among medical students of UTAR (N=207)**

Items	Mean	SD
3. There is a good support system for students who get stressed	1.82	0.93
4. I am too tired to enjoy the course	1.98	1.05
14. I am rarely bored on this course	2.02	0.99
15. I have good friends in this faculty	3.16	0.95
19. My social life is good	2.51	0.97
28. I seldom feel lonely	2.07	1.12
46. My accommodation is pleasant	2.95	0.91

*N= Number of students, SD= Standard deviation*

Of the 7 items included in this domain, the mean scores were ranged from 3.16 to 1.82. Items 15; “*I have good friends in this faculty*” scored the highest, (M = 3.16, SD = 0.95) and while item 3 “*There is a good support system for students who get stressed*” scored the lowest (M=1.82, SD = 0.93). And item 4; “*I am too tired to enjoy the course*” scored lower than 2 (M=1.98, SD =1.05) and mean score lower than 2 were the areas which should be examined more closely as they indicated problem areas. (McAleer & Roff, 2001)

**5.2.2 Answering research question 2: Was there any difference in perceptions of educational environment between preclinical and clinical year students?**

**5.2.2.1 Comparison of overall and domain scores of DREEM among preclinical and clinical years**

The second objective of the study was to compare perceptions of educational environment between preclinical and clinical year students and this section explained about the comparison of the score of each domain of DREEM inventory.

**Table 5.11: Comparison of overall and domain scores of DREEM among medical students of UTAR**

<b>Domain of DREEM</b>	<b>Preclinical Mean(SD) N=79</b>	<b>Clinical Mean(SD) N=128</b>	<b>P value</b>
Student's perception on learning (D1)	37.37 (4.58)	31.376 (4.72)	0.90
Student's perception on teachers (D2)	29.02 (3.89)	28.22 (4.73)	0.28
Student's academic self-perception (D3)	18.07 (3.46)	17.58 (4.14)	0.35
Student's perception on atmosphere (D4)	30.20 (5.43)	28.23(7.23)	0.65
Student's perception on social life (D5)	17.17 (2.94)*	16.09(3.95)*	0.04
Student's perception on overall Education Environment	125.86 (16.10)	121.89 (18.84)	0.08

*Note: \*p-value < 0.05, (two-tailed), \*\* p-value < 0.01, (two-tailed), N=number*

*SD= Standard deviation*

Table 5.11 showed the comparison of mean score of overall perception on educational environment and domain of educational environment by preclinical and



clinical years. Mann Whitney U test was used to compare the preclinical and clinical years. Table 5.5 revealed that preclinical year students have more positive perception in all domains than clinical years students domain 5; student's perception on social Life have significant difference in mean scores ( $p = 0.04$ ) which can be interpreted as clinical years students were in Clinical teaching Centre (Ampang) which is near to their attached hospital and, atmosphere and social life was not same as they have experienced in Sungai long (main campus).

### **5.2.2.2 Comparison of each domain scores of DREEM among preclinical and clinical years**

#### **(a) 5.2.2.2.1 Domain 1 Student's perceptions of learning**

Table 5.12 showed the mean scores of each items of domain 1 by comparing preclinical and clinical years. It revealed that there were slight different in mean scores of preclinical and clinical years, most of them are not significantly different but item 24 "*The teaching time is put to good use*" had significant difference ( $p=0.04$ ) which can be interpreted as clinical years students had more positive perception regarding teaching time. The lowest scores for both academic years were item 25; "*The teaching over-emphasizes factual learning*" which mean that most of the teaching over-emphasizes factual learning.

**Table 5.12: Comparison of item scores of domain 1; Student's perceptions of learning among preclinical and clinical years students of UTAR**

Items	Preclinical Mean (SD) N=79	Clinical Mean (SD) N=128	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 of the course	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

Note: \**p*-value < 0.05, (two-tailed), \*\* *p*-value < 0.01, (two-tailed), N= number

SD= Standard deviation

(b) 5.2.2.2.2 *Domain 2 Student's perceptions of teachers*

**Table 5.13: Comparison of item scores of domain 2; Student's perceptions of teachers among preclinical and clinical students of UTAR**

Items	Preclinical Mean(SD) N=79	Clinical Mean(SD) N=128	P- value
2. The teachers are knowledgeable	3.33 (0.52)*	3.48 (0.59)*	0.03
6. The teachers deliver research-led teaching	2.56 (0.66)	2.43 (0.84)	0.33
8. The teachers ridicule the students	2.47 (0.83)**	2.05 (1.04)**	0.00
9. The teachers are authoritarian	2.15 (0.90)*	1.78 (0.96)*	0.01
18. The teachers help me to develop my practical skills	2.86 (0.71)	2.97 (0.86)	0.11
29. The teachers are good at providing feedback to students	2.51 (0.75)	2.53 (0.95)	0.43
32. The teachers provide constructive criticism here	2.35 (0.85)*	2.62 (0.80)*	0.02
37. The teachers give clear examples	2.84 (0.10)	2.91 (0.63)	0.35
39. The teachers get angry in class	2.42 (1.10)*	2.08 (1.16)*	0.04
40. The teachers are well prepared for their classes	3.08 (0.60)*	3.021(0.62)*	0.09
50. The students irritate the teacher	2.647(1.14)	2.16 (1.10)	0.05

Note: \**p*-value < 0.05, (two-tailed), \*\* *p*-value < 0.01, (two-tailed), *N*=number, *SD*= standard deviation

Table 5.13 revealed that there was a significant mean difference between preclinical and clinical years for the item 2, 8, 32, 39 and 50. Regarding item 2; “The teachers are knowledgeable”, (*p*=0.03) the mean score is high for both academic years but clinical years students had more positive perception regarding their teacher’s knowledge compare with clinical years students. Regarding item 8; “The teachers ridicule the students”( *p* = 0.004), item 39; “The teachers get angry in

class” ( $p = 0.04$ ) and item 50; “The students irritate the teacher” ( $p = 0.05$ ), the clinical years students experienced more to the teachers who ridicule and get angry in class as well as they perceived that they irritate the teachers. However, clinical years perceived that they received constructive criticism from teachers according to item 32; “The teachers provide constructive criticism here”, ( $p = 0.02$ )

(c) 5.2.2.2.3 *Domain 3 Student’s academic self-perceptions*

**Table 5.14: Comparison of item scores of domain 3; Student’s academic self-perceptions among pre-clinical and clinical students of UTAR**

Items	Preclinical Mean (SD) N=79	Clinical Mean (SD) N=128	P value
5. Learning strategies worked for me before continue to work for me now	2.39 (0.94)	2.42 (0.98)	0.54
10. I am confident about passing this year	2.19 (0.97)*	2.50 (0.99)*	0.02
21. I feel I am being well prepared for my career	1.80 (0.88)	1.95 (0.87)	0.26
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
27. I am able to memories all I need	1.16 (0.88)	1.34 (1.01)	0.26
31. I have learned a lot about the way scientific research is carried out	2.76 (0.80)**	1.98 (0.90)**	0.00
41. My problem-solving skills are being well developed here	2.46 (0.77)	2.64 (0.78)	0.11
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

Note: \* $p$ -value < 0.05, (two-tailed), \*\*  $p$ -value < 0.01, (two-tailed),  $N$ = number,  $SD$ = Standard deviation

Table 5.14 revealed that there was a significant mean difference between pre-clinical and clinical years for the item 10, 31 and 45. Regarding item 10; “I am

*confident about passing this year*”; the clinical years students had more confidence compare with pre-clinical years students ( $p = 0.02$ ), for item 31; *“I have learned a lot about the way scientific research is carried out”*, the preclinical years students had more positive perception compare with clinical years students ( $p = 0.00$ ) regarding learning about conducting scientific research. Regarding, item 45; *“Much of what I have to learn seems relevant to a career in biological sciences”*, ( $p = 0.00$ ), it can be interpreted as preclinical years students had more positive perception compare with clinical years students regarding their learning were related with career in biological science.

(d) **5.2.2.2.4 Domain 4. Students’ perception of atmosphere**

Table 5.15 revealed, there was a significant mean difference between preclinical and clinical years for the item 11, 12 and 49. Regarding item 11; *The atmosphere is relaxed during practical/ lab classes*; pre-clinical years students had experienced more relaxed environment during practical/lab classes compare with clinical years students ( $p = 0.01$ ). Regarding item 12, *“The course is well timetabled”*, the clinical students find more problem the timetable issue compare with clinical years ( $p = 0.01$ ) and for item 49; *“I feel able to ask the questions I want”*, the clinical years students felt more comfortable to ask question compare with pre-clinical years students ( $p = 0.01$ ).

In this domain, items 11, 12 and 49 revealed significant mean difference between pre-clinical and clinical years. Pre-clinical year students have positive perception than clinical year students in item 11; *the atmosphere is relaxed during practical/ lab classes*; ( $p = 0.01$ ). Regarding item 12, *“The course is well timetabled”*, the clinical students scored less than 2 and they found to be issue related with timetable compared with pre-clinical years ( $p = 0.01$ ) . For item 49; *“I feel able to ask the*

questions I want”, the clinical years students felt more comfortable to ask question compare with pre-clinical years students ( $p= 0.01$ ).

**Table 5.15: Comparison of item scores of domain 4; Student’s perceptions of atmosphere among pre-clinical and clinical students of UTAR**

Items	Preclinical Mean (SD) N=79	Clinical Mean (SD) N=128	P-value
11. The atmosphere is relaxed during practical/ lab classes	2.58 (0.94)*	2.24 (1.01)*	0.01
12. The course is well timetabled	2.29 (1.12)*	1.88 (1.24)*	0.01
17. Cheating is a problem in this faculty	2.82 (1.22)	2.52 (1.24)	0.06
23. The atmosphere is relaxed during lectures	2.47 (0.86)	2.21 (0.98)	0.06
30. There are opportunities for me to develop my interpersonal skills	2.68 (0.78)	2.48 (0.99)	0.41
33. I feel comfortable in class socially	2.72 (0.78)	2.63 (0.82)	0.61
34. The atmosphere is relaxed during seminars/tutorials	2.63 (0.68)	2.38 (1.05)	0.08
35. I find the experience disappointing	2.56 (0.91)	2.38 (1.00)	0.25
36. I am able to concentrate well	2.30 (0.87)	2.19 (0.96)	0.37
42. The enjoyment outweighs the stress of the course	2.03 (0.95)	2.03 (0.98)	1.00
43. The atmosphere motivates me as a learner	2.63 (0.83)	2.49 (0.92)	0.23
49. I feel able to ask the questions I want	2.71 (0.72)*	2.77 (0.98)*	0.01

Note: \* $p$ -value < 0.05, (two-tailed), \*\*  $p$ -value < 0.01, (two-tailed) SD= Standard deviation

(e) 5.2.2.2.5 Domain 5. Students' social self-perception

**Table 5.16: Comparison of item scores of domain 5; Student's social perceptions among pre-clinical and clinical students of UTAR**

Items	Preclinical Mean(SD) N=79	Clinical Mean(SD) N=128	P value
3. There is a good support system for students who get stressed	1.96 (0.72)	1.73 (1.03)	0.06
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

Note: \* $p$ -value < 0.05, (two-tailed), \*\*  $p$ -value < 0.01, (two-tailed)  $N$ = number,  $SD$ = Standard deviation

Table 5.16 revealed there were significant difference in mean score of item 14; "I have good friends in this faculty", ( $p=0.01$ ) and item 19; "My social life is good," ( $p=0.01$ ) which can be interpreted as preclinical years students have more positive perception regarding have good friends and social life. It may be due to preclinical years students have in touch with other students from different faculties who are studying in Sungai long campus and there were various social activities conducted almost every day at the campus and pre-clinical students have a chance to enjoy all the activities with friends from various faculties.

### **5.3 Discussion**

#### **5.3.1 Introduction**

Educational environment in medical education is an important area in determining the effectiveness and success of a medical curriculum and nowadays this topic is growing interest by medical researchers around the world (Abraham et al., 2008; Miles et al., 2007). The study was aimed to evaluate the educational environment of medical curriculum of UTAR and the objectives of the study were to determine the perceptions of educational environment among medical students of UTAR and to compare perceptions of educational environment between preclinical and clinical year students.

#### **5.3.2 Discussion on socio demographic character of participants**

There were 226 medical students from year 1 to year 5 studying at academic year 2019/2020 and among them 207 students participated in the study with response rate of 91.6%. The response rate was higher than a number of past studies in medical universities such as 74% (Pale et al., 2015), 74.4% (Salih et al., 2019), 85% (Sawar et al., 2016), and 87.5% (Al-Naggar et al., 2014).

In this study, 70.0% of the participants were aged group between (21-25) and the average age range of medical students fall between 20-25 according to previous studies (Arzuman et al., 2017, Vieira et al., 2015). In this study, 63.3% of participants were female students, and female students were found to have more proportions than male students in many medical universities. In these medical universities, ratio of female students were 55.0% (Vieira et al., 2015), 59.8%(Umbar et al., 2011), 63.0% (Arzuma et al., 2017), 63.0 % (Imran et al., 2015), 64% (Hasnian et al., 2018), 68.7%(Al-Naggar et al., 2014), 70.2% (Pamolo-Lopez et al., 2015),



77.12 (Sawar et al., 2016) and 80% (Farajpour et al., 2017). However, it was found that male students were 51.0 % and 66.4% in Arzuman's (2016) and Idon's (2015) studies respectively.

According to UTAR medical curriculum, year 1 and year 2 were considered to be as preclinical years, and from year 3 to year 5 were clinical years. The medical curriculum of UTAR was an integrated curriculum, and medical program was started in year 2010. Among 207 participants of the study, 38.2% were preclinical students and 61.8% were clinical students. A number of studies conducted (Imran et al., 2015; Sajid et al., 2013; Hasnain et al., 2018; Khan et al., 2019; Abraham et al. 2008; Edegan et al., 2010; Farajpour et al., 2017) had similar objectives with this study, which were to compare perceptions of educational environment between preclinical and clinical year students.

### **5.3.3 Discussion on research question 1: What were the perceptions of educational environment among medical students of University Tunku Abdul Rahman (UTAR)?**

#### **5.3.3.1 Discussion on total DREEM score of the educational environment**

One of the objectives of this study was to determine perceptions of educational environment among medical students of University Tunku Abdul Rahman, and the total DREEM score of UTAR was 123.41/200, which fall within the range of 101–150 indicating that there were more positive perceptions than negative perceptions of the environment (Table 4.3) (McAleer & Roff, 2001). The results were slightly lower as a comparing to some studies conducted in Malaysia. The results were 125.3/200 in Management and Science University (Al-Naggar et al., 2014), 126.78/200 in SEGi University (Arzuman et al., 2019), 129/200 (Zamzuri et al., 2004) and 133/200 in in

University Sains Malaysia (Hassan et al., 2007) and 134/200 in International Medical University, (Lai et al., 2009)

Similar scores as a comparison with this study was found in other studies overseas, for instance an Indian study reported 123/200 (Pai, 2014). Higher total DREEM scores were found in other medical universities of different parts of the world. These studies were 125.3/200 in (Al-Naggar et al., 2014) and 126.3/200 in medical schools of India (Dashputra et al., 2015), 129/200 in a medical school in Spain (Palomo-lopez, 2018), 130/200 in a Nepalese medical school (Roff, 2005), 132/200 in medical school in Sudan (Salih et al., 2019), 135.37/200 in Victoria University of Melbourne, Australia (Vaughan et al., 2014), 135.1 in Brazil (Vieira et al., 2015), 137.3/200 in Monash University of Australia (Brown et al., 2011), 138.2 in Nigeria (Idon et al., 2015), 139/200 in Dundee Faculty of Medicine, United Kingdom (Fidelma et al., 2006). The highest score reported in the past studies was 144/200 (Edegan et al., 2010). Those studies which reported higher total DREEM scores may indicate that these institutions had adopted a more innovative and student-centred approach to medical education (Roff, 2005).

As a comparison with this study, total DREEM scores of a number of past studies were lower. The studies were 105/200 in a state university of Pakistan (Imran, 2015), 106/200 in a medical university in Iran (Farajpour et al., 2017), 107.44/200 in an Indian university (Dashputra, 2014), 108/200 in a medical school at Sri Lanka (Jiffy et al., 2005), 109.9/200 in a medical school at Trinidad (Bassaw et al., 2003), 112/200 in a medical school at Pakistan (Hasnain et al., 2019), 116.2/200 in Spanish medical school (Pale et al., 2015), 118/200 in a medical school at Nigeria (Roff, 2005), 114/200 and 119/200 in two medical universities in India (Mayya et al.,

2004; Abraham et al., 2008), 120/200 in a medical schools at Bangladesh (Arzuman et al.,2016), and 121.01/200 in Pakistan (Sajid et al., 2013)

Total DREEM scores below 100/200 indicated there were more negative perceptions than positive perceptions of educational environment. A total DREEM score lower than 100/200 was reported at the College of Medicine at King Saud University, in Saudi Arabia, that was 89/200 (Al-Ayed et al., 2009). The scenario could be interpreted as plenty of problems in environment according to McAleer's guidelines (2001) (Table 4.4). Disparities of total scores reported in different universities suggest that the educational environment may be influenced by types of curriculum adopted in the particular universities. High total DREEM scores could indicate that curriculum development was based on modern medical education principles and training, whereas total scores lower than 120 might depict adoption of a traditional education system. (Bakhshi et al., 2013; Imran et al., 2015)

### **5.3.3.2 Discussion on domains scores of DREEM**

The DREEM was sub-divided into five domains, namely Domain 1: Student's perceptions of learning, Domain 2: Student's perceptions of teachers, Domain 3: Student's academic self-perceptions, Domain 4: Student's perceptions of atmosphere and Domain 5: Student's social self-perceptions.

In this study, based on McAleer's practical guidelines (2001), the students perceived "more positive approach" (31.62/48) regarding their learning (Domain 1) ; "moving in the right direction" (28.53/44) regarding their teachers (Domain 2) ; "feeling more on the positive side" (17.77/ 32) regarding their academic self-perception (Domain 3); "a more positive environment" (28.92/48) regarding the atmosphere (Domain 4) ; and "not too bad" (16.51/28) regarding their social self-

perception (Domain 5). These domain scores identified the areas to be improved in curriculum. Higher domains scores would motivate curriculum planners for their dedications, while lower domains scores would encourage curriculum planners to review the curriculum in areas in needs to achieve educational environments to a higher level.

### **5.3.3.3 Discussion on the items scores of DREEM**

The DREEM can be used to pinpoint specific strength and weaknesses using individual items. Items that have mean scores of 3.5 or more are real positive points (McAleer & Roff, 2001). Any item with a mean score of 2.0 or less should be examined closely as these are problem areas (McAleer & Roff, 2001). Items with mean of 2.0-3.0 were the areas that could be enhanced (McAleer & Roff, 2001).

In this study, among the 50 items of DREEM, six items scored less than 2.0 suggesting that these items should be examined more closely as they indicate problem areas. The items were two items from Domain 3, and two items from Domain 5, one item each from Domains 1 and 2. The results might imply that areas need to improve were more in academic and their social life.

The problem areas were: the students perceived that their curriculum was over-emphasis on factual learning (M=1.90), the teachers are 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 (Pamolo-Lopez

et al., 2018; Khan et al., 2019; Vieira et al., 2015; Umbar et al., 2011; Arzuman et al., 2017; Imran et al., 2015; Hasnain et al., 2018, Al-nagger et al., 2014; Pamolo-Lopez et al., 2015; Sawar et al., 2016; Farajpan et al., 2017; Arzuman et al., 2016; Idon et al., 2015). 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*” (Khan et al., 2019; Fidelma et al., 2006; Al-Hazimi et al., 2004).

In this study, 40 items scored between 2.0 and 3.0, indicating that the aspects of the educational environment could be enhanced (McAleer & Roff, 2001). But in a study by Khan (2019) 44 items scored between 2.00 and 3.00 (Khan, 2019).

Among 50 items of DREEM, four items were scored more than 3.0 which indicated the most positive and strong areas of the learning environment (i.e. item 1, 2, 40 and 15) respectively in Domains 1, 2 and 5. There was no strong area in Domain 3 and Domain 4. The results were similar to the studies conducted by Hifiza et al. (2016) and Pamolo-Lopez et al. (2018).

#### **5.3.3.4 Discussion on items scores of each domain of DREEM**

##### **(a) 5.3.3.4.1 Discussion on items of Domain 1; Student’s perception on learning**

Among 12 items in domain, one item scored mean score more than 3.0, which corresponded to the student perception that their teachers encouraged them to participate in class (M= 3.02). This encouragement further motivated the students to be more confident and competent in their learning which could be evidence by the high mean score (M=2.92) of item 16; “*the teaching help to develop their competence*”, and item 47; “*the long term learning was emphasized over short term learning*” (M=2.93). High scores in the above items corresponded to student

perceptions that their teachers were encouraging, the teaching was well focused, helped them to develop confident and teaching emphasized for long term learning. It was found that the teachers encouraged students which received similar mean score more than 3.0 in studies by Abraham et al. (2008); Palomo-lopez et al. (2018), Arzuman et al. (2016), Sajid et al. (2019).

Among 12 items in domain 1, 8 items scored mean score between 2.0 to 3.0 where this areas need to be improved and 1 item scored lower than 2 which indicates problem area of learning (McAleer & Roff, 2001). Item 25; “*teaching is over emphasis over factual learning*” scored mean score lower than 2 (M=1.90) which could be interpreted as the students perceived the curriculum emphasized more on factual learning than practical. It is recommended to check the reliability of this item and also need to be discussed in the context of the assessment methods and curriculum because the similar item, item 25 scored less than 2 in studies by medical universities of other countries such as in Spain (Palomo-lopez, 2018, Pale,201) in India (Abraham 2008), in Saudi Arabia (Khan et al., 2019; Al-Ayad et al., 2008), in Malaysia (Arzuman et al., 2017), in UK (Dunne, McAleer & Roff, 2006). Apart from that the student’s perception on learning at UTAR was more positive than negative.

**(b) 5.3.3.4.2 Discussion on items of Domain 2; Student’s perception on teachers**

In this domain, among the 11 items, there were two items which scored more than 3.0, which revealed this domain was most positive among all the domains of DREEM. Many medical students of UTAR agreed that their teachers were knowledgeable (M=3.43) and their teachers are well prepared for their classes (M=3.16). It may be because the selection of academicians by the university which is highly comparative and the continuous staff development program support the academicians to be competent in areas of medical education.

Among 11 items in domain 2, 8 items scored between 2.0 to 3.0 and these areas were areas encouraged to be improved. Among 11 items, 1 item scored mean score lower than 2.0, which was item 9; *‘the teachers are authoritarian’* scored less than 2 (M=1.92). This item scored lower than 2 was found in studies in Malaysia (Arzuman et al., 2017) in SEGi university and by Abraham 2008 in Melaka Manipal Medical College (Manipal campus).

Lower scored in this item suggestive that teachers were still wearing their traditional hats of teaching philosophy and they were strict during in their teaching sessions. (Arzuman et al., 2017) I would interpret it may be due to influence of Asian culture as the students were grown up in a culture of respecting parents and teachers who were considered to be as authoritarian in their mind but this area should explore more further to pinpoint the actual situation.

The problem areas included the students perception of teaching in other studies were too teacher-centred, the teachers ridicule the students and students irritate the teachers identified as problems encountered in medical schools with traditional curricula and these aspects correlated with increased student fatigue and reduced student enjoyment and performance. (Edgren et al., 2010; Palomo-lopez et al., 2018; Arzuman et al., 2016, Al-nagger et al., 2014).

(c) **5.3.3.4.3 Discussion on items of Domain 3; Student’s academic self-perception**

Domain 3 contained 8 items, and among them, none of the items scored mean score more than 3.0 and 6 items fell in range of score between 2.0 to 3.0. The rest of 2 items scored less than 2.0 which means the problem areas for the curriculum were represented by responses to the following items: item 21; *‘I feel I am being well*

*prepared for my career*” (M=1.89) and item 27; *“I am able to memorize all I need”* (M=1.27).

The similar results was found in a study conducted at medical university in Malaysia by (Arzuman et al., 2017), and the author suggested that the low score might be an indication of content overload in curriculum which was also reported in the studies (Pamolo-Lopez et al., 2018; Dunne, McAleer & Roff, 2006; Jiffy et al., 2005; Sajid et al., 2013). Medical students had to go through a significant level of stress due to the multifaceted nature of the medical course that might be another explanation for students’ poor memorisation.

(d) **5.3.3.4.4 Discussion on items of Domain 4; Student’s perception of atmosphere**

There were 12 items in this domain and among 12 items, no items scored more than 3 nor scored less than 2. All the 12 items scored mean score between 2.0 to 3.0. But two least scored items were Item 42; *“The enjoyment outweighs the stress of the course”* (M=2.03) and the item 12; *“This school is well timetabled”* scored lowest, (M=2.04). These areas need to monitor closely for the improvement and item 42 should explore further. These scores could be attributed to the high workload and the wide spread of hours over which timetable was scheduled. The timetable problem was found to have negative perceptions in studies such as (Pamolo-Lopez et al., 2018, Dunne, McAleer & Roff, 2006; Idon et al., 2015, Pale et al., 2015).

**5.3.3.4.5 Discussion on items of Domain 5; student’s social self-perception**

Among 7 item in domain 5, there was 1 item scored mean score more than 3.0, which is item 15; *“I have good friends in this faculty”* (M=3.16), which could be interpreted as the students have good social life regarding relationship with friends.



The similar higher score was found in studies conducted to Malaysian medical students by (Abraham et al., 2008; Arzuman et al., 2017).

But 2 items in domain 5 scored mean score less than 2.0, which could be considered as problem areas represented by in item 3; “*There is a good support system for students who get stressed*” (M=1.82) and item 4; “*I am too tired to enjoyed the course*” (M=1.98). There was a serious concern that the students were too tired to enjoy their course.

Regarding the support system, this negative perception may be due to insufficient information because the university offers a student support unit “Counselling and guidance unit” but it was hardly ever used by medical students especially clinical years students because of different campus and the advisors were clinical lecturers to whom the students might reluctant to contact because the students aware that the clinical lecturers are in busy schedule always. This item needs urgent attention.

The item 4; “*I am too tired to enjoy the course* “ was found to have similar mean score less than 2.0 in studies by (Khan et al., 2019; Almameed et al., 2013) and item 3; “*There is a good support system for students who get stressed*” was found to be score less than 2.0 in studies (Khan et al., 2019; Pamolo-Lopez et al., 2018; Arzuman et al., 2017; Idon et al., 2015; Pale et al., 2015; Alnaggar et al., 2014; Dunne, McAleer & Roff, 2006).

In this study, item 14; “*I am rarely bored on this course*” and item 28; “*I seldom feel lonely*” scored less (M=2.02 and M=2.07) which could be interpreted as potential problem areas. The students reported to have good friends but often feeling lonely and bored. Curriculum planners could consider ways to make curriculum more

innovative, engaging, and meaningful to make the students more engaged and active participation in learning.

#### **5.3.4 Discussion on research question 2: Is there any difference in perceptions between pre-clinical and clinical year students?**

The second objective of the study was to compare perceptions of educational environment between preclinical and clinical year students and this section explains about the comparison of the mean score of items and domains of DREEM.

##### **5.3.4.1 The comparison of domains scores of DREEM among the preclinical and clinical years students**

According to results of this study, pre-clinical students had more positive perception of the educational environment than clinical year students did. This was reflected in all the domains. But the more positive perception by pre-clinical students was statistically significant for Domain 5; Student's social self-perception ( $p=0.04$ ) which can be interpreted as the pre-clinical students may have more chances to enjoy their social life as pre-clinical students and clinical students studies in difference campuses. Students of pre-clinical years were studied at Sungai Long campus (main campus of UTAR) together with students from other disciplines such as Engineering, Nursing, Physiotherapy, Accounting, Creative arts and Languages. And social activities by students and faculties were conducted almost every day and pre-clinical students could enjoy all the activities. In addition, preclinical students could access to all the facilities of main campus such as gym, library and cafeteria. But for clinical year's students, their campus (Clinical teaching Centre, Ampang) was situated in in Ampang near Ampang hospital for the convenience of hospital postings. At teaching

centre, the facilities and atmosphere were limited compared with Sungai long (main campus).

Similar to this study, pre-clinical students had a more positive perception of the educational environment than clinical year students was found in studies conducted in medical universities of various parts of the world such as studies in King Saud University by (Khan et al., 2019), in Nepal by (Roff, 2001), in Sudan by (Salih et al., 2018) and in Pakistan by (Palés et al., 2015; Al-Ayed et al., 2008 and Imran et al., 2015). These studies stated that the students in the pre-clinical years had better perception of the educational environment compared to clinical year students which can be related to the motivation level of students as they were newly enrolled and were still exploring the educational environment.

But in a studies conducted in University of Dundee, UK by (Dunne, 2006), Iranian university by (Farajpour et al., 2016) and in Pakistan by (Hasnian et al., 2019), although the environment was perceived as more positive than negative in both groups the mean total score was significantly greater in the clinical years compared to the pre-clinical years, ( $p < 0.05$ ) (Dunne, McAleer & Roff, 2006), and ( $p = 0.00$ ) (Hasnian et al., 2019). In a study by (Dunne, McAleer & Roff, 2006) author stated that the older students appear happier. (Dunne, McAleer & Roff, 2006)

#### **5.3.4.2 Discussion on comparison of each domain score among preclinical and clinical years students of UTAR**

##### **(a) 5.3.4.2.1 Domain 1; Student's perceptions of learning**

In domain 1, preclinical years students have more positive perception than clinical years students but 2 items revealed clinical years students had more positive perceptions which was item 47; *“Long term learning is emphasized over short term*

learning” and item 24 “*The teaching time is put to good use*” which shown significant difference ( $p= 0.04$ ) . These results can be interpreted as clinical years students perceived their teaching time in clinical years were more useful and effective compare with pre-clinical years. Moreover, Item 1; “*I am encouraged to participate in class*” scored more than 3.0 in both clinical and preclinical year’s students this study and similar results were found in study by (Abraham et al., 2008).

(b) **5.3.4.2.2 Domain 2; Student’s perceptions of teachers**

In this domain, 5 items showed a significant mean difference between pre-clinical and clinical years in items 2, 8, 32, 39 and 50. Item 2; “*The teachers are knowledgeable*” scored mean score more than 3.0 for both academic years and clinical years students had more positive perception than preclinical year students and it was statistically significant ( $p=0.03$ ). The result was similar in study at UK by Dunne 2006 but in a study conducted at Manipal University by Abraham, 2008, preclinical years students scored more positive perception regarding their teacher’s knowledge. (Abraham et al., 2008) Item 32; “*The teachers provide constructive criticism here*” revealed the clinical years students received constructive criticism from teachers ( $p=0.02$ ).

The rest of items, item 8; “*The teachers ridicule the students*” ( $p=0.004$ ), item 9. *The teachers are authoritarian* ( $p=0.009$ ) item 39; “*The teachers get angry in class*” ( $p=0.04$ ) and item 50; “*The students irritate the teacher*” ( $p=0.05$ ), the clinical years students have negative perception related with the teachers ridicules the students, get angry and the students irritate the teachers compare with clinical years students. This may be the common problem for clinical years students as the expectations of clinical teachers on the clinical year students may be higher because they were seniors students who will be house officers sooner but in real experience, the

students could not make their clinical teachers proud and their perceptions tends to be negative.

Similar to this study, in a study by Dunne, 2006, the students perceived that teachers were too authoritarian. The researcher explained that it may be a reflection of the 'older type' of senior teacher who taught by experience rather than by direction. The author recommended conducting teachers refresher course covering the concepts of adult learning such as small group teaching, bedside teaching and giving feedback. (Dunne, McAleer & Roff, 2006)

(c) **5.3.4.2.3 Domain 3; Student's academic self-perceptions**

In this domain, 2 items scored mean score less than 2.0 in both academic years and pre-clinical years had lesser score than clinical years in item 21; "*I feel I am being well prepared for my career*" ( $p=0.26$ ) and item 27; "*I am able to memories all I need*" ( $p=0.26$ ). These two areas need to be monitored closely and the similar problem found in a study by (Pale et al., 2015)

Regarding item 10; "*I am confident about passing this year*" ( $p= 0.02$ ), the clinical years students had more confidence to pass the exam compare with pre-clinical years students, as clinical years are more practical, work place based learning and more understanding of the medical subjects compare with junior pre-clinical years students. The result was similar in a study by Dunne, 2006. Moreover, items 31 and item 45 revealed significant mean difference between preclinical and clinical years. Item 31; "*I have learned a lot about the way scientific research is carried out*" revealed that the preclinical years students had more positive perception compare with clinical years students regarding learning about conducting scientific research ( $p=0.00$ ) and item 45; "*Much of what I have to learn seems relevant to a career in*

*biological sciences*”, ( $p=0.00$ ), revealed preclinical years students had more positive perception compare with clinical years students regarding their learning which were related with career in biological science.

(d) **5.3.4.2.4 Domain 4; Students’ perception of atmosphere**

In this domain, items 11, 12 and 49 revealed significant mean difference between preclinical and clinical years. Item 11; “*The atmosphere is relaxed during practical/ lab classes*” revealed pre-clinical years students had positive perception where they experienced more relaxed environment during practical/lab classes compare with clinical years students ( $p= 0.01$ ). Regarding item 12, “*The course is well timetabled*”, the clinical students scored mean score less than 2.0 and the clinical years had issue related with timetable compared with pre-clinical years ( $p= 0.01$ ) . The result was similar to a study by Pale et al. 2015 that the timetable issue has been more problematic in clinical years. For item 49; “*I feel able to ask the questions I want*”, the clinical years students felt more comfortable to ask question compare with pre-clinical years students ( $p= 0.01$ ) and the result was similar to Dunne, 2006 that clinical years students have more chance to ask the questions may be due to the small group teaching strategies in clinical years such as bedside teaching, case discussion and small group seminar classes compared with the large group lecture classes in preclinical years.

**5.3.4.2.5 Domain 5; Students’ social self-perception**

In this domain, item 15; “*I have good friends in this faculty*” scored mean score more than 3.0 for both academic years but higher score for pre-clinical years ( $p=0.01$ ) which can be interpreted as pre-clinical years students had significant positive perception. This result was similar to a study by Abraham, 2008 where by

pre-clinical years had significant positive perception compared with clinical years students (Abraham et al., 2008). Similar for item 19; “*My social life is good*”, pre-clinical years students have more positive perception ( $p=0.01$ ) regarding having good friends and social life because preclinical years students had a chance to be in touch with other students from different faculties who were studying in Sungai long campus. At UTAR Sungai Long campus, here were various social activities conducted almost every day by faculties and pre-clinical students have a chance to enjoy all the activities with friends from various faculties.

Item 3; “*There is a good support system for students who get stressed*” scored less than 2.0 in both pre-clinical and clinical years ( $p= 0.06$ ) revealed problem area. The similar results had been which shown in studies conducted in United Kingdom, India and Pakistan (Dunne, McAleer & Roff, 2006; Abraham et al., 2008; Pale et al., 2015). But in a study conducted by Khan 2019, item 3 received score between 2.0 to 3.0. (Khan et al., 2017)

Item 14; “*I am rarely bored on this course*” which is a negative item and the score was less than 2.0 for preclinical year students. These areas should monitored closely for the well-beings of preclinical year students. Teaching learning activities which could increase student interest and motivation might help to enhance the learning environment.

### **5.3.5 Theories related with educational environment**

Theoretical framework of this study (Figure 3.2) was based on two learning theories that are self-determination theory and Vygotsky social development theory. According to the learning theories applied, DREEM evaluate student’s perception of educational environment in five domains areas.

Before entering into the educational environment, each student has their unique sociodemographic background and their own unique ability to perform the task. When they entered educational environment of medical school (UTAR), they experienced all the teaching learning activities, assessments, atmosphere and social activities to achieve the program objectives. And learning occurred during interaction within educational environment. After successfully completed the medical program, the students became competent doctors who are ready to serve the community. According to Vygotsky's social development theory, educational environment can be considered the period of Zone of Proximal Development (ZPD) is an area where learning occurs in this zone. 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 (Crawford, 1996)

Educational environment can be positive or negative environment which influence on students learning and competency. According to Self Determination Theory by Deci and Ryan (Ryan & Deci, 2008), the students' motivation is effected by their learning environments in which students with positive perception on learning environment promote internal motivation who will be further motivated to become self-determined lifelong learners, while students with negative perception on learning environment will have negative effect on their motivation which could have effect on them becoming self-determine life-long learner. Vygotsky theory focus on the social interactions of learners with tutor or peers and the theory emphasized the profound influence of social contexts in the process of cognitive development.

For example, evaluation of domain 1 of DREEM, students' perception of learning determines the students autonomy related with teaching and learning. For example,



items such as *"I am encouraged to participate in the class"* *"I find the experience disappointing"* explained students autonomy. Evaluation of domain 2; students' perceptions of teachers reflects the extent that the teachers encourage the student's ability solving the problem independently according to Vygotsky theory. Evaluation of domain 3; students' academic self-perceptions can be related with their competence, for example items *"I am confident about passing this year"*, *"I am able to memorize all I need"* explained students confidence in their competence. Evaluation of domain 4; students' perception of atmosphere determines the environment which influence their critical thinking (Vygotsky) as well as their motivation " the (Self-determination theory) for example item *"I am encourage to participate in the class"* *"There are opportunities to develop my interpersonal skill"*. Evaluation of domain 5: students' social self-perception determines the student motivation which can be explained relatedness in Self Determination Theory as well as capable adult (Vygotsky theory) for example item *"I have good friends in faculty"*. By evaluating all the important areas of educational environment played an important role to create effective educational environment that will enhance the prospects of the students to become self-determine lifelong learners.

According to the findings from this study, UTAR medical students had confident in passing the year end exam, they found the teachers are knowledgeable and encouraging and they found to have opportunities to develop their skill for future. These positive motivation statements can be interpreted as UTAR medical students have motivation regarding their learning, teachers and academic environment according to self-determination theory. Although clinical year's students had some negative perception on social environment, the overall educational environment to UTAR was more positive than negative.

#### **5.4 Summary**

This chapter presented the findings of the data analysis of this research together with discussion. The next chapter presents the conclusion, and implications of this study together with limitation and recommendations for future research are provided.

University of Malaya

## CHAPTER 6: CONCLUSION AND IMPLICATION OF STUDY

### 6.1 Introduction

This chapter will discuss the conclusion, implications and limitations of this study, and recommendations for future research. This chapter also concludes the entire research.

### 6.2 Conclusion

Educational Environment affects student learning and development, and a poor educational environment can hinder the efforts of even the most valuable teachers. (Pamolo-Lopez et al., 2018) The DREEM is a reliable and validated instrument which identifies problem areas in educational environment (Dunne, McAleer & Roff, 2006) and the use of the DREEM as a monitoring tool would permit timely interventions to remediate problematic educational environments.

According to the results, from this study, the students perceived the all five domains of educational environment of UTAR as more positive than negative. Key positive findings included that students perceived that the teaching helps them develop increases their self-confidence, their teachers were knowledgeable and well prepared for their classes. Students' perception of learning and teacher was highly rated domains and was one of the strengths identified in this study. Students were very confident that they were going to pass their end-of year examinations and consider that a lot of what they were learning was highly relevant to their professional career. Additionally, the students reported positive attitudes regarding their friends and social life.

The study also identified a number of items which scored below 2.0 indicating serious concern. The items were "*the teaching over-emphasizes factual learning*",

*“the teachers are authoritarian”, “this course is well timetabled”, and “there is a good support system for students who get stressed”, “I am able to memorize” and “I am too tired to enjoy the course”.* Greater attention is required in order to improve these areas. Additionally, it needs to improve the communication system for effective utilization of support unit at university to support for students suffering from stress and modify the timetable especially for clinical years to adapt them better to students’ needs.

Furthermore, preclinical students were more satisfied with the educational environment as compared to clinical year students regarding their perception of social life. The clinical year student perception of social self-perception should be monitored closely because clinical years’ students are usually more preoccupied with a clinical attachment, case presentations, seminars, and workshops. UTAR should be on the alert to maintain an educational environment that would satisfy both junior and senior students equally.

### **6.3 Implication of the study**

As the educational environment affects student motivation and achievement, it is important to get feedback from the students on how they are experiencing their learning environment. (Khan, 2019) The DREEM proved to be a useful tool to identify strengths and weaknesses of the educational environment in the perception of students and the use of the DREEM as a monitoring tool would permit timely interventions to remediate problematic educational environments. (Dunne, 2006)

This study provides information about perceptions of the educational environment among medical students in private medical university and provides some guidance on what needs to be addressed in the curriculum. In addition, the information obtained from this study would be valuable feedback to review the teaching learning

experiences and curriculum review process. Moreover, the result of this study can be used as preliminary data for future evaluation of educational environment.

#### **6.4 Limitations of the study**

The limitations of this study are firstly, the study focused on the MBBS program of medical faculty of private university so the findings cannot be generalised to medical programme of Malaysia. Secondly, quantitative approach has its limitations in examining a complex environment, and mixed methods approach that examined both quantitative and qualitative data is recommended and would provide a more precise and reliable result to find out the perception of medical students on the educational environment of UTAR. Add one sentence of advantage of qualitative study. Add one sentence of advantage of using qualitative study to follow DREEM, let say will find out why and how to address an item.

#### **6.5 Recommendations**

It was recommended to conduct study by involving both private and public medical university. Future study would be recommended to add qualitative methods to find out insight view of students regarding their educational environment apart from the items of DREEM inventory. DREEM proved to be a useful tool to identify strengths and weaknesses of the educational environment and it was recommended that, DREEM can be used as tool for annual evaluation of the educational environment of UTAR.

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