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APPROACHES TO STUDY AND LEARNING ENVIRONMENT IN MEDICAL SCHOOLS WITH SPECIAL REFERENCE TO THE GULF COUNTRIES

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In the name of Allah

The Compassionate

The Merciful

Dedicated to

My Parents

واخفض لهما جناح الذل من الرحمة وقل رب الرحمهما كما ربياني صغيرا

And, out of kindness, Lower to them the wing of humility, and say : My Lord: bestow on them Thy Mercy even as they Cherished me in childhood. (Al-Qur'aan: 14:24)

And

My Husband

Jassim Shaheen Al-Rumaihi

For his patience, encouragement and understanding

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LIST OF ABBREVIATIONS

AC	Abstract Conceptualisation
AE	Active Experimentation
AGU	Arabian Gulf University
AMLESL	Attitudinal Measure of Learners of English as a Second Language
ASI	Approaches to Study Inventory
B.Sc.	Basic Medical Sciences
CCES	College Classroom Environment Scale
CCI	College Characteristics Index
CPQ	Course Perception Questionnaire
CUCEI	College and University Classroom Environment Inventory
DREEM	Dundee Ready Education Environment Measures
EAT	Environment Assessment Technique
ECSS	English Communication and Study Skills
ESP	English for Specific Purposes
GCC	Gulf Co-operation Council
GPA	Grade Point Average
IE	Indian English
KFU	King Faisal University
KSA	Kingdom of Saudi Arabia
L2	Second Language
LASI	Lancaster Approaches to Study Inventory
LEI	Learning Environment Inventory
LEQ	Medical School Learning Environment Questionnaire
LTM	Long Term Memory
M.D.	Medical Qualifying Examination
MBBS	Bachelor of Medicine and Bachelor of Surgery
MSEI	Medical School Environment Inventory
MSLES	Medical School Learning Environment Survey
OSPE	Objectives Structure Practical Examination
PBL	Problem Based Learning
PCC	Primary Care Curriculum
PS	Problem-Solving Environment
RO	Reflective Observation
SAE	Standard American English
SLEI	Science Laboratory Environment Inventory
SOLO	Structure of the Observed Learning Outcome
SPQ	Study Process Questionnaire
SQ	Symptom Questionnaire
STAL	Screening Test of Adolescent Language
TOEFL	Test of English as a Foreign Language
UAE	United Arab Emirates
UAEU	United Arab Emirates University
UGRU	University General Requirements Units
UGT	Universal Grammar Theory or Model

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DECLARATION

I hereby declare that I am the author of this thesis; that the work of which this thesis is a record has been done by myself, and that it has not previously been accepted for a higher degree.

Signed:..... Date 20../..12../..1999

Mona Fisal Al-Qahtani

CERTIFICATE

I certify that Mona Fisal Al-Qahtani has worked the equivalent of nine terms on this research, and that the conditions of the relevant ordinance and regulations have been fulfilled.

Signed :..... Date 20../..12../..1999

Dr. Sean McAleer

ABSTRACT

The main aim of higher education is to facilitate and encourage students' learning. Students' learning is influenced by several factors which have been classified into two main categories: students' characteristics, e.g. learning styles and environmental features. Many instruments have been developed to identify students' learning styles and approaches to study and students' perceptions of their learning environments in many disciplines. However, none of these instruments have incorporated the effect of English as a second language on students' perceptions of their learning environment and learning approaches to study.

Within medical schools several inventories have been used to explore the learning environment and approaches to study in the Western countries. However, a limited number of studies have explored such issues in the Gulf region within the medical education context where the English language is used as a formal medium of instruction.

The main purpose of this study was to explore students' approaches to study, their perceptions of the learning environment, their motives for entering medical school, their language learning strategies for English as a second language, and their attitude towards learning English. The target population comprised second and fourth year students at three medical schools in three countries in the Gulf region. One medical school uses the traditional curriculum, while the other two have adopted a problem-based curriculum. In addition, two of them operate on a single-gender basis while the third is co-educational.

The main research methods used in this study are two inventories. One to explore students' approaches to study using the Approach to Study Inventory (ASI). The other is to assess students' perceptions of their learning environments using the Dundee Ready Education Environment Measure (DREEM). In addition, two questionnaires have been developed: one to explore students' motives for entering medical school, the other to identify the students' learning strategies for studying English as a second language and their perceptions towards learning English.

Non-parametric statistics tests were conducted to test twenty-four theoretical/statistical hypotheses. These statistical hypotheses were divided into four studies: (1) the effect of curriculum, i.e. traditional vs. innovative; (2) the effect of year of study, i.e. second year vs. fourth year; (3) the language learning strategies and attitude towards the English language; and (4) gender differences.

The general findings of the study indicated the following: (1) the type of curriculum has an influence on students' satisfaction with their learning environment; (2) the year of study influences the degree of satisfaction with the learning environment under the traditional curriculum; (3) the type of gender-involvement affects the degree of satisfaction with the learning environment; (4) the type of curriculum has an influence on students' adopting a particular learning approach; (5) learning approaches are consistent regardless of seniority; (6) gender has an influence on adopting a particular approach to study; (7) the most important motives for

entering medical school rated by students, regardless of their gender and level of study, is the intrinsic desire to help sick people; (8) there is a variation in the level of importance of motivation rated by both genders; (9) there is a strong relationship between English achievement and the following: medical academic achievement, age at which students were first exposed to learning English, the formal level of study of the English language, language learning strategies, motivation to learn English, the perception of the English course, and the perception towards people speaking the English language; (10) there is a positive relationship between English learning strategies and approaches to study; (11) the three types of language learning strategies are used by students, however the degree of utlization differs; (12) culture has emerged as an important factor influencing learning approaches and learning environment.

It is hoped that utilizing the information obtained in this study will enhance the medical education environment and consequently will have a positive influence on students' learning in higher education within the Gulf States.

CHAPTER ONE

OVERVIEW OF THE THESIS

1.1: BACKGROUND TO THE STUDY

The general objective for higher education is to teach, facilitate, and encourage students to learn. In order to achieve these objectives, the factors affecting students' learning should be explored (Winston et al., 1994). In this regard, Newble and Entwistle (1986) classify these factors into two main elements: (a) students' characteristics e.g. learning style; and (b) factors embodied in the environment where the learning takes place e.g. characteristics of the department and teaching (Ramsden and Entwistle, 1981; Entwistle, 1987; Newble and Hejka, 1991).

Learning style is a major factor affecting students' learning and has been defined differently by different researchers who view learning styles from different theoretical bases. According to Newble and Hejka (1991) the theory underpinning these studies can be categorized into two types: (a) cognitive psychology and psychometric research that concentrates on the basic learning process and students' stable characteristics; and (b) educational psychology research that concentrates on the way students approach their study in the practical sense. An example of the first type can be seen in Keefe and Monk's (1986) view of learning styles as "the characteristic cognitive, affective, and psychological behaviors that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment". While the second type can be seen in the work of Entwistle and Ramsden (1983) who focus on the students' approaches to learning within the every day learning environment. For them the learning style is defined as "the general tendency to adopt a particular strategy".

The different concepts of learning style generate different models (De Bello, 1990; Sims et al., 1989). Consequently, different instruments have been developed to

identify the students' learning characteristics or styles. Despite the existence of several learning style instruments, Dunn et al. (1989) argued that only a few could be considered reliable and valid. One such instrument that has shown high reliability in a number of studies (e.g. Richardson, 1993) is the Lancaster Approaches to Study Inventory (ASI).

Students' learning is influenced not only by their learning style but also by their learning environment (Entwistle, 1981). The learning environment has been recognised to have an influence not only on students' approaches to learning (Newble and Clark, 1986; Trigwell and Prosser, 1991; Davis and Sales, 1996), but also on students' academic outcome (Wolf et al., 1989; Vernon, 1995; Schmidt et al., 1996), and motivation (Harth et al., 1992). For these reasons, many studies (e.g. Fraser et al., 1986; Fraser and McRobbie, 1995) have been conducted to measure students' perceptions of their learning environment.

Within the context of medical education, the general aim is to develop doctors who are capable of promoting health for all (World Federation for Medical Education, 1988). To achieve this, medical education is undergoing many changes, which is the prerequisite stage for improving the delivery of health care (World Federation for Medical Education, 1993; Wolf, 1994). These changes are occurring in different aspects of medical education, such as curriculum, and teaching methods. An example of such a change is the shift from a traditional curriculum to a more problem-based learning (PBL) curriculum.

Changes in the medical learning environment in terms of curriculum design might lead to a change in approach to study and perception of the learning environment. In this regard, comparison studies of students' approaches to learning

and their learning environment at traditional and innovative medical schools concluded that deeper approaches were fostered in a learning environment in which problem-based learning existed (Newble and Clarke, 1986; Coles, 1985).

Moreover, medical educational literature (Hutchins, 1961; Rothman and Ayoade, 1970; Marshall, 1978) has identified three major instruments for studying the effect of such changes on students' perceptions of their medical learning environment. These are the Medical School Environment Inventory (MSEI) (Hutchins, 1961), the Medical School Learning Environment Questionnaire (LEQ) (Rothman and Ayoade, 1970), and the Medical School Learning Environment Survey (MSLES) (Marshall, 1978). These instruments, however, were developed a relatively long time ago, e.g. the most recent is 20 years old. Therefore, a new learning environment instrument was needed for the year 2000; one that reflects such recent trends and changes in medical education. Such an instrument has been recently developed in The Centre of Medical Education, Dundee (Roff et al., 1997), the Dundee Ready Education Environment Measures (DREEM).

Such learning environment measures have mainly originated in developed countries. However, an important aspect of the learning environment, at least from the perspective of the researcher, is the effect of using a foreign language as the formal medium for instruction in medical schools, as is the case in most developing countries. This is rarely taken into consideration by any of the learning environment instruments.

1.2: STATEMENT OF THE PROBLEM

Generally speaking, students approach their learning differently. Key factors relate to students' characteristics, e.g. their learning style, and their learning

environment (Newble and Entwistle, 1986). The characteristics of the learning environment in medical school varies around the world (Jefferys and Elstons, 1989). Its influence on students' approaches to study is well explored in developed countries. In Western countries there is a tendency to use deeper approaches in problem-based learning environments (Coles, 1985). Students in developing or non-western countries generally tend to rely heavily on rote learning or memorization (Kember and Gow, 1990). In addition, English language ability correlates significantly with approaches to study (Kember, 1996).

Gulf countries are considered to be among the developing countries. They have adopted English language as the formal medium of instruction in their medical schools. This study will explore the characteristics of students' approaches to learning in Gulf countries, their perceptions toward their learning environment, learning strategies they use to study English as a second language, their attitude towards learning English, and their motives for entering medical schools.

1.3: PURPOSE OF THE RESEARCH

The main objectives of this research are fourfold. First, to explore the approaches to learning used by medical students in their study processes in Gulf countries. Second, to identify the learning environment factors affecting the learning of medical students. Third, to investigate the learning strategies used by medical students in their study of English as a second language, and their attitudes towards learning such language. Fourth, to identify students' motives for entering medical schools. It is also the purpose of this study to determine whether gender and year of study have any significant effects on students' approaches to learning, their

perceptions of their learning environment, and their attitudes and learning strategies to English as a second language.

In order to accomplish the above objectives, the research will:

(1) Review the key education literature on approaches to learning (Chapter 2).

(2) Review the major factors that constitute the learning environment in higher education (Chapter 3).

(3) Review the major learning strategies that are used by students in non-English speaking countries to study English as a second language (Chapter 4).

(4) Review the social, economic and political environment in addition to medical education in the Gulf countries (Chapter 5).

(5) Conduct an empirical study to examine the perceptions of medical students in Gulf countries, with regard to various issues explored in the study (Chapters 7,8,9,10,11).

The research intends to answer the following questions:

(1) What are the characteristics of the approaches to learning of medical students in traditional and innovative curriculum universities in Gulf countries?

(2) What are the characteristics of the learning environments in traditional and innovative curriculum universities as perceived by medical students in Gulf countries?

(3) Is there a relationship between approaches to learning and the learning environment?

(4) What are the strategies for learning English as a second language used by the medical students at Gulf countries?

(5) Is there a relationship between students' English language proficiency and their medical academic achievement?

(6) Is there a relationship between students' English language learning strategies and students' approaches to learning?

(7) To what extent does the year of study affect students' approaches to learning, perception of their learning environment, motives for pursuing medicine?

(8) Are there gender differences in Gulf medical schools in terms of the approach to learning, perception of learning environment, language learning strategies, attitude towards learning English, and motivation for entering medical schools?

1.4: THE IMPORTANCE OF THE STUDY

The importance of research into learning styles and learning environments has been well documented in the literature (Meyer and Parson, 1989; Fraser, 1994; McRobbie and Fraser, 1993; Entwistle and Ramsden, 1983; Entwistle, 1987). For example, Meyer and Parsons (1989, p.138) stated that "it was the firm belief of the Lancaster researchers that the investigation of this association [between the learning context and approaches to studying] would be one of the most beneficial areas for the improvement of teaching and learning in higher education".

The greater proportion of the medical education literature has focused mainly on developed countries, for example the U.S.A, the U.K., and Australia. Research covering the developing countries, particularly the Gulf countries, in respect of approaches to learning and learning environment is relatively sparse.

Although Gulf countries share more or less the same characteristics/features concerning their culture, politics, and educational system, there are some differences in their medical education systems. For example, medical schools in some Gulf countries, e.g. Saudi Arabia, use a traditional curriculum, while others, e.g. Bahrain,

have a problem-based learning curriculum. In addition, the type of gender mixing, e.g. single-sex education and co-education, also differs. This raises interesting questions regarding the effect of gender issues and year of study on students' views of their learning environment and their approaches to study.

However, a similar feature among Gulf medical schools is the adoption of English as the formal 'language of instruction'. It has been suggested that this policy could generate stress among many students. Gallagher (1989, p.571) indicated that "reliance upon English in the medical school where I taught [at a medical college in Saudi Arabia] was fraught with frustration for most students". Therefore, it seems that "foreign language" used for instruction in an institution might affect the learning environment of that institution.

This research hopes to contribute to the literature on the learning environment and approaches to study relating to Gulf medical students. It intends to explore the relationship between students' approaches to learning, motivation for studying medicine, students' perceptions toward their learning environment, language learning strategies and attitude towards learning English.

To the author's knowledge there are no previous studies which have investigated in detail the relationships between the above variables in the Gulf countries' medical schools. It is hoped that the findings will contribute to international medical education by virtue of its focus on a group of developing countries and by providing comparative information relating to two learning environments: the traditional and problem-based.

1.5: RESEARCH METHODS

Research methods are the techniques that are used to gather the required data. In the present study two inventories were used, one to measure students' approaches to learning, the Short Version of the Lancaster Approaches to Study (ASI), the second to measure students' perceptions of their learning environment, the Dundee Ready Education Environment Measure (DREEM).

In addition, two questionnaires were created, one to elicit students' perceptions of learning English and to discover the strategies used to study English as a second language, the second questionnaire to explore students' motivation for entering medical school.

1.6: EXPECTED CONTRIBUTION OF THE STUDY

The researcher expects that the results of this study will be of assistance to different groups involved in medical education in the Gulf countries. Due to the fairly recent[1] introduction of problem-based curricula in medical schools in the Gulf countries, this study may be used: (1) to determine how curriculum change is perceived by students in problem-based learning environments; (2) to discover key factors in the learning environment that relate to students' approaches to study; (3) to discover factors that influence students' perceptions of their learning environment, which may help in evaluating the teaching and curriculum used in Gulf medical schools; (4) to assess the educational climate in both traditional and problem-based curriculum universities in Gulf countries; (5) to identify the baseline information on

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[1] For example, a problem-based curriculum has been introduced in Bahrain and United Arab Emirate medical schools in 1986 and 1994 respectively.

learning strategies used by students in Gulf countries in their study of English as a second language and their attitude toward learning English; (6) to discover those factors that have an impact on students' English language proficiency and their academic achievement; (7) to determine the extent of culture impact on learning environment and approaches to learning; and (8) to identify the main motives for pursuing medicine in the Gulf region. This study may also benefit medical students in Gulf countries by: (1) providing information on their approaches to learning; (2) identifying learning strategies for studying English as a second language; and (3) identifying the factors that influence proficiency in English language and that of medical academic achievement.

1.7: ASPECTS OF THE STUDY

Taking into consideration the range of subjects covered in the research, the following points should be borne in mind.

First, approaches to learning vary as students proceed in their study. Therefore this study will focus on approaches to learning used at the end of second and fourth year.

Second, the characteristics of learning environments vary from country to country, therefore this study will assess the climate of the learning environment of medical schools in Gulf countries only.

Third, this study, in its exploration of learning environments in relation to the type of curriculum, will not be concerned with the evaluation of the contents of the medical school curriculum nor with the quality of assessment. It will deal with students' perception of their learning environment and the ways in which their

perception of teachers and courses may influence their attitudes and approaches to study.

Fourth, while there are different instruments used to measure students' approaches to learning in higher education, this study will utilize only the Lancaster Short Version of Approaches to Study Inventory. This inventory has a proven high reliability.

Fifth, while there are different instruments used to measure students' perceptions of their medical learning environment, this study will utilize only the Dundee Ready Education Environment Measure (DREEM). This new inventory has a proven preliminary high reliability.

Finally, any study is limited by its own methods of study and models used. This study is no exception.

CHAPTER TWO

LITERATURE REVIEW: LEARNING APPROACHES

If we wish students to learn effectively in our courses, and if we really do wish them to become the effective problem-solvers and life-long self-learners so frequently espoused in the aims of the modern medical school, we must become much more concerned with the way in which they approach their study and the way in which we might influence their approach by the activities which we impose (Newble and Gordon, 1985).

2.1: INTRODUCTION

It was pointed out in Chapter 1 that this study will mainly explore the characteristics of learning approaches, the learning environment, and English language learning strategies in some of the medical schools in the Gulf Co-operation Countries (GCC). The present chapter represents the first chapter of literature review, which will cover approaches to study in higher education. The subject matter of this chapter will be presented in eight sections.

The next section discusses learning and learning theories. The third section reviews learning styles and approaches to learning in higher education. The fourth section presents the theories/models of learning style. The fifth section reviews research on learning styles and approaches to learning. The sixth section reports some of the factors that might influence learning styles and learning approaches. Section seven presents a model of teaching and learning process. Finally, section eight presents an overall conclusion.

2.2: LEARNING AND LEARNING THEORY

The term 'learning' has been defined as

> 1. Any more or less permanent change in behaviour as a result of experience. 2. A relatively permanent change in behaviour which occurs as a result of practice. 3. The process whereby knowledge is created though the transformation of experience. 4. The processes of transforming experience into knowledge, skills, and attitudes. 5. Memorizing information (Jarvis, 1990, p.196).

For Gage and Berliner (1979) learning has been defined as "the process whereby an organism changes its behavior as a result of experience" (p. 256). Another definition of learning has been suggested by Brown et al. (1997, p. 21) as "changes in knowledge, understanding, skills and attitudes brought about by experience and reflection upon that experience[1]". Recently, the Oxford Dictionary (1998) defined learning as "the acquisition of knowledge or skills through experience, practice, study, or by being taught" (p. 1048).

Based on the above definitions, it seems that there is no general agreement as to the definition of learning. Despite such diversity, the above definitions share two common terms: 'change' and 'experience'. The term 'change' is vague, which might cause confusion concerning its relationship to learning. In an attempt to clarify the term, Bower and Hilgard (1981) define learning as

> the change in a subject's behavior or behavior potential to a given situation brought about by the subject's repeated experiences in that situation, provided that the behavior change cannot be explained on the basis of the subject's native response tendencies, maturation, or temporary states (such as fatigue, drunkenness, drives, and so on) (p.11).

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[1] Brown et al. (1997) added that the "experience may be structured, as in courses and learning packages, or it may be unstructured as in browsing and casual learning from peers".

Again, this does not provide a clear-cut definition in terms of activities developed as a result of learning or as a result of maturation. However it has been argued that behaviours develop through a complex interaction of both maturation and learning (Hilgard, 1958).

The above definition, implicitly, implies that learning normally goes through a process (i.e. learning activity). So, learning can be viewed as a process and not as an end product. Learning theories provide possible explanations[2] of what happens during the learning process (Merriam and Caffarella, 1991). This leads us to explore how learning, as a process, has been perceived under different theories of learning.

Before discussing what is meant by learning theory, it is important to clarify what is meant by theory and the objective of theory. Schunk (1991, p. 3) stated that "*Theories* are scientifically acceptable sets of principles offered to explain phenomena...[They] generate new research through the formation of *hypotheses*, or assumptions that can be empirically tested". Based on this definition, theories in general terms could provide explanations for the subject under study. In other words, theories provide researchers with alternative views for examining the subject under investigation. This was observed by O'Brien (1993, p. 11) when he stated that "different theories bring different aspects of the world into view". He added:

> The role of theory is precisely to make things that were hidden visible, to define some pattern and give some meaning to the sort of observations that social researchers continually make when investigating society ...seeing the world in different ways is the essential and fundamental role of social research and the ability to see these differences and *to make sense of the different points of view that a researcher can take is the basic contribution that theory makes to the research process* (emphasis added).

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[2] Blaxter et al. (1996, p. 185) contended that "explanations are statements which make something intelligible, about why things are the way they are".

While the above objectives represent general ideas about theories' objectives within the research process, Hill (1977) noticed the importance of theories of learning.

> For most of us, the various learning theories have two chief values. One is in providing us with a vocabulary and a conceptual framework for interpreting the examples of learning that we observe. These are valuable for anyone who is alert to the world. The other, closely related, is in suggesting where to look for solutions to practical problems. The theories do not give us solutions, but they do direct our attention to those variables that are crucial in finding solutions (p.125).

Generally speaking, theories on any subject differ in their scope, structure, and how they are categorized. Moreover, there is little agreement among educational researchers on how many learning theories there are or how they should be classified (Hilgard, 1958; Merriam and Caffarella, 1991). For example, general categorization has been proposed by Hilgard (1958; see also Brown and Atkins, 1988). He classified learning theories into two major families: Behaviorism or stimulus-response, and Cognitive theories.

2.2.1: THE BEHAVIOURIST LEARNING THEORIES

Several theories have been classified under behaviourism. The main behaviourist theorists include Pavlov, Thorndike, and Skinner (Bower and Hilgard, 1981; Slavin, 1997).

Ivan Petrovitch Pavlov (1849-1936) is known mainly for his Classical Conditioning Theory. The central point of this theory is that if neutral stimuli are paired with unconditioned stimuli, the neutral stimuli become conditioned stimuli. This process is called classical conditioning (Pavlov, 1941). Pavlov showed how learning could influence the involuntary, reflexive behaviour. He explained the principles of discrimination and generalization. Discrimination stimuli is the ability to respond differently to similar stimuli (Gage and Berliner, 1979). This principle is considered an

important tool for teaching instruction and management. For example students need to know when their responses are incorrect as well as when they are correct, rewarding students for right answers but not providing them with feedback on wrong answers is not an effective feedback strategy (Getsie et al., 1985).

Generalization refers to the learner behaviour under particular circumstances that can be generalized to other situations, or in other words the learner makes the same response to stumuli that are not exactly similar. The generalization and discrimination occur together in the learning concept (Gage and Berliner, 1979; Slavin, 1997). However, the direct contribution of Pavlov's works to the educational context seems limited because he was better recognized for his experiments with animals (Cross, 1974).

Edward L. Thorndike (1874-1949) was one of the most influential learning theorists (Bower and Hilgard, 1981). The basis of his learning theory is the relation or association between stimuli in the environment and response (Sandiford, 1926; Thorndike, 1968). He is known for his three major laws or hypotheses of learning:

1. The law of effect which states that if behaviour is followed by a satisfying change in the environment, the chance that the behaviour will be repeated in a similar situation increases. In other words the association between stimuli and response is strengthened if it is followed by pleasant consequences. Otherwise the behaviour is weakened if it is followed by unpleasant consequences or punishment (Sandiford, 1926). This hypothesis of learning is an explanation of trial[3] and error learning. For example, in the case of trying to solve a problem, if the right solution is obtained after many attempts,

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[3] Trial is defined as the "length of time or number of errors involve in a single reaching of the goal" (Bower and Hilgard, 1981, p. 22).

subsequent repetition might stamp it in, while unsuccessful solutions might inhibit it (Cross, 1974).

2. The law of exercise implies that the connection between stimuli and response is strengthened by repetition and weakened by neglect. Supplemental to this law is the hypothesis that more regularly and more recently performed behaviours tend to be reproduced and strengthened. However, Thorndike (1949) noticed that the law of exercise suffers from weaknesses, because it appeared that practice without knowledge or results is relatively insignificant.

3. The law of readiness suggests that satisfaction and reward as opposed to frustration and annoyance rely upon the tendency of the learner to prepare for learning. The association between stimuli and response is strengthened or weakened according to the learner's mental preparation or readiness (Sandiford, 1926; Thorndike, 1968). He suggested five supplementary laws or hypotheses for learning. First, the learners must vary their responses to a learning situation, e.g. use different approaches for solving problems through 'trial and error learning' (or what is referred to later as 'learning by selecting and connecting') until they reach correct answers or succeed. Second, the attitude of learners is an important factor in determining learners' behaviours and successes in learning. Third, learners select the fundamental, relevant points of an argument and ignore irrelevant ones and/or select from a learning situation which suits their interest. Fourth, the learners' response to new information by using analogies or assimilation, relates it to the previous experience and recognises the shared factor between them. Finally, learners respond to a given stimuli, then by associative shifting transfer/apply it to entirely different stimuli (Sandiford, 1926; Hilgard, 1958; Thorndike, 1968; Cross, 1974).

B. F. Skinner, who followed in Thorndike's tradition, is considered to be one of the key figures in the behaviourist school of thought. His major contribution to learning theory consisted of proposing the concept of 'Operant Conditioning'. This concept suggests the use of consequences, whether pleasant or unpleasant, to shape or change/control the occurrence of behaviour. Pleasant consequences increase the occurrence of a behaviour or a response and are called reinforcers, while unpleasant consequences decrease it and are called punishers (Skinner, 1938; 1968). Reinforcers are categorised into primary and secondary. Primary reinforcers satisfy basic human needs, such as food, while secondary reinforcers acquire their value from association with other primary or other secondary reinforcers, such as academic grades. Reinforcers can be either positive or negative. A positive one is given to strengthen behaviour, e.g. rewarding, giving grades. A negative one is given to strengthen behaviour by providing release from unpleasant situations, e.g. by releasing students from doing an undesirable task (Skinner, 1971; Bower and Hilgard, 1981; Slavin, 1997). The use of punishers (or the consequences that are used to weaken the occurrence of undesired behaviour) causes controversy among behavioural learning theorists (Slavin, 1997). However, there is a consensus on the general criteria on when to use punishment, i. e. only when reinforcement for desired behaviour has been tried and failed. When it is necessary, it should take the mildest form of punishment, and that punishment should be used as a part of a careful plan and not as a result of frustration. When alternative desirable behaviour is available to the learner it should be used immediately after undesirable behaviour occurs (Gage and Berliner, 1979; Slavin, 1997).

Here, the terms 'necessary' and 'mild form' are unclear and undefined. What might be considered by one teacher as a mild form of punishment, might be considered a

strong form by another teacher. Other major contributions by Skinner to learning theories include the following concepts: extinction, immediacy of consequences and shaping.

The law of extinction suggests that "if the occurrence of an operant already strengthened through conditioning is not followed by the reinforcing stimulus, the strength is decreased" (Skinner, 1938, p.21).

Immediacy of Consequences: this principle states that the consequences that follow behaviour straight away or immediately thereafter have greater influence on behaviour than delayed consequences do. This concept has a great application in the classroom, for example, giving an immediate feedback such as praise for good work can be a stronger reinforcer than a grade given later (Slavin, 1997).

Finally, the Shaping principle: refers to the teaching of new skills or behaviours by reinforcing learners to perform the desired behaviour (Skinner, 1938; 1971; Gage and Berliner, 1979; Slavin, 1997).

Skinner (1971) argued that the absolute objective of education is to create behaviour that will protect the existence of the human species, societies, and individuals. The implication of such objectives on a teacher's role is to create an environment that encourages the desired behaviour toward the educational objectives and to discourage undesirable behaviour (Merriam and Caffarella, 1991).

A major outgrowth of the behavioural learning theory is the social learning theory. It emphasises learning through the observation of others. It focuses on the influence of cues in behaviour and on the internal mental process (Bandura, 1986). According to Bandura (1986), observational learning encompasses four phases: (1) the attention phase where individuals pay attention to a model; (2) the retention phase where

individuals get ready to model the behaviour and imitate it mentally; (3) the reproduction phase where individuals try to match their behaviours to the model's or to practise the actual performance of the observed behaviour, and (4) the motivational phase where individuals imitate the model because it will increase their chance to be a reinforcer.

One of the main principles of social learning theory is self-regulated learning (Pressley, 1995; Winne, 1995; Zimmerman, 1995). Bandura (1978) suggested that three general cognitive processes are required to regulate self learning. First, observe one's own performance in terms of quantity and quality. Second, judge and evaluate one's own performance against one's own personal standards. Third, provide self-determined consequences in terms of self-reinforcement or self-punishment.

Slavin (1997) proposed three similar cognitive process for teachers to adopt to promote students' self-regulated learning in the classroom: (1) encourage students to analyse tasks and to set appropriate goals by explaining what is required, and focusing on objectives of learning rather than on the pursuit of a good grade; (2) explicity support students' use of effective learning strategies; and (3) support students' monitoring of their learning by encouraging them to evaluate the effectiveness of strategies they use and to modify their approaches to learning if required, thereby helping students to judge the quality of their performance.

Behavioural learning theories have an important application in classroom management, motivation, discipline, and instruction. For example programmed instruction and mastery learning are examples of instructional methods that are based on such theories (Slavin, 1997, Merriam and Caffarella, 1991). However, the main limitation of this theory is that it focuses on overt or observed learning behaviour that

can be measured. Less effort has been placed on studying less visible behaviour, such as problem solving and thinking. In addition, behavioural psychologists view the learner as a passive recipient of reinforcement whose direct future behaviour is to meet the needs of the teacher (Patterson, 1977; Entwistle, 1990).

2.2.2: COGNITIVE LEARNING THEORY OR INFORMATION-PROCESSING THEORY

This theory focuses on the process, storage, and retrieval of knowledge from the mind (Gagne and Glaser, 1987). According to Gage and Berliner (1979) the essential point in the cognitive concept of learning is "that perceptions and cognitions result from the internal mental process of a person in interaction with ideas and phenomena presented by his environment" (p. 274).

Generally speaking, cognitive theorists view human memory as having three main components for processing information: sensory registers, short-term memory, and long-term memory (Bower and Hilgard, 1981; Lieberman, 1993; Slavin, 1997). The sequence of information processing in memory is as follows: First, stimuli (information) reach the individual senses (e.g. sight, smell, taste, touch, hearing) and then pass to sensory registers, remain for few seconds and if nothing happens, are very soon lost.

Second, the stimuli that an individual pays attention to are transferred from sensory registers to short-term memory (working memory). This component of memory can store information for a few seconds. The function of this component is to organize, store or discard, and then relate the incoming information to other information. Another channel that brings information to the working memory is long-term memory. The implication of using long-term memory in learning appears in recognition and rehearsal processes. The recognition process is where additional information stored in long-term memory can be retrieved, in an attempt to recognize particular stimuli, and then brought

into consciousness (working memory). The rehearsal process refers to the mental repetition of information for maintaining it longer in working memory. The longer information stays in working memory, the more the likelihood of its being transferred to long-term memory. For this, the teacher should be aware of not presenting too much information too rapidly, and should provide time for students to rehearse the new information during class lessons (Lieberman, 1993; Slavin, 1997).

Third, the information is passed into long-term memory, which has a large capacity for storage of information over long periods of time. It encompasses three parts: episodic, semantic and procedual memory (Squire et al., 1993). The Episodic memory stores personal experiences, and past events; the Semantic memory stores known facts and information, concepts, the individual's problem-solving skills and learning strategies (Ericson and Kintsch, 1995; Squire et al. 1993); Semantic memory organizes the information in networks of connected ideas or relationships, called schemata which enable an individual to understand new information (Voss and Wiley, 1995).

New information that fits into an existing schema is more easily understood and retained than information which does not (Anderson and Bower, 1973). One important dimension of schema theory is that meaningful learning needs the active involvement of the learner, who has prior experience and knowledge, to achieve understanding and digest the new information (Alexander, 1992). Procedural memory stores information about how to do things.

The main principle of the cognitive learning theory includes closure and figure-ground relationship. Closure refers to the tendency of an individual's mind to organize perceptions in order to give them sense and keep them simple. Figure-ground

relationship refers to "perceiving selected parts of a stimulus to stand out (figure) from other parts (background)" (Slavin, 1997, p. 179). Another important concept in cognitive learning theory is rote and meaningful learning. Ausubel (1978) distinguished between rote and meaningful learning. Rote learning refers to the memorization of factual knowledge or associations that cannot be linked to pre-existing knowledge, such as the vocabulary of a foreign language. Meaningful learning refers to the mental processing of new knowledge and the linkage to previously learned knowledge. This implies that many problems in our actual life emerge not from lack of knowledge but from an inappropriate use of knowledge. Rote learning is stored in episodic long-term memory (Entwistle, 1981), while meaningful knowledge is stored in long-term memory in the form of a connected network or schemata (Slavin, 1997). Recalling such meaningful information from long-term memory is achieved by different strategies; among the important ones are the advance organizer, elaboration, and analogies approaches.

The advance organizer approach refers to activites that orient learners to the information about learning in order to help them recall relevant knowledge that could be used to incorporate the new information (Ausubel and Youssef, 1963). Using this approach helps students to activate prior knowledge, comprehend, recall and remember the information they are exposed to. It has been shown that students are more capable of recalling meaningful information if a delay between the organizer and presentation of new information is planned to allow them to rehearse the information (Glover et al., 1990).

Elaboration refers to connecting new information to that already existing in the learner's mind. It is an important concept used to help students comprehend their

learning material. Finally, analogies refer to relating new concepts or information to the ones learners already know (Vosniadou and Schommer, 1988). The instructional approach analogies help the transfer of abstract information from the well-known domain of knowledge to the less known domain (Zook and Di Vesta, 1991). In addition it eases the exchange of knowledge and thought by providing common or familiar terminology (Halpern et al., 1990). It also facilitates deeper understanding if used effectively, for example if the similarities and differences between common everyday experiences and the abstract facts are learned or noted (Entwistle, 1993). Ways of using analogies are different from one discipline to the other. It also differs by students using different learning styles, e.g. comprehension learners tend to be more ready to use analogies than operation learners (Entwistle, 1993).

Entwistle (1993) related three types of thinking to the components of memory: associative or level I thinking refers to the superficial approach of memorizing or rote learning. Analytical or level II thinking refers to the "use of closely related areas of semantic LTM [long term memory], with controlled and narrowly focussed search strategies" (P.159). Imaginative or level III thinking refers to the use of scattered related areas, in semantic long-term memory, with wide ranging and easily searched strategies. It is considered a higher level of thinking that requires a combination of any or all of the lower level skills in order to meet the required outcome.

Another important dimension of cognitive learning theories is the focus on two strands. The first is the influence of personality and motivation on learning. The second focuses on individual skills, strategies, styles, and approaches to study (Brown and Atkins, 1988). Some examples of such research are: the 'clinical' research undertaken by Marton and his colleagues in Sweden (Marton and Saljo, 1976a; 1976b), the

experimental work conducted by Pask in the United Kingdom (1976a; 1976b), and the survey and interviews conducted by Entwistle and his colleagues in the UK (Entwistle, 1981; Entwistle and Ramsden, 1983).

The previous section described both the definition of learning and the major families of learning theories. However, recent researchers such as Entwistle (1997) reported that learning concepts have been viewed differently by two main streams of research: psychological and educational[4]. Accordingly, different theories of learning stem from these two types. The differences are summarized in Table 2.1.

TABLE 2.1: DIFFERENCES BETWEEN PSYCHOLOGICAL AND EDUCATIONAL RESEARCH

Cognitive psychology research	Educational research
1- The main focus is on the process and mechanisms which are considered common to all learners	1- The main focus is on individual differences of learners
2- Focuses on observable behaviour and has little interest in the experiential aspect of human cognition	2- Focuses on observable behaviour and pays more attention to the experiential aspect of human cognition
3- The interested human cognition can be quantified in terms of specific experimental procedures which make it difficult to relate to practical and everyday situations	3- General field of education would have a direct application on exploring learning in higher education, however, in recent years there is a growing body of researchers that call for independent studies specifically designed for higher education which have their own method and procedure
4- In the experimental model, the researcher has the ability to control the parameters of the testing situation, and as a consequence can control the cognitive process of learning	4- Gives less attention to the manipulation and control of parameters but pays more attention to the learning activities that are initiated by learners themselves

(Source: Richardson, 1987)

Entwistle (1997) claimed that psychological research on learning is conducted mainly at laboratories and uses artificial or simple learning materials. Therefore, applying theories which emerge from such research directly to the classroom setting cannot be successful. On the other hand, educational research on learning depends

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[4] For Entwistle (1997, p.3) educational research is viewed as a "careful, systematic attempt at achieving a better understanding of the educational process, with the aim of improving its effectiveness" and that the task of the educationalist is to "describe more clearly how learning takes place in higher education".

mainly on comments from both teachers and students on their common experiences within everyday learning activities. He reported that educational research has provided a valuable contribution to the understanding of the factors associated with student learning (as will be discussed later in the chapter).

The behavioural theory of learning focuses on observed behaviour that can be measured and on the role of reinforcement in the learning process. Cognitive theory emphasises how students acquire the perception, cognition and understanding dimensions of the learning process. Despite such differences, the social learning theory helps to bridge the gap between behavioural and cognitive learning theories. In addition, the new strand of learning theories focuses on learning styles and approaches to study. This will be discussed next.

2.3: LEARNING STYLE AND APPROACHES TO LEARNING IN HIGHER EDUCATION

The goal of learning in higher education is to emphasise the importance of understanding and meaning rather than just recognition and reproduction in student learning (McKeachie, 1997). Therefore, in order to achieve such a goal, it is important to understand how students approach their learning and their learning styles.

The terms learning approach, learning strategy, cognitive style and learning style have been viewed differently by different researchers. For example, learning approach and learning strategy have been used interchangeably by researchers, such as Entwistle and Ramsden (1983). While the terms cognitive style and learning style have been used interchangeably by Schmeck (1983). Learning style is viewed as "a

broader characterisation of a student's preferred way of tackling learning tasks generally" (Entwistle et al., 1979, p.368).

For Entwistle (1987) learning style is relatively stable and considered as being part of cognitive style and personality. While learning strategy is viewed as "a description of the way a student chooses to tackle a specific learning task in the light of its perceived demands" (Entwistle et al., 1979, p.368). Biggs (1988) used the term learning styles to refer to a "stable way of approaching tasks that are characteristics of individuals" while strategies refer to the "way of handling particular tasks" (p.185). Schmeck (1983, p. 234) defined learning strategy (or approach) as "a pattern of information-processing activities used to prepare for an anticipated test of memory"[5], and he presented learning style as "a predisposition to display a particular pattern of information-processing activities when preparing for a test of memory" or in other words "a predisposition to favor a particular strategy." This learning style from Schmeck's point of view is modifiable. Despite differences in the stability of learning style, both Schmeck and Entwistle are in agreement with regard to their views that students' approaches to learning are characterised by both consistency and variability.

The above variations in defining learning style can be traced back to the different theoretical background underpinning each definition.

2.4: THEORIES/MODELS OF LEARNING STYLE

There are more than twenty different theoretical frameworks for explaining student learning styles (Moran, 1991). However, no single theory has dominated over

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[5] Schmeck (1983, p.234) viewed memory as "a by-product of thinking: traces left behind by past information processing".

the others (Bonham, 1988). These different models appear to result from: (1) different research methodologies, for example, laboratory, interview or questionnaire; and (2) different definitions of learning styles. This issue was highlighted by Moran (1991) who contended that the researchers in the learning styles field are faced with certain difficulties. He stated that

> there is growing concern among learning styles researchers about such difficulties as the loose and inconsistent terminology found in their field, the proliferation of tests whose construct validity is questionable and the doubtful status of the 'matching hypothesis'(p.242).

Despite the existence of a diversity of learning style theories, an attempt has been made by Curry (1983) to coordinate or classify different theories of learning styles. She classified models of learning styles into a typology of learning styles. This typology consisted of three layers of learning style theories. The extent to which learning style is viewed as stable or variable in different learning contexts dictates its location in the model. The inner layer of this model is the 'cognitive personality style' which is the essential personality dimension of the learner. Theories in this layer reflect the view that learning style is a fixed or stable characteristic. It does not change in response to variables in the surrounding environment. The middle layer reflects the 'information processing style' which focuses on the learner's preferred way of grasping and assimilating information. Theories in this layer reflect the view that learning style is relatively stable and can be modified in response to the learning context. The outer layer reflects the 'instructional preferences' dimension which focuses on the learner's preference for a particular learning environment. Theories in this layer reflect the view that learning style can be influenced by external factors.

Newble and Entwistle (1986) argued that research into learning approaches are derived mainly from: (1) cognitive and psychometric psychology that is established in

the North American literature, and (2) research undertaken within the everyday learning environment that is established in Europe and Australia with important contributions from America. Consequently different models of learning styles and approaches to learning have originated. An example of the psychological research model is Kolb's (1985) Learning Style Inventory model, while that of the educational research model is Entwistle's Approach to Learning model. The justification for selecting these two models relates to the availability of operationalized instruments/inventories for both models. Such inventories have been widely utilized in higher education research in general and in undergraduate medical education in particular. In addition, they have been applied in different cultures (Clarke, 1986; Harper and Kember, 1989; Newstead, 1992; Matthews and Hamby, 1995; Fogarty and Taylor, 1997; Desai and Taylor, 1998).

2.4.1: KOLB'S LEARNING STYLE MODEL

One of the most widely used models in higher education research is the Experiential learning model (Fung et al., 1993; Matthews and Hamby, 1995) developed by Kolb (1984). This model suggests that knowledge arises from the association of two dimensions: grasping information and transforming it. An individual might "grasp information either through direct 'here-and-now' experiences or through abstract, conceptual representations. On the other hand, learners may transform the information they have grasped through reflective thinking, or through active experimentation or application of the information" (Fung et al., 1993, p.13).

Based on these two dimensions, Kolb (1984) viewed the learning process as a four-stage cycle through which a learner attempts to grasp and transform information. It involves four different learning modes:

Concrete experience (CE)- where the focus is non engaged in experiences and issues are dealt with in a personal manner. It highlights feeling as opposed to thinking, interest in uniqueness of present reality as opposed to theories and generalization.

Reflective observation (RO)- where the focus is on understanding the meaning of ideas through careful observation and description. It highlights understanding as opposed to practical use, interest in what is true or how things occur as opposed to what will occur.

Abstract conceptualisation (AC)- where the focus is on using logic, ideas and concepts. It highlights thinking as opposed to feeling, interest in constructing broad theories as opposed to intuitively understanding the uniqueness.

Active experimentation (AE)- where the focus is on actively influencing individuals who have an effect on their environment and changing situations. It highlights practical use as opposed to reflective understanding, interest in action as opposed to observing. In addition, Kolb (1984) identified four different learning styles that correspond to the learning modes:

Convergers- who prefer to learn through abstract conceptualization and active experimentation. They work better with problems using data and where there is only one correct answer to a problem. They are less concerned with people and more concerned with abstract concepts.

Divergers- who prefer learning through concrete experience and reflective observation. They are the opposite of convergers. Their strength appears to be in their capacity for imagination. They are good at generating ideas and see concrete problems from different dimensions, and they tend to be people oriented.

Assimilators- who prefer learning through reflective observations and abstract conceptualization. They are good at creating theoretical models, they like to assimilate different things into an integrated whole. As with convergers, assimilators are less concerned with people and more concerned with abstract ideas and concepts.

Accommodators- who prefer learning through active experimentation and concrete experience. They are task oriented. They focus on doing things and having new experiences, and they tend to rely on people for information instead of their analytic ability to collect information (Kolb, 1984) (Figure 2.1: Kolb's Learning Style Model).

According to Kolb, a learning style is characterized by the extent to which the learner emphasizes abstractness over concreteness and action over reflection in the learning circumstances. Kolb's learning style inventory was developed to measure the extent to which a learner shows one of the four learning styles mentioned above. This instrument consists of a twelve item questionnaire. Each item requires the respondents to rank-order four statement endings that match the four learning modes:(CE) characterized by the word 'feeling'; (RO) by the word 'watching'; (AC) by the word 'thinking'; and (AE) by the word 'doing'. The instrument measures the learner's tendency towards the four learning orientations and two combination scores that reflect the degree to which the learner emphasises abstractness over concreteness (AC-CE) and the degree to which the learner emphasises action over reflection (AE-RO) (Kolb, 1984; Sims et al., 1989; De Bello, 1990; Matthews and Hamby, 1995).

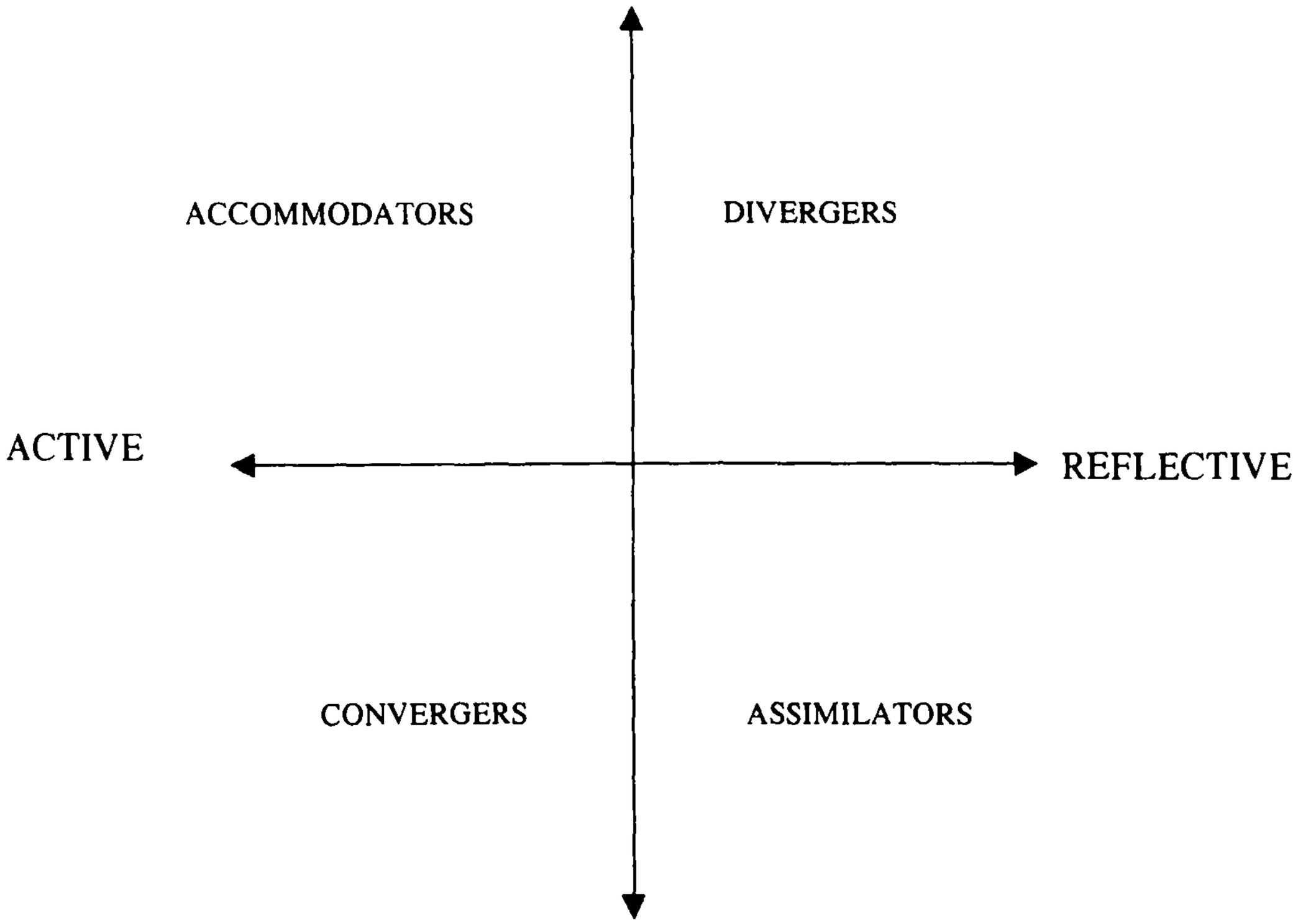

Figure 2.1: KOLB'S LEARNING STYLES

2.4.2: ENTWISTLE'S APPROACHES TO LEARNING MODEL

Based on their studies at Lancaster University, Entwistle and his colleagues (Entwistle, 1981; Entwistle and Ramsden, 1983; Newble and Entwistle, 1986; Entwistle, 1987) developed the Approaches to Learning Model. Three main approaches to learning are identified in this model (Figure 2.2): surface, deep, and

strategic. It is based on the students' motivation, intention, and learning processes used in their studies.

(1) Surface approach

Students who use a surface approach in their studies are mainly motivated by a desire to complete the course or by a fear of failure. During their studies, students' main intentions are to fulfil the subject/course requirements through memorization of information and then reproduce such information in the assessments or examinations.

The main learning process used by students adopting this approach is a rote learning process in which they focus on memorization of information in an isolated manner from the subject/content. Students can be divided further into active or passive, according to the extent of the effort they put into their studies.

Surface active students who put in considerable effort and devote considerable time to their studies are likely to build up a knowledge of factual information but with a superficial level of understanding. Such students might produce 'quite' successful results based on the assessment type required of them. In contrast, surface passive students who put in little effort and show a lack of interest in their studies are likely to build little knowledge with an absence of understanding of the subject. Such students are unlikely to be successful (Newble and Entwistle, 1986; Entwistle, 1987; Newble et al., 1988).

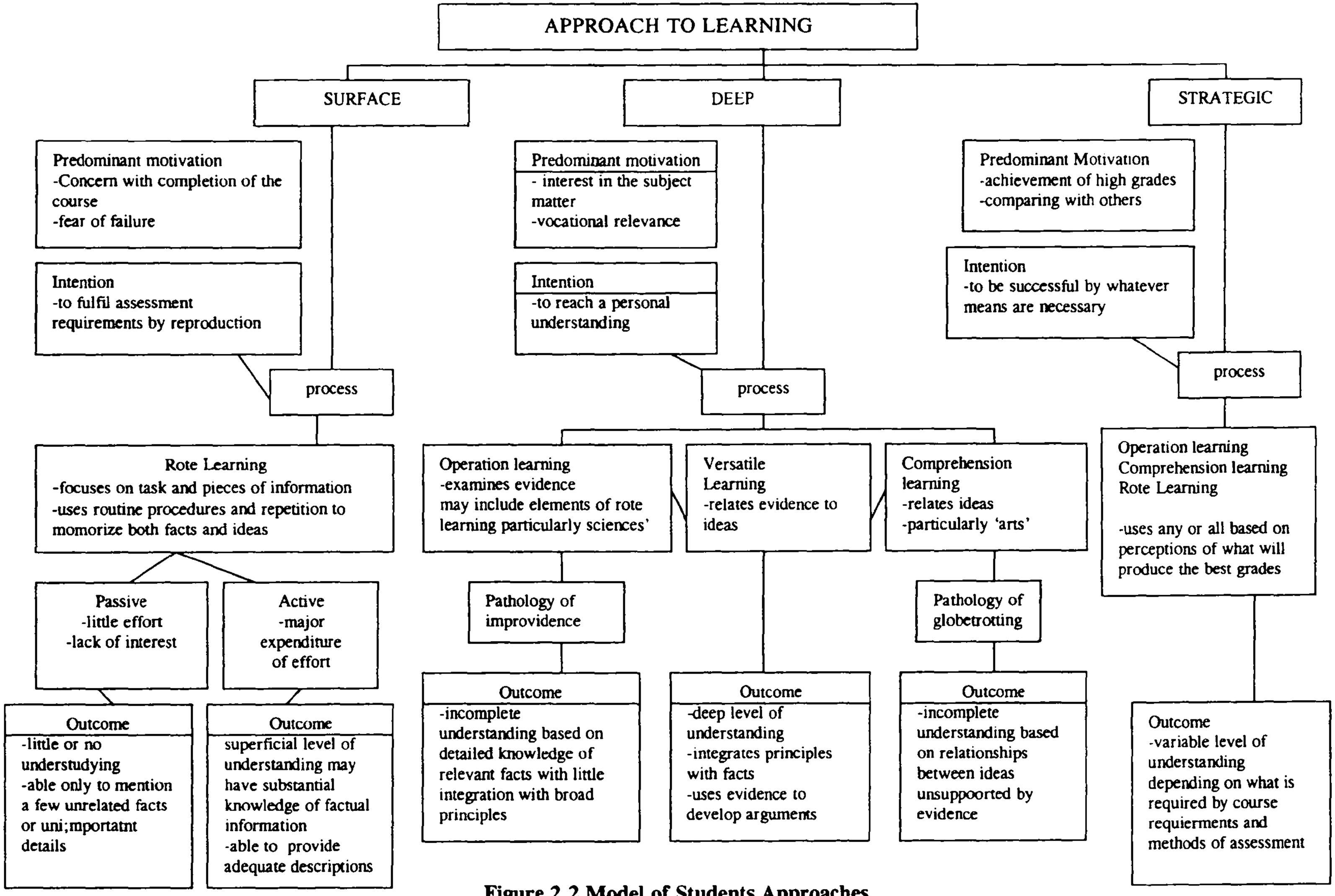

Figure 2.2 Model of Students Approaches
Source: Newble and Entwistle, 1986

(2) Deep approach

Students who used a deep approach in their studies are mainly motivated by an interest in the subject material or by its vocational relevance. Their main intentions are to understand the subject and to relate the new knowledge to previous information.

The key learning processes used by students adopting this approach can be classified into three groups:

(a) the operation learning process where students tend to use a logical step-by-step approach and gather evidence before making or accepting a generalization. In addition, these students might rely on rote learning when faced with the pressure to complete the tasks within a certain time frame.

(b) the comprehension learning process where students tend to adopt a 'broad focus' and focus on outlining the main idea and relate it to the previous one. Moreover, they tend to use an analogies approach.

(c) the versatile learning process where students are able to use both approaches. This process is considered an 'appropriate' use of operation or comprehension learning.

Newble and Entwistle (1986, p.168) feel that students adopting this process "have probably achieved a way of learning which is the one expected of university graduates". In addition, they call inappropriate over-use of either the operation or comprehension learning process a learning pathology. For example, "students who exclusively use operation learning without developing useful interrelationships between ideas are said to show improvidence" (p.168). While those students who definitely utilize comprehension learning, and are prepared to admit generalizations without searching for supportive evidence, are said to be "globetrotting" (Newble and Entwistle, 1986; Entwistle, 1987; Newble et al., 1988).

(3) Strategic approach

The predominant motivation for students adopting this approach is to succeed and achieve high grades in the subject/course or to compete with other students. These students use different strategies which they feel will maximise their chances of success. Although these students might use a more versatile learning process in their studies, they tend to do so to ensure only high grades in their subject and not a high level of understanding. Accordingly this might yield different levels of understanding depending on the course requirement and the type of assessment (Newble and Entwistle, 1986; Entwistle, 1987; Newble et al., 1988).

2.5: RESEARCH ON LEARNING STYLES AND APPROACHES TO LEARNING

One of the earliest studies in this field was a series of experiments by Marton and Saljo (1976a; 1976b) within Swedish universities which explored how students tackle reading academic articles. Students were interviewed and encouraged to discuss what they remembered about the content of the article, the process used in reading such an article, how they found the task, and their usual approach to studying a text. They found that different students learn different things from the same learning material, in other words there is a difference in the quality of students' learning outcome. They categorized these learning outcomes into two general types: conclusion-oriented and description-oriented. These were found to be related to the approaches to study adopted by students. Such approaches were described, initially, in terms of deep-level and surface-level processing, but later, renamed as 'approaches to learning' (Marton and Saljo, 1997) to indicate that 'approach' involves process as well

as intention. The deep approach involves an active attempt to understand the overall meaning, explain the evidence and relate it to the conclusion. The surface approach involves an attempt to memorize unrelated facts or ideas. Moreover, they identified differences between students' intentions to study and the learning process they use. For example, description-oriented outcome resulted when the student used surface-level processing and the intention was to memorize. Here, according to Marton and Saljo (1976a, p.7), the student "directs his attention towards learning the text itself (the sign), i.e., he has a 'reproductive' conception of learning which means that he is more or less forced to keep to a rote-learning strategy".

Alternatively, conclusion-oriented outcomes resulted when the student used deep-level processing and the intention was to understand. Here, the student is "directed towards the intentional content of the learning material (what is signified), i.e., he is directed towards comprehending what the author wants to say about, for instance, a certain scientific problem or principle" (Marton and Saljo, 1976a, p. 7). Students with the former outcome view themselves as empty vessels that need to be filled with information from the textbook. While those with the latter outcome view themselves as creators of knowledge who can think critically and reach logical conclusions (Marton and Saljo, 1997). Marton and Saljo (1997) concluded that students who miss 'the point' failed to do so basically, because they were not looking for it or were not paying attention to it.

Svensson (1977) used the term cognitive approach rather than the level of processing used by Marton and Saljo (1976a) to describe the way students tackle their studies. The reason for the different terminology was to "avoid a distinction between

outcome and process"[6] (Svensson, 1977). The cognitive approach includes a holistic and atomistic approach (a parallel to deep and surface levels of processing). Svensson used the same methodology as Marton and Saljo (1976a). He collected data from interviews using a sample of 30 first year education students after their participation in reading an academic text without time limits. The students were given the questions immediately and again after several weeks of reading their articles. He identified students as either using a holistic approach, if they attempted to understand the overall meaning of the information, looked for the author's intention, related the information to a wider context and/or recognized the key points of the author's argument and supporting evidence. While those who used an atomistic approach tended to focus "on the parts of the text in sequence (rather than on the more important parts), memorising details and direct information indicating a lack of orientation towards the message as a whole".

Fransson (1977) identified the same two levels of processing (i.e., deep-level and surface-level processing) as did Marton and Saljo (1976a). In addition, two levels of attention were identified. The students' approach to learning was categorised as follows: (1) deep-level processing, high level of attention where students attempt to understand the given information in great detail; (2) deep-level processing, low level of attention where students try to build up a general picture of the given information so that they refer to it more easily when needed; (3) surface-level processing, high level of attention where students attempt to press the given information into their

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[6] According to Entwistle et al. (1979, p.367) "Marton's description of deep-level processing, however, covers both intention and process, which may lead to confusion. We (referring to Entwistle and his colleagues) therefore prefer to use the term approach in referring to this construct".

mind; and (4) surface-level processing, low level of attention where students put only a little effort into memorising information.

Pask (1976b) found a number of differences between students adopting two different types of learning strategy: holist and serialist. He used the term learning strategy to describe the different ways in which students tackled a problem solving task. For example, those who used a holist strategy tended to: look for a global description of subjects; ask questions regarding wider relations; use analogies and illustrations to achieve an overall description; and create a general hypothesis. Students who used a serialist strategy tended to: look for a description of the subjects which they could build into an 'explanatory model'; focus on the details; work step by step; ask questions regarding narrower relations and create specific hypotheses. He used the term learning style to refer to the preferred strategies that students would use first. Three modes of learning styles were identified:

(1) comprehension learning in which students prefer to adopt a holist learning strategy with a focus on broad description building operations. They tend to describe the relationship between subjects.

(2) operation learning in which students prefer to adopt a serialist learning strategy with a focus on procedure building operations i.e., to build up meaning from details.

(3) versatile learning where students can use both modes of learning that appear to be appropriate for the task required.

In addition two pathologies that result from overuse or ineffective use of both comprehension and operation learning were identified: globetrotting and improvidence (Pask, 1976b). Globetrotting results from the extreme use of comprehension learning where students tend to look for interrelationships and over-generalize without

providing supportive evidence. While improvidence results from extreme use of operation learning where students tend to use irrelevant analogy. He also argued that students tend to learn faster and tend to retain the information for longer if the teaching strategy matches their learning style. On the other hand, if there is a mismatch between teaching strategies and students' learning styles, students tend to fail to comprehend the key principles involved.

Biggs (1978), in his original work, identified three types of study process: utilising, internalising, and achieving. For the purpose of avoiding confusion, it is important to mention that these three study processes have been renamed later as surface, deep, and achieving approaches. The reason for such renaming, according to Biggs (1985), is "to bring them into line with usage by other writers". The term approach is used to refer to the "learning processes that emerge from students' perceptions of the academic task, as influenced by their personal characteristics" (Biggs, 1988, p.185). Each study process (approach) has its distinctive cognitive strategy and motivational components. The surface approach involves a fact-rote cognitive strategy and an extrinsic (instrumental), fear of failure motivational component. The deep approach involves meaning assimilation strategy and intrinsic motivation. Finally, the achieving approach involves study skills and organisation strategies and the motivation is the need for achievement (Biggs, 1979; 1985; 1993).

At about the same time Entwistle and his colleagues (Entwistle et al., 1979) and (Entwistle and Ramsden, 1983) in the United Kingdom started exploring the ways students approached their learning in different educational institutions and in different departments. Their work was based on the work of Marton (Marton and Saljo, 1976a;1976b) (deep and surface approaches to learning); Pask (1976a; 1976b)

(operation and comprehension learning styles); and Biggs (1978) at Gothenburg; Richmond, London; and Newcastle, Australia respectively.

However, they criticized the research methodology used in the Swedish Universities by Marton and his colleagues for demanding more time and relying on a limited sample size. Moreover, they argued that first-year students in the United Kingdom "would be more used to making written, rather than oral, responses to questions" (Entwistle and Ramsden, 1983, p.84). Entwistle and his colleagues developed a self-reporting inventory to explore the approaches students adopted to tackle their study. They identified three main orientations to studying: 'meaning', 'reproducing', and 'achieving'. They used the term 'orientation' instead of style to indicate 'style-like consistency' of approach, because they viewed consistency in approach as mostly the result of students' perceptions of the situation, mediated by their motives (Entwistle, 1988). Each orientation has both an approach and a style, which is relatively stable across different tasks. These orientations are also associated with motivation (Entwistle and Kozeki, 1985) as represented in Table 2.2.

TABLE 2.2: SUB-SCALES OF APPROACHES TO STUDYING

Orientation	Approach or Style	Motivation
Meaning	Deep Approach Holist Style	Intrinsic
Reproducing	Surface Approach Serialist Style	Fear of Failure or Instrumental
Achieving	Strategic Approach Conscientiousness	Hope for Success

(Source: adopted from Entwistle and Ramsden, 1983, p.42).

The deep approach involves the intention to understand; the surface approach involves reproducing what is perceived to be important, while the strategic approach involves the intention to maximize grades through putting in some effort such as time management. A summary of the features of these approaches is presented in table 2.3.

TABLE 2.3: DEFINING FEATURES OF APPROACHES TO LEARNING

Deep Approach
- Intention to understand
- Vigorous interaction with content
- Relate new ideas to previous knowledge — Comprehension learning
- Relate concepts to everyday experience — Comprehension learning
- Relate evidence to conclusions — Operation learning
- Examine the logic of the argument — Operation learning

Surface Approach
- Intention to complete task requirements
- Memorize information needed for assessments
- Failure to distinguish principles from examples
- Treat task as an external imposition
- Focus on discrete elements without integration
- Unreflectiveness about purpose or strategies

Strategic Approach
- Intention to obtain highest possible grades
- Organize time and distribute effort to greatest effect
- Ensure conditions and materials for studying appropriate
- Use previous exam papers to predict questions
- Be alert to cues about marking schemes

(Source: Entwistle, 1987, p.16)

In summary, the studies revealed three main approaches- deep, surface, and achieving. Table 2.4 summarizes the terminology used in describing the learning styles/strategies.

TABLE 2.4: DIFFERENT TERMINOLOGY USED TO DESCRIBE LEARNING STYLES

Country	Sweden	Sweden	Britain	Australia	Britain
Author	Marton and Saljo(1976a; 1976b)	Svensson (1977)	Pask (1976a;1976b)	Biggs (1978)	Entwistle (1981) and Entwistle and Ramsden (1983)
Terms used	*Deep-level processing *Surface-level processing	*Holist approach *Atomistic approach	*Holist *Serialist *Versatile	*Surface *Deep *Acheiving	*Meaning (deep) *Reproducing (surface) *Achieving (strategic)
Research Methods	Experimental series	Experimental series	Experimental series	Self-report questionnaire	Self-report inventory

2.5.1: LEARNING APPROACHES AND ACADEMIC PERFORMANCE

> No convincing evidence has emerged that graduates from innovative schools are superior to or even different from those from traditional schools. This is hardly surprising, because comparative studies have been few and far between and have usually used criteria and methods which are inappropriate, such as performance on national licensing examinations. The use of the students' approach to learning as a criterion provides a new dimension on which a comparison could be made (Newble and Clarke, 1987, p. 40).

This implies that a student's approach to learning might be related to academic performance, for example, in terms of level of understanding (Pask, 1976b); end-of-year course grade (Davies et al., 1997); or grade-point average (GPA) (Leiden et al., 1990).

The relationship between approaches to study and level of understanding has been investigated by Pask (1976b). The author found that both types of learning styles, namely description building operation (comprehension) and procedure building operation (operation) are necessary for the full understanding of any subject. This is because "extreme holists tend to overgeneralise, to leap to unwarranted conclusions and offer visions that may not be attainable. Extreme serialists can become obsessed with fine detail or with finely detailed plans that never come to fruition" (Brown et al., 1997).

Pask (1976b) found that students who obtained high grades in their examinations tended to use a versatile learning style. Students who achieved a high level of understanding were found to use both serialist and holist strategies. Svensson (1977) concluded that students who adopted a holistic (deep) approach during their studies tended to be more successful in passing examinations than those using an atomistic (surface) approach. Entwistle et al. (1979) found that the more successful

students tended to use well organised methods in their study, have high motivation, and positive attitudes towards the subject.

Brown et al. (1997) related academic outcome to students' orientation to learning. They concluded that students in an academic context could be classified as having one of the following orientations to learning: (1) Knowledge-seeking orientation, in which a student attempts to look for facts and information; and (2) Understanding-seeking orientation, in which a student attempts to look for personal meaning in what they are studying. The features of these orientations are presented in Table 2.5.

TABLE 2.5: ORIENTATIONS TO LEARNING

Knowledge Seeker

Stores facts, concepts, and so on.
Collects skills, procedures.
Breaks down problems and tasks into separate sub-units.
Makes links within units of knowledge.
Uses memorisation skills.
Works methodically through a logical order of task problem.
Analyses.
Uses systematic trial and error.

Understanding Seeker

Tries to relate information or task to own experience.
Makes links to other bodies of knowledge.
Restructures for personal meaning.
Synthesises.
Likes to work from the 'whole' picture.
Searches for underlying structure, purpose and meaning.
Intuitive use of evidence.
Uses analogies, metaphors.

(Source: adopted from Brown et al. 1997, p.24).

Knowledge seekers tend to produce superficial learning while understanding seekers tend to produce deeper learning. However, both orientations are necessary and students should be encouraged to develop both orientations since the nature of a subject and task might determine or influence the type of orientation that the student will need to rely on (Brown and Atkins, 1988; Brown et al., 1997). Accordingly,

Brown and Atkins (1988) viewed learning as a "continuous process of development backwards and forwards between the two orientations".

Entwistle and Entwistle (1991) emphasized the relationship between deep approach and understanding. They claimed that the ways in which students develop their understanding are in line with the components found to characterise a deep approach to learning. These ways are: (1) an active engagement with the subject or topic, (2) relating the new information to previous knowledge or personal experience, (3) working out a structure in order to make sense of difficult material by e.g., reflecting on notes from a previous year. In addition, they identified five forms of understanding. These forms are presented in Table 2.6.

Table 2.6: Forms of understanding

A. Reproducing content for lecture notes without a clear structure.
B. Reproducing content and logical framework for lecture notes.
C. Using own structure for individual topics, mainly from lecture notes.
D. Adjusting structures from strategic reading to meet exam requirements.
E. Developing an individual conception of the discipline from wide reading.

(Source: adopted from Entwistle and Entwistle, 1991).

Students involved in deep information processing not only enhanced their level of understanding (Marton and Saljo, 1976a) but also their accurate recall of facts, more so than those who relied on superficial understanding (Onion and Slade, 1995).

In Australia, Biggs (1978) suggested that students' academic performance is affected indirectly by personality and environmental factors. Such indirect relationships, between academic performance and both personality and environmental factors, are mediated by values and attitudes. He believed that values dictate the students' reasons/motives behind their study. Moreover, such motives are believed to influence the type of strategies the student adopts. According to Biggs (1988), there are three types of motivation: instrumental or extrinsic which stems from fear of

failure and a desire to gain qualification; intrinsic which stems from interest in a subject; and achievement which stems from the desire to achieve a high grade.

Davies et al. (1995; 1997) examined the impact of learning styles on first-year medical students' academic performance in basic science courses, in terms of course grade and interviewing skills, at Eastern Virginia Medical School in Norfolk, Virginia. Kolb's Learning Style Inventory was used to determine the students' learning styles. They found that students have different learning styles, which have significant effect on their success in pre-medical courses. For example, significant differences in performances in interviewing and basic sciences occurred between accomodators' and convergers' learning style. Students who did very well in interviewing (based on subjective test-interview with simulated patients) were the accomodators who seemed to learn best through engaging in activities and interacting with students or patients. However, such accomodators were found to have difficulties in the basic science courses, which were taught through lectures and evaluated by utilizing objective tests. Convergers found the most difficulty with interviewing because they favour dealing with technical problems instead of social or interpersonal topics. Such students were found to have greater success in basic science courses. In addition, it was found that both divergers and assimilators tended to use reflective observation that helped them to understand topics from different perspectives/angles.

Watkins and Hattie (1981) investigated the level of processing of Australian university students and their academic performance, in terms of their grade-point average. They found that students who were successful in science departments tended to use more deep-level approaches.

Arnold and Feighny (1995) investigated the relationship between medical students' learning approaches and their academic performance, in terms of their cumulative grade-point average, in a six-year baccalaureate-MD degree program at the University of Missouri-Kansas City of School of Medicine. A short form of the Lancaster Approaches to Studying Inventory was used. They found that students who reported high scores on achievement motivation but low on reproducing orientation and globetrotting obtained higher grade-point averages in first, second and fourth years than did their counterparts who reported low scores on achievement motivation and high on reproducing orientation and globettroting. This study implies that the learning approaches of medical students could be used as a determinant of their performances in medical school.

In a contradiction of this finding, Clarke (1986) investigated medical students' approach to study and their academic performance, in terms of the end-of-year assessment of Australian medical students. The Approach to Study Inventory (ASI) was used. The author found no significant correlation between students' score on the ASI and their academic performance.

Leiden et al. (1990) investigated the relationship between learning approaches of medical students at the University of Nevada and their academic performance. They used two inventories to assess learning styles, namely, a version of the Inventory of Learning Processes (ILP) and the Lancaster Approaches to Studying Inventory (LASI). Two academic performance indicators were used, the medical school GPA and the National Board of Medical Examination. They found no significant positive correlation between the scores on learning style inventories and academic performance.

Fogarty and Taylor (1997) investigated the approaches to study of mature-age students, using the short form of the Approaches to Study Inventory (ASI). They concluded that deep orientation was not related to success in academic performance, in terms of grades obtained on mathematical courses. However high scores on surface orientation was found to be related to poor academic performance. Provost and Bond (1997) used Richardson's short form of Approaches to Studying Inventory (ASI) to investigate undergraduate psychology students' learning approaches and their academic performance. The academic performance was based on five forms of assessment: 3 tests, an essay, and a project. They found no relationship between scores on meaning orientation and academic performance. However, a small negative relationship was found between reproducing orientation and academic performance.

2.5.2: MOTIVATION AND APPROACHES TO LEARNING

Fransson (1977) looked at different types of motivation (extrinsic and intrinsic) on students' learning approaches. He felt intrinsic motivation to be "a state where the relevance for the learner of the content of the learning material is the main reason for learning". While extrinsic motivation for learning was "a state where the reasons for the learning effort have nothing to do with the content of the learning material". His student sample was recruited from two departments, education and sociology. He chose learning material for one group for whom it was considered to have an intrinsic motivation. While for the other it was irrelevant and of extrinsic motivation. The selected material was a text explaining the examination system in the education department. It was written by the experimenter and the course leaders and considered to have a high intrinsic motivation for educational students and a high extrinsic motivation for sociology students.

He concluded that students who are motivated by test demand (i.e., extrinsic motivation) to study uninteresting material are more likely to adopt a surface-learning strategy. While those students who are motivated by the relevance of the subject to their needs and interests (i.e., intrinsic motivation) are more likely to adopt a deep-learning strategy. Finally, he suggested that teachers should avoid 'threatening conditions' because such conditions are examples of extrinsic motivation.

However, Entwistle (1987) disagreed with Fransson (1977) on the issue that if the learning context was perceived by a student to be threatening, the student will end up using a surface approach. For Entwistle (1987) it is the 'perception'[7]of the situation instead of the context that might affect the students selection of a particular approach. Moreover, Entwistle argued that if the perception of all students in the class were averaged, it could be used as an indicator of the learning context.

Entwistle's findings indicate that a student's tendency to prefer a particular approach to studying is influenced not only by a specific content in a particular context, but also by individual differences or individual characteristics and by their type of motivation (such as intrinsic[8], extrinsic[9], fear of failure, hope for success). For example, both deep and strategic approaches were found to be associated with hope for success while the surface approach was associated with fear of failure (Entwistle, 1997). Students found to have a surface approach seem to be instrumentally motivated, e.g., a student entering university for the purpose of obtaining a qualification degree with as little effort as possible (Biggs, 1988).

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[7] Entwistle (1987) perceives 'perception' to be the product of the following: 1) the student's previous academic history, 2) student's personal history, 3) intellectual characteristic, and 4) personality characteristics.

[8] Intrinsic motivation refers to "learning out of interest" (Entwistle, 1987, p.19).

[9] Extrinsic motivation refers to "learning geared to vocational qualifications" (Entwistle, 1987, p.19).

Taylor (1983) identified four different types of orientation to learning that students hold when pursuing their university study. These orientations describe a group of values and attitudes concerning education which the individual has at a particular time (Entwistle, 1996). Furthermore, it is "a quality of the relationship between the student and the course rather than a quality inherent in the student, and so may change over time" (Beaty et al. 1997, p.76). These orientations are: vocational, academic, personal, and social. The first three orientations are subdivided into intrinsic and extrinsic. Intrinsic and extrinsic are two terms used to described the differences between "learning for personal understanding or development and learning necessitated by fulfilling the requirements of others in completing academic tasks to defined standards" (Entwistle, 1988, p. 22). Such orientations are shown to influence a student's ways of learning (Entwistle, 1996; Beaty et al., 1997). Beaty et al. (1997) found that students with academic intrinsic orientation tended to be 'syllabus free', i.e., students prefer to deal with aspects of the subject beyond the defined syllabus. While those with academic extrinsic orientation tended to be 'syllabus bound', i.e., students prefer to have clear guidelines of the syllabus and what is required for assessment.

Students with vocational extrinsic orientation were found to have surface approaches, relied on reproducing and rote memorization and were more likely to have either an instrumental form of motivation or fear of failure. While those with personal intrinsic orientations tended to have meaning orientation and intrinsic motivation and relied on understanding the task, a deep approach (Entwistle, 1996). The aim and concerns for each educational orientation are presented in Table 2.7.

TABLE 2.7: STUDENTS' ORIENTATIONS TO HIGHER EDUCATION

Orientation	Aim	Concerns
Vocational		
Extrinsic	Obtaining a qualification	Perceived worth of qualification
Intrinsic	Being well trained	Relevance to future career
Academic		
Extrinsic	Progression up the educational ladder	Academic progress and performance
Intrinsic	Pursuing subject for its own sake	Choosing stimulating courses or topics
Personal		
Extrinsic	Compensation for past failures	Reassuring comments and pass-marks
Intrinsic	Broadening horizons	New insights and challenges
Social		
Extrinsic	Having a good time	Facilities for sport and social activities

(Source: adopted from Entwistle, 1988, p.23).

Based on the above studies, it seems that there is a significant relationship between students' approaches to study and their motivation.

2.6: FACTORS THAT INFLUENCE LEARNING STYLES AND LEARNING APPROACHES

The educational literature indicates a number of factors that influence students learning styles and approaches to learning.

2.6.1: TEACHING STYLE

The literature (Ramsden, 1979; Ramsden and Entwistle, 1981; Entwistle and Ramsden, 1983; Entwistle and Tait, 1990; Ramsden, 1997) indicates that characteristics of teaching have an important influence on the approaches students adopt for their study. For example, good teaching as shown by a responsibility to teaching, enthusiasm and empathy, use of analogies, skills in teaching, clear goals and objectives, presenting material in an appropriate space, reasonable workload,

providing useful feedback on students' work, and helpfulness with students' academic difficulties, triggering students to adopt deep approaches.

Newble and Hejka (1991) have suggested that teaching might block students' learning in a way that might not be noticed by either students or their teachers. Moreover, they argued that a number of students have graduated using the undesirable learning strategies-surface approach. It seems that the deep approach is the one expected from a university student, because it will quicken the student's 'critical thinking', which is considered to be the main objective of higher education.

2.6.2: DEPARTMENTAL CHARACTERISTICS

The Lancaster study (Ramsden and Entwistle, 1981; Entwistle and Ramsden, 1983; Entwistle, 1987) investigated the relationship between students' perceptions toward their learning environment and their approaches to study. It revealed that students who described their departments as having heavy workloads and restricted freedom in learning (e.g., lack of choice over study method and subjects or content) tended to have high scores on reproducing orientation. While students who described their departments as having a supportive teaching atmosphere and freedom in learning tended to have high scores on both meaning orientation and positive attitudes. In support of these findings Entwistle and Tait (1990) found that good teaching encourages students to adopt a deep approach, while a reproducing approach was found to be related to the workload or the assessment procedure. Gibbs (1992) found that long class time contact and lack of opportunity to pursue subjects in depth might relate to the surface approaches that students adopt. Moreover, Ramsden (1997)

identified eight key dimensions of effective learning contexts as perceived by students (see Table 2.8).

TABLE 2.8: KEY DIMENSION OF EFFECTIVE LEARNING CONTEXT	
Evaluation of the department	
Good teaching	How much help is given with study problems; how competent and well-prepared staff are perceived to be.
Freedom in learning	How much discretion students have over the choice of content and methods of studying it.
Openness to students	How friendly staff are; how prepared they are to adapt to students needs.
Workload	How heavy the pressure to fulfil the requirements of the syllabus and assessment is perceived to be.
Social climate	Quality of academic and social relationships between students.
Subject area differences	
Formal teaching methods	Importance placed on lectures and classes relative to individual study.
Clear goals and standards	How clearly the standards of assessment and ends of studying are perceived to be defined.
Vocational relevance	Perceived relevance of the courses in the department to the students' future careers.

(Source: adopted from Ramsden, 1997, P. 213).

Ramsden (1992) summarized the characteristics of the context of learning associated with both surface and deep approaches (Table 2.9).

TABLE 2.9: CHARACTERISTICS OF THE CONTEXT OF LEARNING ASSOCIATED WITH SURFACE AND DEEP APPROACH

Surface approaches are encouraged by:

- * assessment methods emphasising recall or the application of trivial procedural knowledge.
- * assessment methods that create anxiety.
- * cynical or conflicting messages about rewards.
- * an excessive amount of material in the curriculum.
- * poor or absent feedback on progress.
- * lack of independence in studying.
- *lack of interest in and background knowledge of the subject matter.
- *Previous experiences of educational settings that encourage these approaches.

Deep approaches are encouraged by:

- * teaching and assessment methods that foster active and long-term engagement with learning tasks.
- * stimulating and considerate teaching, especially teaching which demonstrates the lecturer's personal commitment to the subject matter and stresses its meaning and relevance to students.
- * Clearly stated academic experience, responsible choice in the method and content of study.
- * interest in and background knowledge of the subject matter.
- * previous experiences of educational settings that encourage these approaches.

(Source: adopted from Ramsden, 1992, P.81).

In an attempt to find out whether the same finding can be drawn from students at medical school, Newble and Clarke (1986; 1987) explored the relationship between the characteristics of the faculty of medicine, in terms of a traditional vs. problem-

based curriculum, and the students' approaches to learning in Adelaide and Newcastle, Australia. Students attending a problem-based medical school tended to have higher scores on deep approach and lower on surface approach than their counterparts in a traditional medical school. These results are in line with a study conducted by Coles (1985) to compare the effect of a problem-based curriculum on students' approaches to study.

According to Newble and Clarke (1986) the differences in students' approaches to learning might reflect "contrasts in the educational environment". The extent of the influence of each factor in the environment that account for the differences in learning approaches has been difficult to determine. The reason for such difficulties can be traced back to the differences, e.g., teaching methods, assessment methods, area of curriculum, and student-staff relationship, in both types of school environments - traditional and innovative (Newble and Clarke, 1986; Harden et al., 1984). Indeed Coles (1985) observed that

> problem-based learning, for reasons at present unexplained, may be creating an educational climate which enables students to learn in what seems to be a desirable manner, unlike a conventional curriculum which appears to constrain its students to adopt apparently poorer approaches to studying, not only in comparison with problem-based students but also compared with their own approaches on entry (p.309).

In the light of the above, it seems that introducing some changes in traditional schools might be needed in order to ensure the adoption of a deep approach. This change might be in the form of a reduction in the didactic teaching method, a decrease in the work-load, a decrease in class contact hours, an increase in student independent learning activities, a change in the examination methods away from multiple-choice questions, or changing from a traditional curriculum to more problem-based one.

2.6.3: GENDER

Meyer et al. (1994, p.469) claimed that gender differences "constitute a potentially important and neglected source of variation in student learning which, when detected in context, can and should be explicity managed by academic practitioners". Studies that investigate the effect of gender on approaches to study are limited (Sadler-Smith and Tsang, 1998). Watkins and Hattie (1981) found that females tended to have more internalising approaches (deep approach) while males tended to have more of a reproducing approach. In contradiction to this finding, Sadler-Smith (1996) found that males used a deeper approach than females.

Clarke (1986) investigated medical students' approach to study, using Entwistle and Ramsden's (1983) Approach to Study Inventory, at the Faculty of Medicine at the University of Newcastle. They found significant gender differences between the students. Females were found to have lower scores on extrinsic motivation and strategic orientation than males, but higher on fear of failure.

Severiens and Ten Dam (1994), reviewed research on gender-related learning styles conducted after 1980. They found that (1) women tended to be more field independent[10] than men; (2) women tended to prefer a concrete learning style whereas men tended to prefer an abstract conceptualisation learning style; (3) men tended to have higher scores in extrinsic motivation than women who tended to score higher in intrinsic motivation; and (4) men tended to show more deep approaches while women tended to show more surface approach. Despite these findings, they reported that no statistically significant differences between male and female were found.

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[10] Field independence refers to using one's own experiences as primary referent for processing information, while field dependence refers to depending on other outside sources to be referents (Severiens and Ten Dam, 1994).

Geiger and Pinto (1991), in their three-year longitudinal study, investigated whether learning styles do change over time, and used Kolb's 1985 Learning Style Inventory. They found no significant differences in learning style preferences between male and female undergraduate students as they pursued their studies from first to the third year. Richardson (1993) investigated gender differences in approaches to study for undergraduate students. He used both the short and original version of the Approaches to Studying Inventory (ASI). He found that there were no significant differences between male and female approaches to study. Similarly, Hayes and Richardson (1995), found no significant gender differences in learning approach to study for undergraduate students. Furthermore, Willcoxson and Prosser (1996) investigated the validity of Kolb's learning Style Inventory (1985) using Australian undergraduate Art and Science students. They found no significant difference between the genders for students' styles.

Richardson and King (1991) argued that using quantitative methods such as inventories and questionnaires has revealed few consistent differences, in terms of approaches to study, between males and females in higher education. They suggested using qualitative methods, such as interviews for exploring gender differences.

Based on 10-years of teaching experience, Meyer et al. (1994) suggested that first-year female and male students show different approaches to learning. For example males showed different degrees of commitment to a competitive functional mastery of the verbal syllabus and examination directly. While females tended to be more concerned with attaining quite a broader competence. Meyer et al. (1994) investigated students' approaches to study using ASI. They found that their analysis supported the impression of the existence of qualitative differences between males and

females students in term of their approaches to studying. For example, males tended to have operation and comprehension learning styles, while females tended to have versatile learning styles and not an achievement motivation.

2.6.4: MOTIVATION

As indicated earlier in section 2.5.2 students approaches were found to be related to their motivation (Fransson 1977; Biggs, 1988; Entwistle, 1996; 1997; Beaty et al., 1997). For example, Abouserie (1995) explored the relationship between students' approaches to studying and students' self-esteem[11] and achievement motivation. He found that students with high scores in self-esteem tended to score higher in the deep approach while those with low self-esteem tend to have higher scores in superficial and rote-learning approaches. Students with high scores on the achievement motivation scale tended to be more organised and elaborate in their approaches to study than those with low scores. Entwistle (1996) supported this finding and indicated that low self-esteem increases the likelihood of surface approaches. Moreover, organised study has been found to be associated with both the strategic approach to learning and to achievement motivation, while fear of failure and anxiety were also found to be associated with the surface approach (Entwistle, 1996).

2.6.5: ASSESSMENTS AND EXAMINATIONS

Newble and Jaeger (1983); Feletti and Smith (1986); Ramsden (1988); Newble and Hejka (1991); and Ramsden (1997) have shown that methods of assessment and examinations have significant influences on students' selection of learning approaches and strategies. Assessment and examinations might be viewed as a way of letting

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[11] According to Nicholas and Utesch (1998, p. 273), self-esteem is defined as "the value that each of us places on our own abilities and behavior".

students know what teachers really consider important (Crooks and Mahalski, 1985).

In addition, Scouller and Prosser (1994) view assessment as

> The single most potent influence on student learning, narrowing students' focus to concentrate only on topics to be examined (that is, *what* is to studied) and shaping their learning approaches (that is, *how* it is to be studied) (p.268) [emphasis as original].

Students will adopt a particular approach based on what they perceive to be the major requirements for their examinations (Marton and Saljo, 1976a; Newble and Jaeger, 1983; Entwistle and Entwistle, 1991). For example if students see that an examination requires mainly a recall of information, they will tend to adopt a rote-learning or surface approach (Newble and Jaeger, 1983). It has also been suggested that the predominance of objective-type tests for all medical subjects tends to discourage a deep approach to learning, especially in those students who prefer a surface approach (Newble and Gordon, 1985). Moreover, Marton and Saljo (1976b) reviewed studies related to this issue and concluded that if students expect an objective test it will lead them to adopt a 'surface level of processing' (i.e., surface approach). However, if students expect an essay or oral test, it will lead them to adopt a 'deeper level of processing' (i.e., deep approach).

In general, it seems that the association between objective testing, e.g., multiple choice question examination, and the utilization of surface approaches is strongly supported in the literature.

2.6.6: CULTURAL DIFFERENCES

Auyeung and Sands (1996) examined whether culture differences effect the learning styles of accountancy students. They considered cultural differences based on

one dimension of cultural values as identified by Hofstede (1980)[12]. This dimension is individualism v. collectivism. They selected Australia to represent Western individualistic culture and both Hong Kong and Taiwan to represent the Chinese collectivist culture. They based their study on Kolb's learning style model.

The accountancy students from Hong Kong and Taiwan tended to adopt learning styles which were more abstract and reflective and less concrete and active. In contrast, the Australian students tended to adopt more concrete and active learning styles.

Kember and Gow (1990) investigated cultural differences in relation to approaches to study of students at a Hong Kong tertiary institution. They used both the Biggs' Study Process Questionnaire (SPQ) and the Approaches to Studying Inventory (ASI). These two instruments were translated into the Chinese language, but given to students with items in English followed by the Chinese translation, since English is used for "formal interaction within the classroom". They found that Chinese students' scores on both deep and achieving approach scales were similar to the scores obtained from students in Western countries. However, surface orientation as a factor did not appear. Instead they found a factor called 'narrow orientation'[13]. Students with such an orientation tended to use a systematic step-by step processing of information. Although such students tended to rely on memorisation of each segment, they sought to understand each part first. The authors felt that the existence of narrow

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[12] Hofstede (1984) perceived culture from four dimensions: (1) Power Distance from large to small; (2) Uncertainty avoidance from strong to weak; (3) Individualism v. Collectivism and (4) Masculinity v. Femininity.

[13] This factor has the heaviest loading on "operation learning and improvidence and also loads on syllabus boundness and fear of failure" (Kember and Gow, 1990, p.360).

orientation instead of surface orientation in Chinese students might be related to two factors: (1) the English language ability of the students and (2) schooling and/or cultural tradition. They found that students' English language ability, was significantly correlated with subscales in the ASI. Students with a poor command of English found it difficult to scan through a document to find the main points nor were they able to sense the key concepts in a lecture. Instead they concentrated initially on deciphering the rhetorical dimensions of the text (i.e., letters, words and sentences). During a lecture the students often concentrated on copying from a blackboard or overhead projection. The overall conclusion was that there are some cultural influences on the less desirable study approaches (surface approach) in non-Western countries. In support of these findings, Richardson (1994) concluded that general differences between the deep and surface orientation could be considered a universal characteristic of all higher education systems. Deep orientation is considered to be consistent and exists across different cultures. However, surface orientation reflects students' efforts to adjust to the academic requirements of a particular system. It is less consistent and varies in its detailed characteristics from one system in one culture to another. Kember (1996) proposed that a limited mastering of the language of study is likely to lead to a narrow systematic approach to study. Smith et al. (1998) investigated whether learning approaches for first year Australian and overseas Chinese students differ, using the Approaches to Studying Inventory (ASI). Different factor structures in approaches to studying were found. For Australians, the factors were meaning orientation; non-academic orientation; anxious-rigid orientation; and goal orientation. For the overseas Chinese students, the factors were anxious-surface orientation; self-motivated reflective orientation; efficiency orientation; and comprehension

orientation. The anxious-surface orientation and efficiency orientation for Chinese students indicate that they were surface learners, had reproducing orientation, and were motivated by success in academic results. However, the self-motivated, reflective orientation factor for Chinese students was similar to the meaning orientation factor for Australian students. These findings showed clear evidence for the effect of culture differences on students' approaches to study.

A contradictory conclusion to the above findings has been given by Volet et al. (1994), in their cross-cultural research to find out whether cultural differences exist in students' approaches to study. The sample consisted of two matched groups of local Australian and South-east Asian Students. They found no significant differences between student approaches from the local Australian and South-east Asian students nor on the narrowness factor. Their main conclusion was that students' approaches to study were influenced by students' perceptions of the course requirement instead of personal characteristic or cultural differences.

In a more recent study, Sadler-Smith and Tsang (1998) investigated the cross cultural validity of a revised ASI for a sample of undergraduate students in Hong Kong and the UK. They found no significant differences in the surface approach taken by Hong Kong and UK students. They concluded that students in Hong Kong should not be considered as 'rote-learners' in comparison with those in the UK. However, they highlighted the need to take into consideration the educational, institutional and cultural context of study in exploring approaches to study.

Based on the above studies, it seems that the effect of cultural differences on students approaches to study are still under debate and require a careful interpretation of data.

2.6.7: YEAR OF THE STUDY

The educational literature shows (Newble and Gordon, 1985; Pinto and Geiger, 1991; Geiger and Pinto, 1991; Richardson, 1998) that students adopt particular learning approaches at different times in their course. For example, in a three-year longitudinal study, Pinto and Geiger (1991) investigated the learning style changes for business college students. They used Kolb's 1985 Learning Style Inventory and found that students' learning styles did not change significantly as they proceeded from their sophomore to junior years, rather they remained relatively stable. However, as students proceeded with their college study, their learning style changed over the three-year period of their study, particularly between their junior and senior years (Geiger and Pinto, 1991). For example, students' learning styles exhibit an increase in active experimentation from their sophomore to senior year (Pinto et al., 1994). Watkins and Hattie (1981) found that as students progress through university, the more likely they are to use an internalising or deep-level approach. Richardson (1998) compared the learning approaches of undergraduate and postgraduate students over a range of courses. The Approaches to Studying Inventory (ASI) was used. A significant difference was found on one course, where postgraduate students tended to have higher score on *meaning* approach compared with their undergraduate counterparts.

Within the context of medical school, Newble and Gordon (1985) conducted a cross-sectional study and found that first year medical students tended to have high scores on reproducing orientation (a surface approach) but low scores on meaning orientation (a deep approach). As they proceeded through different levels/stages of their study they tended to have progressively higher scores on reproducing orientation

(surface approach). However during their final year, students tended to have higher scores on meaning orientation (deep approach).

The above studies reveal that students in their first years tend to have relatively stable learning approaches at the surface approach level. However as they proceed, they tend to change to a deeper approach. This might be due, in part, to the heavy work demands of their university courses.

2.6.8: CO-EDUCATIONAL VS. SINGLE-GENDER COMPOSITION

Hayes and Richardson (1995) investigated the effect of co-education and single-gender higher education on students' approaches to learning in both art and science disciplines at three colleges. College A was a female-only college in which both students and staff were female. College B admitted both genders in equal numbers and the staff were of both genders. College C was predominantly a male college in which females and males were admitted in a proportion of 1:2 and the majority of the staff were male.

Female students in art tended to have similar scores on meaning orientation to the males when they studied in a male college (college C), but they tended to have higher scores when they studied in a more female environment (colleges A and B). However, female students in the science discipline tended to have similar scores in meaning orientation to the males when they studied in the female college (college A). They tended to have higher scores when they studied in an environment predominantly male (colleges B and C). For male students, their scores for meaning orientation were not influenced by either the type of college gender composition nor by subject area. However, it was found that male students in the science course tended to have higher scores on syllabus-boundness when they studied in the college which was

predominantly male (college C) than those in a more female environment (college B). This indicates that the type of gender composition in higher education colleges has an influence on students' approaches to study.

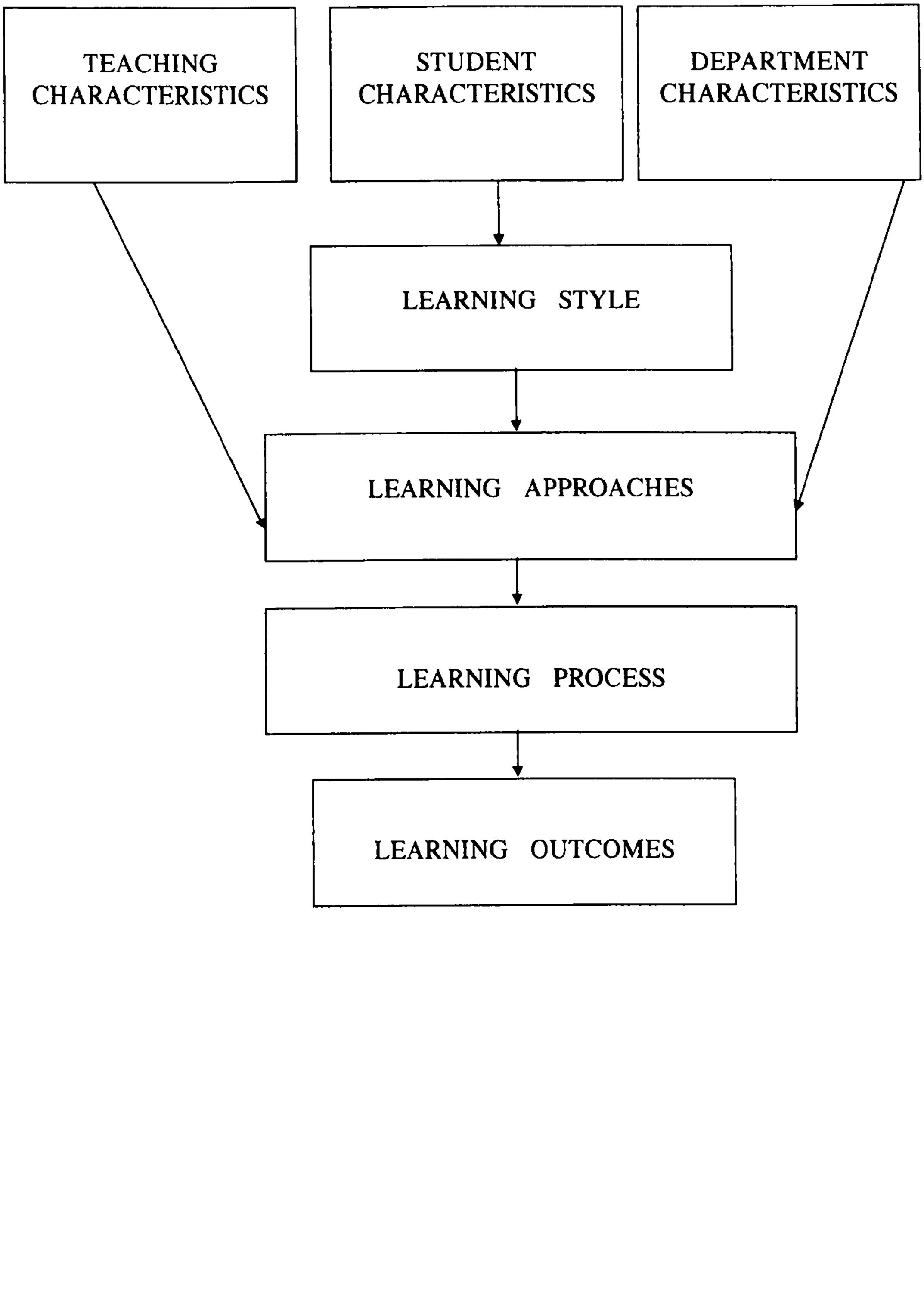
Interestingly, most of the above factors have been taken into account by Entwistle and his colleagues at Lancaster and Edinburgh universities in their research into student approaches to learning. Based on their results, a model of the teaching - learning process has been developed.

2.7: A MODEL OF THE TEACHING AND LEARNING PROCESS

Newble and Entwistle (1986) (Figure 2.3) categorized the key factors thought to influence students' approach to learning into three groups: the characteristics of teaching, the characteristics of the department, and the characteristics of students. The student characteristics are considered stable, while teaching and department characteristics are considered variable. Such variable characteristics might cause pressures which prompt responses of a temporary or a permanent nature. In addition, the approaches to learning adopted by students are reflected in different learning processes, and accordingly in the quality of learning outcome (Newble and Entwistle, 1986; Entwistle, 1987; Newble and Hejka, 1991).

Figure 2.3

A MODEL OF THE TEACHING - LEARNING PROCESS
(NEWBLE AND ENTWISTLE, 1986)



Now the discussion will explain in more detail what is involved in each of the above components.

2.7.1: LEARNING STYLE

As mentioned earlier, research on learning styles has emerged from two strands: cognitive and psychometric psychology where the emphasis was on identifying essential learning processes or stable and individual features, and educational research undertaken within the everyday learning environment. According to the former strand, a learning style is perceived in terms of information-processing strategies or personality traits. Alternatively, a learning style derived from the latter strand is viewed as an "attempt to explain the differences observed in how students approach a learning task and how these affect learning" (Newble and Entwistle, 1986, p. 163). A learning style in this model is viewed as a relatively stable trait or characteristic of student behaviour which influences a distinct preferred approach to studying (Newble and Entwistle, 1986; Entwistle, 1987).

2.7.2: TEACHING AND DEPARTMENT CHARACTERISTICS

The characteristics of teaching that have an effect on students learning include the teaching methods (Pask, 1976b; Ramsden, 1992; 1997), the degree of enthusiasm of the teacher, the extent of a teacher's commitment, having a competent and well-prepared teacher, providing clear structure, maintaining an appropriate pace and level at which information is presented (Ramsden, 1979; 1992; 1997). Newble and Entwistle (1986) grouped all the above characteristics under the terminology 'teaching style'.

The characteristics of the department include the nature of the disciplines/subject (Ramsden and Entwistle, 1981; Watkins and Hattie, 1981), the type

of curriculum or educational strategies (Coles, 1985; Newble and Gordon, 1985; Newble and Clarke, 1986), the availability of study skills support, the learning materials and teaching aids (Newble and Entwistle, 1986), the assessment procedures (Marton and Saljo, 1976b; Ramsden, 1979; Newble and Jaeger, 1983; Newble and Gordon, 1985; Feletti and Smith, 1986; Newble and Hejka, 1991; Ramsden, 1997), the degree of relevancy of the curriculum content (Fransson, 1977; Hodgson, 1997), quality of feedback on students' learning (Ramsden, 1992; Hounsell, 1997), freedom in learning, and the workload (Ramsden and Entwistle, 1981; Ramsden, 1992; 1997).

2.7.3: STUDENTS' APPROACHES TO LEARNING

The way students approach their study was found to be influenced by their learning style as well as by the environment where the learning takes place (Newble and Hejka, 1991). Newble and Entwistle (1986) developed a model of approaches to learning as discussed earlier. Such a model encompasses three approaches; surface, deep, and strategic. Every approach was classified based on three elements: (a) the predominant factors that might motivate students to learn; (b) the main intentions of students while approaching their studies; and (c) the learning process students use in handling their intentions.

2.7.4: LEARNING PROCESS AND OUTCOME

Every approach in this model is reflected in the intellectual learning process that is utilized by the students as they approach their learning tasks. These learning processes will, in turn, have an influence on the quality of the learning outcome (Newble and Entwistle, 1986; Entwistle, 1987) (for more detail refer to section 2.3.2). The following paragraph summarizes Newble and Entwistle's (1986) model. A student adopting the surface approach will tend to use the rote learning process and

the outcome is a superficial level of understanding. A student adopting a deep approach will tend to use any of the following: *operational*, *comprehension*, or *versatile* learning styles. Students using *operational* or *comprehension* will end up with an incomplete understanding, while students using *versatile* will end up with a deep level of understanding. Students adopting a strategic approach will tend to use a more versatile learning process and the outcome will be a different level of understanding depending on what is required on the course.

2.8: CONCLUSION

This chapter has focused on learning, learning theories, learning styles and learning approaches. Firstly, there seems to be no general agreement on the definition of learning, however, the majority of definitions encompass two concepts: behavioural change and experience.

Secondly, since the beginning of this century several learning theories have been developed to explain the learning process. While there is no general agreement among writers on how such theories can be grouped, in recent years it seems that dividing theories of learning into cognitive psychology research and educational research is quite feasible.

Thirdly, there is no general agreement among writers, at least within the educational literature, on what is meant by learning styles, learning approach and learning strategy. Instead, some of these concepts are used by many researchers interchangeably. With regard to learning style, several theoretical frameworks have been developed in the educational literature. Such frameworks differ, based on how learning styles have been defined and the different research methodologies adopted.

Fourthly, different categorizations of learning approaches have been suggested by different researchers in different countries. Fifthly, there are some factors that could influence learning styles and learning approaches in higher education. Such factors include: teaching style, characteristics of the department, gender, motivation, methods of assessment, culture, year of the study and co-education or single-gender education. In addition, the literature seems to suggest that some of these factors have an influence on learning styles and learning approaches to study within medical education in particular.

Finally, a comprehensive theoretical framework to explain most of the factors that could influence learning styles and learning approaches to study has been developed by Newble and Entwistle (1986). The present study will adopt this model to explain some of the factors that could influence adopting particular learning styles and learning approaches by medical students in some of the Gulf Cooperation Council (GCC) countries.

CHAPTER THREE

LITERATURE REVIEW: LEARNING ENVIRONMENT

A warm, supportive and challenging environment is generally regarded as an essential prerequisite for optimal learning (Harth et al., 1992)

3.1: INTRODUCTION

The main aim of this chapter is to review literature related to the learning environment in higher education in general and medical education in particular. The next section discusses learning environment. The third section looks at the classification of learning environment. The fourth section focuses on the approaches used to study learning environment. The fifth section reports on the uses of learning environment measures. The sixth section discusses research on the learning environment in higher education. Regarding the medical education literature, an introduction to the nature of transition in medical education will be discussed briefly in section seven. Section eight looks at learning environment in medical schools. Section nine highlights the uses of medical learning environment measures. Section ten discusses the main measurements of medical school learning environment. Section eleven presents a literature review on the medical learning environment. Finally, section tweleve presents the overall conclusion.

3.2: LEARNING ENVIRONMENT

Since the 1960s there has been a considerable amount of research devoted to the exploration of the learning environment. However, there seems to be no general agreement on what exactly constitutes a particular learning environment (Tagiuri, 1968; Ramsden, 1979), nor on the definition of learning or educational environment. In this regard, Genn and Harden (1986, p.112) contend that the climate of an educational environment "like the concept itself, is rather intangible, unreal and

insubstantial, yet climate, in its effects, is pervasive, substantial and very real and influential".

For example, Moos (1980) viewed the educational environment as "a dynamic social system that includes not only teacher behavior and teacher-student interaction, but student-student interaction as well" (p.240). So, for him, the learning environment encompasses teacher behaviour, interaction between students and teacher, and student-student interaction. Whereas for Astin and Holland (1961; 1974), the college environment, in particular, is a yield of the number of students in the college, the level of students' intelligence, and the type of students' personality. In addition, Ramsden (1979, p.412) used the word 'context' or 'environment', within higher education, to indicate "the teaching, course organisation, subject areas, and assessment methods of university departments".

While the above definitions view the learning environment, in general, as related to aspects of learning inside the school, other researchers defined the learning environment as related to aspects of learning both inside and outside the school. For example Collins et al. (1996) viewed the learning environment as the total learning activities that took place inside school as well as outside school. After presenting a general idea of how the learning environment is perceived, the following paragraphs will shed light on how the learning environment has been studied.

The learning environment has been investigated at two levels: classroom level environment and/or school level environment. Again, there is no general agreement on the definitions for both classroom and school environments. For classroom environment, Goodlad (1984) defined it as "physical, emotional, and aesthetic characteristics of the classroom that tend to enhance attitudes toward learning",

whereas Trickett and Moos (1973) defined it as the sum of all the individuals' perceptions who exist in that environment.

On the other hand, school has been viewed as a "quite unique social organisim whose behaviour must be better understood if the practice of administration is to be improved" (Thomas, 1976, p. 443). Thomas (1976) argued that even if there is a high degree of similarity between schools in a particular education system, there is still room for differences to exist. The school/organisation climate or environment is one such difference. Moreover, he pointed out that the interpersonal relationships are considered by a number of researchers to be the main determinant of the 'climate' of the organization.

The school climate/ environment has been defined by Schmuck (1984) as:

> "the dynamic social structure of each school... the interrelationships of norms and beliefs that characterize a school and the institutional patterns of relationships, groupings, stratifications and behaviors of administrators and teachers in a social system"(p.21).

Another definition has been proposed by Tagiuri (1968), as "summary concepts dealing with the total environmental quality within an organization". The difficulty in defining classroom and school learning environment is traced back to different theories, variables under study, and the unit of measurement used by different researchers (Anderson, 1982).

A number of authors have drawn attention to the differences between the classroom environment and the school environment (Fisher and Fraser, 1991; Thomas, 1976; Biddle et al., 1995; Fraser and Walberg, 1991; Fraser, 1994) (see table 3.1). Such differences can be traced in several dimensions, such as: the variety of instruments adopted or developed to measure different aspects of educational environment at both the classroom and school level, the different theoretical basis

underpinning each study, and different methodologies used by both classroom and school climates.

TABLE 3.1: DIFFERENCES BETWEEN CLASSROOM AND SCHOOL ENVIRONMENT

Classroom environment	School environment
1. focus on following relationships: (a) teachers' relationships with their students; (b) students' relationships with each other	1. focus on the following relationships: (a) teachers' relationships with each other; (b) teachers' relationships with senior staff; (c) teachers' relationships with the school principle
2. rely heavily on students' or teachers' perceptions of their classroom.	2. rely heavily on teachers' perceptions.
3. Classroom climate theories are based on cognitive theory and the momentous theory.	3. School climate theories are associated with the educational administration field and rely on the assumption that school can be viewed as a formal organization.

Despite such differences, Fraser (1986b) argued that these two fields can be united by adopting one of the following views: (1) viewing the school level environment as the sum of the classroom environments within the school, (2) adapting one of the classroom instruments to be used in studying the school environment, where the term 'classroom' is changed into 'school'.

It seems, then, that one can adopt one classroom instrument to evaluate the whole school/college by administering it to students in a number of classrooms and then averaging their answers. In addition, the same instrument can be used to evaluate the environment of a particular classroom (e.g., math classroom) by distributing it to students in that classroom. In summary, the differing definitions of the learning environment have led to the existence of different dimensions, or classifications of the learning environment.

3.3: CLASSIFICATION OF THE LEARNING ENVIRONMENT

The learning environment has been classified differently by a variety of authors. For example, Moos (1974) classified human environments into three social environment dimensions: (1) the relationship dimension, which is concerned with the nature and the intensity of the relationships within the learning environment, (2) the personal growth or goal orientation dimension, which is concerned with the evaluation of the degree of instructional goal and student individual growth allowed in the classroom, and (3) system maintenance and change dimensions, which are concerned with the degree to which the learning environment is controlled, operated in an organized way and responsive or flexible to any change. In the same vein, Walberg and Haertel (1980) agreed that sociopsychological environment should encompass (1) the affective climate, (2) its status structure, and (3) aspects related to instructional tasks.

On the other hand, Kolb (1984) suggested that any educational programme, course plan, or classroom session can be viewed as having a degree of orientation toward four learning modes, namely: the affective, perceptual, symbolic, and behavioural. So, four types of learning environments were identified: (1) Affective learning environment, where the focus is on experiencing an actual event or activity similar to what is expected in professional life; (2) Perceptual learning environment, where the focus is on learners' understanding and requires learners to be involved in observation and appreciation in order to: (a) determine relationships among concepts; (b) define problems for exploration; (c) collect relevant material; and (d) search a question; (3) Symbolically learning environment focuses on abstract conceptualisation. The learner participates in the solving of a problem for which there is a correct or a

best answer. (4) Behavioural learning environment focuses on active uses of knowledge or skills in relation to a practical problem for which there is no right or best answer.

Moos (1974) and Kolb (1984) emphasise the learning environment within the classroom or at the school level. However, other classifications include not only the activities that take place inside the classroom or school, but also outside.

For example, Collins et al. (1996) pointed to shared recognition outside school as opposed to individual cognition inside; tool manipulation outside school as opposed to pure mentation inside; and contextualized reasoning outside school as opposed to symbol manipulation inside. They classified learning environment into 6 types (see Table 3.2).

TABLE 3.2: CLASSIFICATION OF LEARNING ENVIRONMENT

(a)(i) communication environment, where learners participate in discourse by actively constructing goals, problems, meanings, information, and criteria of success;

(ii) information transmission environments, where learners participate in discourse by receiving information;

(b)(i) problem-solving environments, where learners work on projects and problems;

(ii) training environments, where learners practise exercises to improve specific skills and knowledge;

(c)(i) evaluative performance environments, where learners perform for an audience;

(ii) recitation and testing environments, where learners demonstrate their ability to work out problems or answer questions.

Such classification was based on their view of the general functions of the learning environment, namely: (a) participation in discourse, (b) participation in activities, and (c) presenting examples of work to be evaluated. Two learning environments are relevant to one general function.

In the communication environment (CE), the goal for learners is to develop understanding of different ideas. Four types of CE can be identified based on the following activities: (1) students' participation in formal or informal discussions. (2) argumentation where students debate possible alternative ideas for a particular case presented to them, (3) inquiry teaching where teachers select cases and ask questions to foster student thinking, (4) brainstorming where students generate new thoughts without attempting to critique or synthesize.

In the information transmission environment students participate in discourse by receiving information through reading, attending lectures, television and radio, and video-tape/films. Active interaction with text or video tape incorporates rereading or replaying sections of the tape and searching for particular pieces of information. In these two learning environments (reading, and video tape/film) the sequence and pace of information transmission are controlled by the students. However, they do not provide the student with the opportunity to ask questions if they become confused at any time.

In the problem-solving environment (PS) the main focus is on thinking within the curriculum. There are three different types of environment: (1) an environment dedicated to PS. Problem-solving inside school is well defined, and has only one method of solution and one correct answer. While that outside school is ill-defined-and has many alternative solutions and answers. (2) apprenticeship takes place in a work environment where apprentices are organized/directed by masters. The role of the master is to teach by showing apprentices how to do a task (i.e., modelling) and then encouraging them to do it themselves. (3) adult learning projects or simulation

environments is where a situation that has significant characteristics of authentic problem-solving is created/constructed, e.g., a computer simulation environment.

In the training environment students practice certain exercises to improve particular skills and knowledge. The emphasis is on drill, rehearsal, and practice of skills and procedures rather than ideas, concepts, facts, and theories. Three types of training environments focus on the skills of solving problems: (1) programmed instruction where an easy task is introduced first to students so that they will be more likely to succeed and reinforce their successes, and then complex material is slowly introduced; (2) homework; and (3) an intelligent tutoring system that attempts to create environments that involve both training and problem-solving.

In the performance environment students perform for an audience either live or through a communication medium. Such a performance is a significant event in itself and can motivate a student to do a good job. In this sense, performance is considered a stimulus for most practice. Finally, in the recitation and testing environment students use their ability to solve problems or answer questions.

It seemed that Moos' (1974) classification of the social learning environment emphasises the interaction between students, teacher, and the environment, while Kolb's (1984) classification emphasises the classroom environment as student-centred. However in a classroom environment, the learners interact not only with their environment but also with their instructors/teachers. Also, students interact with each other. Therefore, Kolb's (1984) classification seems to exclude such diversity of interaction.

On the other hand, the view of Collins et al. (1996) on this issue differs from that of Kolb (1984). They emphasise the role of learning activities of the learners that

occur inside as well as outside the classroom or school. However, they are like Kolb in their exclusion of social interpersonal relationships in the classroom. The importance of such interpersonal relationship is highlighted by Thomas (1976) when he considered it to be the major determinant of 'climate' in any school.

Despite the different classifications of the learning environment, most of the learning environment instruments that have been used at both classroom and school level, have been based on Moos' (1974) classification of the human environmental domain, i.e., the dimensions of such instruments reflect the three environmental domains proposed by Moos (1974) (Raviv et al., 1993; Fraser, 1986b; Fisher and Fraser, 1991; Fraser, 1994).

3.4: APPROACHES USED TO STUDY THE LEARNING ENVIRONMENT

Within the context of higher education, there are three major approaches to studying learning environment:

(1) investigating teachers' opinions; (2) measuring students' behaviours, such as the frequency of student involvement in class through classroom observation; (3) exploring students' perceptions (Ramsden, 1979).

Ramsden (1979) indicates that the students' perceptions approach has gained the most favour. Fraser and Walberg (1981) give the following reasons for its popularity. Firstly, it is considered to be more economical than other approaches such as classroom observation. Secondly, it can be used for a broad range of courses. Thirdly, it permits a researcher to derive the perceptions of all the students in a class.

Finally, perceptions are believed to be the most important determinant of human behaviour.

3.5: USES OF THE LEARNING ENVIRONMENT MEASURES

For classroom environment measures, both actual and preferred[1] forms, can be used to (1) evaluate students' / teachers' perceptions regarding the actual and preferred environments, (2) identify the differences between student and teacher perceptions, (3) determine whether classroom environment has an effect on student achievement, (4) identify methods to modify the environment of the actual classroom in favour of student preferences, and (5) discover predictor and criterion variables (discussed later) in different areas of studies (Rentoul and Fraser, 1979; Fraser, 1981; 1982; Fraser, 1986a; Fraser, 1986b; McRobbie and Fraser, 1993).

One major application of school climate instruments is in exploring differences between the environment of different types of schools e.g. elementary & secondary schools (Fisher and Fraser, 1991) and different types of higher educational institutions (Vahala and Winston, 1994).

Another use of school climate instruments is in improving school environments by adopting the five techniques suggested by Fisher and Fraser (1991). The first is the assessment technique in which both the actual and preferred forms of the instruments are distributed to measure the teachers' perception.

The second, is the feedback where the actual and preferred forms of instruments are collected back. The data (teachers' perceptions) are, then, scored and

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[1] The preferred or ideal form is "concerned with goals and value orientations and measures perceptions of the classroom environment ideally liked or preferred" (Fraser, 1994, p.499).

summarized as a profile. The third is reflection and discussion, where teachers come together to discuss and reflect with other researchers on the profile of the instrument and then a decision is taken to select an area of the environment that needs to be changed.

The fourth is intervention, where teachers apply different strategies to improve the selected area of the school environment. Finally, there is reassessment, where the actual form of the instruments is redistributed at the end of the intervention period, to determine whether attempts at environmental improvement have been successful.

According to Fraser and Treagust (1986) these techniques have been successfully applied at the primary school level, secondary school level, and at the higher educational level. For example, Yarrow and Millwater (1995) applied these techniques, in Australia, using the College and University Classroom Environment Inventory (CUCEI) (discussed later), to find a profile of university students' actual and preferred tutorial classroom psychosocial environment. The sample consisted of first and second-year university students. The results showed a significant discrepancy between the actual and preferred form of the CUCEI, particularly in classroom involvement, task orientation, individualization, cohesiveness, satisfaction, and innovation. The profile was discussed and students proposed intervention strategies to improve their actual classroom. Such intervention strategies were designed to be as close as possible to the environment preferred by students. Accordingly, such strategies were applied in the classroom. Finally the reassessment technique was carried out, where the actual form of CUCEI was distributed to check whether such intervention led to an improvement in the classroom environment. The results

indicated significant improvements in the classroom environment, particularly in cohesiveness, satisfaction, and the individualisation dimensions of CUCEI.

In addition learning environment instruments can be used to measure students' satisfaction with the effort of teachers (Marshall, 1978); to monitor the influence of curriculum change on student perception of learning environment; to determine the strength of students pressure for curriculum change (Clarke et al., 1984); to furnish diagnostic feedback to teachers regarding the effectiveness of their teaching which in turn might be helpful in improving their teaching methods (Marsh, 1987; Clarke, 1995).

Walberg (1972, p.69) summarized the application of learning environmental measures "(a) to improve the accuracy of predicting learning and (b) to manipulate the environment to bring about optimal conditions of learning".

In the light of the above discussion, it appears that the learning environment measures can be used for different applications. However, the most useful application is to use it to predict a student's academic outcome (achievement). This allows the identification of those students with low academic achievements, so that intervention may be applied to improve their performance.

3.6: RESEARCH ON LEARNING ENVIRONMENT IN HIGHER EDUCATION

According to Winston et al. (1994) the main objectives of higher education are to teach, facilitate, and encourage students to learn. They argued that in order to implement these objectives, factors that affect or stimulate learning should be explored and understood. One way to explore such factors is to develop an instrument to

measure the perception of students' social climate in the classroom (Winston et al, 1994) and their college environment.

There are many instruments used at tertiary level to measure the college environment at both the school level, e.g., the College Characteristics Index (CCI) (Pace and Stern, 1958); the Learning Environment Inventory (LEI) (Walberg, 1972) and at the classroom level, e.g., the College Classroom Environment Scales (CCES) (Winston et al., 1994); the College and University Classroom Environment Inventory (CUCEI) (Fraser et al., 1986); the Science Laboratory Environment Inventory (SLEI) (Fraser and Mcrobbie, 1995).

However, Genn and Harden (1986) reported that research on the educational climate/environment falls into three types: (1) research emphasising the nature of a particular educational environment, (2) research concerning the differences between different educational environments, (3) research using the environment as either a criterion or predictor variable.

3.6.1: RESEARCH EMPHASISING THE NATURE OF A PARTICULAR EDUCATIONAL ENVIRONMENT

The first instrument designed to measure the environment in higher education was Pace and Stern's College Characteristics Index (CCI) (1958). They viewed college cultures as a complex environmental press which corresponded to complex personal needs. They used 'environmental press' to refer to external pressure, e.g., a stimulus that characterises an educational environment, while 'personal need' refers to individual features e.g. drive, motive. Furthermore they viewed the college environment as

> a system of pressures, practices, and policies intended to influence the development of students toward the attainment of important goals of higher education (p.277).

So, student performance is viewed as a function of the symmetry between college press and student need. The student need is measured by an Activity Index (AI). The AI includes 30 scales which have 10 items each. Each item has a 'like-dislike' response format.

On the other hand, the CCI measures the students' or staff perceptions toward the climate of the whole college. The CCI includes 30 scales with 10 items each. For each need scale presented in AI, there is a press scale in CCI. The 'True-False' response format was used in this instrument.

According to Pace and Stern (1958), the items in the CCI reflect the following aspects of the undergraduate college environment: (1) curriculum, (2) college teaching and classroom activities, (3) rules, regulations, and policies of the college, (4) student's organization, and (5) feature of the campus.

In a preliminary study conducted by Pace and Stern (1958) in the United States to measure college environment, the College Characteristic Index (CCI) in its first draft was distributed at five institutions: a large Midwestern state university, a large Midwestern private university, a large Eastern private university, a moderate-sized Eastern private college for men, and a public college in the New York area. A total sample of 423 students participated. In addition 71 faculty members were asked to participate in four of the five institutions. However, the authors indicated that these samples of students and faculty members were not representative samples. Despite that, the scales revealed a satisfactory reliability and validity. Following this study changes occurred in the original items.

The development of the above instrument created a momentum that generated several opportunities for research in the development of learning environment

inventories at both classroom and school level (Pace and Stern, 1974). An example of such derivatives are: Pace's College and University Environmental scales (CUES) (Pace, 1963) which was based mainly on the factor analysis of the CCI items.

The Science Laboratory Classroom Environment Inventory (SLEI) was developed to measure the science laboratory environment for both high schools and universities (Fraser, 1991; Fraser and McRobbie, 1995). The development was based on Moos' general classification of human environment.

The scale includes five dimensions: (1) Student Cohesiveness: the extent to which students help and support each other. This reflects Moos' Relationship Dimensions; (2) Open-Endedness: the extent to which activities in the science laboratory focus on an open-ended, divergent approach to experimentation; (3) Integration: the extent to which the activities of a science laboratory are integrated with other non-laboratory classes. Both open-endedness and integration reflect Moos' Personal Development Dimensions; (4) Rule Clarity: the extent to which behaviour in the laboratory is directed by formal rules; (5) Material Environment: the extent to which the laboratory equipment and material are available. Both rule clarity and material environment reflect Moos' System Maintenance and Change Dimensions. Fraser (1991) reported that many studies that have used the SLEI (e.g. in the U.S.A., Canada, England, Israel, Australia, and Nigeria) have proven its validity and reliability.

3.6.2: RESEARCH DESCRIBING THE DIFFERENCES BETWEEN EDUCATIONAL ENVIRONMENTS

Research in this area focuses on comparing or evaluating different educational environments at classroom and school level. A number of instruments that have both actual and ideal formats have been developed for use mostly in primary and secondary

schools. For example, Fraser (1984) in Australia compared students' and teachers' perceptions of the actual and preferred classroom environment. The results of his study revealed that both students and their teachers tended to prefer a more positive classroom environment than they perceived as being actually present. For both students and teachers, the preferences tended to be more on cohesiveness and satisfaction, but less on the friction and competitiveness dimension of the classroom environment. When students' and teachers' actual forms were compared, teachers tended to perceive their classroom's psychosocial environment more positively than their students did.

Very few analogous studies have been conducted within higher education. This is due, according to Fraser et al. (1986, p.45) to the "unavailability of suitable, reliable and practical instruments for use in tertiary classrooms". To fill this gap, Fraser and Treagust (1986) developed an instrument called the College and University Classroom Environment Inventory (CUCEI) to assess the differences between students and teachers perceptions of psychosocial characteristics of the actual and preferred small classrooms (e.g., the seminar) in the higher education environment. They found that both students and instructors preferred a more favourable classroom environment than the environment actually present. In addition, instructors perceived classroom environment more favourably than their students did. The results of their study at higher education were in line with that found in previous research (e.g., Fraser, 1984; Fraser, 1986b) conducted in the primary and secondary sectors.

The College and University Classroom Environment Inventory (CUCEI):

This instrument was developed by Fraser et al. (1986). Its dimensions were based on four specific principles: (1) examining all dimensions of instruments used at

elementary and secondary levels, (2) reflecting Moos' (1974) general framework of human environment, (3) involving students and teachers at the tertiary level to comment on the initial version of the instrument, (4) ensuring that CUCEI had a relatively small number of items in order to make it more economical. Furthermore, the development ensured that CUCEI had two forms, the actual and the ideal or preferred.

The CUCEI includes seven scales each with seven items each. These scales are: (1) Personalisation, indicating the extent of students' interaction with their instructors, (2) Involvement, indicating the extent of students' participation in class activities, (3) Student Cohesiveness, indicating the extent of students' friendship with each other, (4) Satisfaction, indicating the extent of students' enjoyment in the classroom, (5) Task Orientation, indicating the extent of classroom organization, (6) Innovation, indicating the extent of the instructor's creativity in terms of class activities, (7) Individualization, indicating the extent of students' freedom in the classroom.

Moos' (1974) general framework of human environment was reflected in the CUCEI scales as follows: the relationship dimension was covered by four of the scales, namely, personalisation, involvement, student cohesiveness, and satisfaction; the personal development dimension was covered by task orientation; the system maintenance and system change dimensions were covered by innovation, and individualization. A Likert-five point scale was used for each item. It ranged from strongly agrees = 5 to strongly disagrees = 1.

According to Fraser et al. (1986) extensive studies have been conducted in American and Australian classrooms which have shown the reliability and validity of both the actual and preferred forms of the CUCEI.

3.6.3: RESEARCH USING THE EDUCATIONAL ENVIRONMENT AS A CRITERION OR PREDICTOR VARIABLE

The educational environment literature reveals that a learning environment can be viewed as either an end in itself (e.g., outcome) or as a means to an end. In this regard, Walberg and Haertel (1980) stated that

> a positive learning environment can be viewed as a means to an end. Cohesiveness, satisfaction, goal direction, and other socio-psychological characteristics are viewed as potential determinants of learning gains, and are analyzed with a view toward increasing learning. On the other hand, a positive learning environment can be viewed as an end in itself. That is to say, groups that are seen as being democratic, goal directed, satisfying, and cohesive may be viewed by some educators as worthwhile in their own right (p.232).

Based on these two views, two applications of learning environment measures in educational research have emerged. First, if environment is viewed to be an end in itself, then its measures, to a large extent, can be used as a dependent or criterion variable. Second, if environment is viewed to be a means to an end, then its measures can be used as an independent or predictor variable (Walberg and Haertel, 1980).

Environmental Research as a Criterion Variable:

In such studies "climate is studied in terms of its antecedents, correlates and possible causes" (Genn and Harden, 1986). The personality characteristics of the teacher e.g. status, age, sex, the number of teaching years of experience are related to the learning environment they created (Genn, 1982). In addition, university teachers' effectiveness has been found to be positively associated with

> creating an intellectually stimulating atmosphere, showing concern for students' personal development and learning, and communicating clear expectations and explicit evaluation criteria (Winston et al., 1994).

Clarke (1995) investigated undergraduate Australian university students' perceptions toward their learning environments in terms of how good or bad the teaching was that they experienced. Students indicated that learning is helped/fostered when their learning environment has the following teaching characteristics: a practical application or experiential learning; clear presentation/explanation by the teachers; support from teachers; teachers who actively question and involve students during the class discussion. On the other hand, they indicated that learning is hindered when the learning environment is characterised by: the class not being disciplined by the lecturer; an inappropriate pace of lecture presentation; unclear presentation by the teacher; inappropriate class size; limited learning activities in the classroom. In summary, students viewed their learning environment to be effective when the teaching was relevant, practical and interactive, while it was viewed to be ineffective when the teaching lacked structure, learning activities were limited, and the pace of presentation was poor.

Learning environment was found to be related to gender. In a study of students' preferences for different kinds of classroom environments, males were found to prefer friction, competitiveness, and differentiation more than females. Whereas females were found to prefer more teacher structure, personalization, and participation than male students (Bryne et al., 1986). Recently, Sell and Robson (1998) investigated undergraduate students' perceptions of their learning environment at Oxford University. The questionnaire focused on the following areas: self perception of academic performance and relationship with tutors; experience of and opinion about

stress, harassment and discrimination at Oxford; emotional well-being and self esteem; help seeking behaviour; and information about present and past experiences of alcohol and drug consumption. They found that a large majority of students did enjoy their life at the university. Students indicated that their studies were interesting and their level of academic ability was average or better than average. However, a minority of students, more likely female students, indicated that their relationships with tutors were less helpful. Sexual discrimination and harassment were found to be problems for females. Students tended to drink more alcohol during term time than during vacation. More males reported drinking than did female students. Their drinking habit increased after arriving at Oxford. Reasons for such drinking were related to pursuing pleasure, stress reduction and social pressure. Students tended to seek help on alcohol issues from their college friends rather than counselling services in the university. The authors suggested that properly-supported student counsellors were needed at Oxford University.

There have been studies conducted to find the relationship between the students' and/or teachers' perception of learning environment and the ecological characteristics of that environment. The size of the educational environment has been related to the climate. For example large class sizes in the educational environment were found to be significantly associated with a less open climate (Thomas, 1976) and less cohesiveness (Anderson and Walberg, 1972).

In addition Astin and Holland (1961) developed the Environment Assessment Technique (EAT) to measure the college environment. They found a correlation between the size of higher education institutions in terms of the number of students in these institutions, and climate. For example, in a large institution class students

perceive their environment as being more aggressive, more exhibitionist, and more deferential toward instructors. On the other hand, students in smaller student bodies perceive their environment as being more academically competitive, intellectually demanding and more involved in campus activities. However, in a study conducted by Winston et al. (1994) in the United States to find out the association between university students' perceptions of their classroom environment and their class size, no significant relationship was found. The authors suggested that other determinant variables of the educational environment might include course content, class compositions, and level of course.

The relationship between the learning environment and different academic disciplines in higher education has been investigated by Vahala and Winston (1994). They reported that different disciplinary areas (e.g., behavioral science, laboratory science, and English composition) in higher education create a unique classroom social environment. For example, instructors in English were ranked above instructors in other fields, in terms of demonstrating interest and concern for students in their academic and personal development, having rigorous standards, and in being less structured. In addition, students in the English class perceived their classmates as being more cooperative, supportive and encouraging. Laboratory science classes were perceived as being more hostile and intimidating than those in other fields.

The types of institutions have also been considered as a determinant of environment. Vahala and Winston (1994) reported that the learning environment was perceived differently by students enrolled in different types of institutions (public, two-year college; private, liberal-art colleges; and public research university). For example, in a private liberal-art college, students perceived their instructors to be

more concerned for the students' welfare, and there was a closer relationships between lecturers and students. On the other hand, students at a public two-year college perceived their classroom environment to be more academically demanding and to have higher standards than their counterparts in other institutions. However, they showed less professional concern than those at a liberal arts college. Finally, students in a public research university perceived their classroom environment to be more structured than their counterparts in other institutions.

Mullins et al. (1995) investigated the relationship between learning environment and the diversity of the student population at three Australian universities. They indicated that students who came from different origins (e.g., local and international) perceived some areas of their learning environment differently. For example, Australian students tended to report aspects of teaching more positively than their international counterparts. However, international students were more likely to perceive their universities' environment as being less adequate in providing them with sufficient information about their courses. Local students were more likely to experience loss of motivation during their courses. Such demotivation was a result of the "wrong choice of course, and disillusionment, because strategies for success used in the past unexpectedly prove insufficient" (Mullins et al., 1995). In addition, such lack of information resulted in the students' poor structuring of course programmes, and hence led to changes in programmes late in the course. Local students were more likely to report their academic English competency as satisfactory for university study than international students. Moreover, both local and international students described their learning environment as being stressful, having a loss of motivation, a fear of

failure, doubts about academic ability and uncertainty about what academic staff expected in terms of work examined.

It appears that determinant variables of the learning environment include the personal characteristics of teachers and students, the effectiveness of teachers, the ecological characteristics of an environment, the number of students in that environment, different disciplinary areas, and the type of school or institution.

Environmental Research as a Predictor (Independent) Variable:

Many researches have used the classroom environment as an independent variable (Fraser et al., 1987). Such studies have been conducted to find the effect of classroom environment on the cognitive and attitudinal outcome of students. A relationship between the classroom environment measure and students' outcome was found by Fraser and Fisher (1982). Haertel et al.(1981) conducted 12 studies of the environment-outcome relationships using the Learning Environment Inventory (LEI) (discussed below). The sample contained 17,805 students (from kindergarten to the 12th grade) in 823 classes, across eight subject areas[2] and in four nations[3]. The findings revealed that students' learning outcome was consistently positively associated with cohesiveness, satisfaction, task difficulty, formality, goal direction, democracy, and environment, and negatively associated with friction, cliqueness, apathy, disorganisation and favouritism.

While these studies concentrated on the relationships between student outcome and the perceptions of actual classroom environment, other studies have examined the nature of the relationship between student outcomes and 'person-environment fit'.

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[2] General science, life sciences, physical sciences, mathematics, social sciences, humanities, general achievement, and miscellaneous.

[3] USA, Canada, Australia, and India.

Person-environment fit has been defined as "the congruence between the actual classroom environment and that preferred by students" (Fraser and Fisher, 1983).

In person-environment fit studies, the actual and preferred forms of environment inventories have been applied together to find out whether students achieve more when there is high a congruence or similarity between the students' perceptions of the actual classroom environment and that preferred (Fraser et al., 1987). In a study conducted by Fraser and Fisher (1983) in Australia, it was hypothesised that students' achievement of cognitive and affective outcomes would be better in their preferred classroom environment (i.e., in a learning environment closer to their preferences). They used the Individualized Classroom Environment Questionnaire (ICEQ)[4] to assess the students' perceptions of the classroom environment. The results showed a more positive relationship between students' outcomes and the students' perceptions of actual classroom individualisation in classes which involved students who had a greater preference for classroom individualisation than classes involving students having a lower preference. The hypothesis of person-environment fit was supported. Wong and Watkins (1996) replicated such a study in a non-Western culture. Their findings support the hypothesis that students tend to achieve better in a learning environment similar to their preference for cognitive outcomes. However, their findings do not support the hypothesis for affective outcomes.

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[4] ICEQ contains five 10-item scales which measure the following dimensions: personalization (the extent to which teachers consider students' feelings); participation (the extent to which the teacher lectures without students asking or answering questions); independence (the extent to which students choose their partners for group work); investigation (the extent to which students find out the answers to questions and problems from the teacher rather than from investigations); and differentiation (the extent to which different students use different books, equipment and materials) (Fraser, 1981).

Vahala and Winston (1994) conducted a study to find out the effect of the learning environment on students' academic achievements in different types of higher education. They found that the students' perceptions of their classroom environment was linked to their final course grades. For instance, students achieved higher grades in classes where they could: cooperate with each other; have intellectual stimulation; where they perceived lecturers as warm and friendly; and where they had clearly specified expectations and standards.

Fraser and Treagust (1986) investigated the relationship between a learning environment, using the CUCEI and two measures of outcome (classroom satisfaction[5] and locus of control[6]). They found that students reported higher classroom satisfaction in classes perceived to have greater personalization, more involvement, more student cohesiveness, better task orientation, innovation, and individualization. Students also reported higher scores on locus of control in classes characterized by greater emphasis on task orientation and student cohesiveness.

It should be noted that most of the classroom environment instruments are used as criterion and predictor variables in different research studies conducted at primary and secondary school (Fraser and Treagust, 1986). However, few have been conducted at a higher education level. One of the major instruments used as both a criterion and predictor variable in higher education is the Learning Environment Inventory (Fraser, 1986b).

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[5] Classroom Satisfaction is one of the CUCEI's scales. It has been used as a dependent variable.
[6] A Locus of Control measure is used to assesses personal efficacy among students.

Learning Environment Inventory (LEI[7]):

The Learning Environment Inventory (LEI) was developed by Fraser, Anderson, and Walberg (Fraser et al., 1982) for the purpose of measuring the actual environment. The LEI was considered as an extension of the Classroom Climate Questionnaire (CCQ) developed by Walberg (1968). The LEI contains 105 items and 15 dimensions (i.e., 7 items in each dimension). For each item, there is a four-point scale ranging from strongly disagree, to strongly agree. The 15 dimensions are presented in Table 3.4.

The LEI has been used widely in correlational studies to examine the relationship between learning environment and learning outcome (Walberg and Haertel, 1980). One such study revealed that the "learning environment is strongly predictive of cognitive, affective, and behavioral outcomes of instruction" (Walberg and Haertel, 1980).

TABLE 3.3: THE DIMENSIONS OF THE LEI

Scale	Scale Description
Cohesiveness	Extent to which students know, help and are friendly towards each other.
Diversity	Extent to which differences in students' interests exist and are provided for.
Formality	Extent to which behaviour within the class is guided by formal rules.
Speed	Extent to which class work is covered quickly.
Material Environment	Availability of adequate books, equipment, space and lighting.
Friction	Amount of tension and quarrelling among students.
Goal Direction	Degree of goal clarity in the class.
Favouritism	Extent to which the teacher treats certain students more favourably than others.
Difficulty	Extent to which students find difficulty with the work in the class.
Apathy	Extent to which the class feels no affinity with the class activities.
Democracy	Extent to which students share equally in decision-making related to the class.
Cliqueness	Extent to which students refuse to mix with the rest of the class.
Satisfaction	Extent of enjoyment of class work.
Disorganization	Extent to which classroom activities are confusing and poorly organized.
Competitiveness	Emphasis on students competing with each other.

(Source: Fraser, 1986b, p.18)

The above sections have described what is meant by the learning environment, the classifications of the learning environment, and the major research using learning

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[7] According to Genn and Harden (1986, p. 117) both the LEI and the CES "or minor adoption of them have been used to measure the classroom climate in secondary and tertiary education".

environment as criterion and predictors variables in higher education in general. The review will now look at major research in the medical learning environment. It will focus on the changes taking place in the medical education environment in terms of the transition from a traditional-based curriculum to an innovative-based curriculum.

3.7: INTRODUCTION: MEDICAL EDUCATION IN TRANSITION

> The likelihood of change is enhanced when there is a crisis in the environment, when people have shared interest in change, when there is a power imbalance in the environment, when the environment has experienced structural changes, and finally, when it is consistent with the zeitgeist or spirit of the times. (Levine, 1980, p.6)

The need for change in medical education is not new (Buckley, 1993), and is not specific to certain countries (Al-Refai, 1995). The impetus for change has its origins in (1) the need of the medical institution itself, (2) external forces in the form of policy decisions makers at the national level, (3) external forces in the shape of suggestions from international organizations (Al-Refai, 1995).

The need for change has become evident through:

(1) dissatisfaction with the output of the educational process, in that medical students graduate without a sufficient level of competency (Harden, 1995);

(2) recognition of deficiencies in the education process itself (Harden, 1995);

(3) recognition that the existing system of medical education relies heavily on the acquisition of knowledge; has a curriculum overload; and places emphasis on memorization (Buckley, 1993; Engel, 1997); and

(4) acknowledgement of imbalance among three groups of knowledge: "what the student needs to know to understand the disease process and the principles of therapy; what the student is taught, in order to prepare him or her for future

developments; and what the student is not taught but will need to know, in order to practise in a future setting" (Guidotti, 1998, p.235).

To resolve these defects, a significant effort has been directed towards changing the existing traditional curriculum into a more innovative curriculum. In this regard, Harden (1995) highlighted the need for changing the existing traditional curriculum towards one that is:

> more convenient, relevant, individualized to the need of each student or trainee, diagnostic- emphasizing self-assessment, interesting- taking account of motivation of students and doctors, systematic or planned and allowing for speculation and a consideration of the grey areas or uncertainties of medicine as well as the certainties (p. 79).

Alternative curricula have been suggested by innovative medical schools[8] in which problem-based learning (PBL) replaces the traditional educational track (Buckley, 1993). Despite such suggestions, Coles and Holm (1994) reported that most of the medical schools in the world still use traditional track systems. However, Al-Refai (1995) argued that there is a move towards a more innovative curriculum. Examples of medical schools that have introduced PBL into their curriculum are: McMaster University Medical School in Ontario (Neufeld and Barrows, 1974); University of New Mexico (Kaufman and Obenshain, 1985); University of Maastricht (Van Dalen et al.,1989); Bowman Gray School of Medicine (Philp and Camp, 1990); Harvard University (Moore, 1997); Griffith University in Brisbane (Little and Saure, 1997); and University of Hawaii (Anderson, 1997). The next sub-section will discuss, briefly, the differences between traditional and problem-based learning.

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[8] Problem-based learning was first introduced at McMaster University, Canada, 1970 (Bouhuijs, 1993).

3.7.1: TRADITIONAL AND PROBLEM-BASED LEARNING

In a traditional learning environment, the curriculum puts very little emphasis on critical analysis, self-directed learning[9] or problem solving (Birgegard and Lindquist, 1998). Students in a traditional learning environment learn concepts and knowledge for their own sake and do not acquire them through an active involvement with patient-centred activities. They do not actively participate in the learning process, nor do they learn to develop critical thinking or demonstrate knowledge. Such students usually experience poor motivation for learning. In addition, the examination in a traditional environment demands memorization and recall of information (Barrows, 1985). Teachers in the traditional environment are usually perceived as adversaries rather than colleagues, and the coursework as being more of a hurdle than an educational adventure (Kaufman and Obenshain, 1985). Moreover, the teaching in such an environment is teacher-directed (Birgegard and Lindquist, 1998). Such teaching is generally theoretical and abstract and has only a slight connection with practical problems (Van Berkel, 1990).

According to Al-Refai (1995) the major characteristics of the traditional curriculum in medical education are:

* lack of institutional philosophy, goals and clearly defined objectives;
* Irrelevant subject content and improper sequencing;
* Passive learning experiences without opportunities for the development of self-directed learning, problem-solving and communication skills;
* Autonomous departmental structure as a barrier to interdisciplinary integration; and
* Clinical training solely based in tertiary care hospitals.

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[9] Self-directed learning is a "process of learning in which learners function autonomously, taking responsibility for planning, initiating, and evaluating their own learning efforts "(Wilcox, 1996, p.165).

Innovative problem-based learning has been introduced to overcome potential problems. These include: (1) the irrelevance of information presented to students in the traditional curriculum; (2) the lack of integration of topics from different disciplines in the medical field; and (3) the lack of students' capability to use their acquired knowledge (Schmidt, 1983).

Innovative problem-based learning has been viewed by Barrows (1985) as a form of active learning. In contrast, he perceives the traditional curriculum as passive memorizing of information. Such PBL involves a tutor and a small group of students, normally between five to seven. Barrows (1985) described the Problem-based learning method as being

> complex, carefully designed, highly structured, efficient, and based on studies in cognitive and educational psychology as well as carefully considered education objectives (p.2).

In the same vein Bouhuijs (1993) viewed PBL as "an educational strategy aiming at various educational goals and employing various formats". Furthermore, Albanese and Mitchell (1993) viewed PBL as

> an instructional method characterised by the use of patient problems as a context for students to learn problem solving skills and acquire knowledge about the basic and clinical sciences.

The above views imply that PBL has different objectives and approaches. However, despite such diversity of goals and objectives, the common component in the different approaches to PBL is the focus on active learning using problems as the trigger or initiator for the learning process that, usually, takes place in a small group of learners. The main characteristics of PBL are summarized in Table 3.5.

TABLE 3.4: THE CHARACTERISTICS OF PROBLEM-BASED LEARNING

* use of stimulus material to help students discuss an important problem, question or issue;
* presentation of the problem as a simulation of professional practice or a 'real life' situation;
* appropriate guidance to stimulate students' critical thinking;
* provision of limited resources to help students learn from defining and attempting to resolve the given problem;
* co-operative group work to encourage students to explore information in and out of class;
* access to a tutor (not necessarily a subject specialist) who knows the problem well and can facilitate the group's learning process;
* identification by students of their own learning needs;
* appropriate use of available resources;
* reapplication of this new knowledge to the original problem and evaluation of students' own learning processes.

(Source: Boud and Feletti, 1997)

In addition, problem-based learning involves developing analytical skills, problem-solving skills, self-directed learning skills, and an integrated structure of learning. It fosters a motivation for learning (Ryan, 1993).

According to Barrows (1985; 1986) the major objectives for a problem-based curriculum are:

(1) acquisition of an essential body of knowledge. This can be easily retained, retrieved, and then used in the clinical environment. One way to achieve such an objective is to integrate the new facts with the existing knowledge.

(2) development of clinical reasoning processes. This takes places when knowledge is used in an effective manner in the process of evaluation and the care of their patients problems. Such clinical reasoning processes involve the ability to: (a) assess patients' health problems, (b) decide what is wrong with a patient, and (c) effectively manage the patient's problem.

(3) improvement in the knowledge base to cope with the demand of future technology. This is done by developing effective self-directed learning skills.

(4) increase in the motivation to learn.

Schmidt (1983) argued that problem-based learning is capable of meeting the key principles for facilitating learning or acquiring new information for general learning. These principles are:

(1) Activating prior knowledge. This is done by describing a problem objectively, undertaking a problem-solving activity which is presented in a concrete way and which has a degree of complexity adapted to students' prior knowledge.

(2) Encoding specificity. Here the problems selected are relatively similar to those problems that students will face in their professional career.

Neame (1981) has suggested criteria for selecting such problems. Selection will depend on

- the frequency of occurrence
- the extent to which it is life threatening
- the significance in terms of morbidity and/or mortality
- the adequacy/inadequacy of management by practitioners in the community.

(3) Elaboration of knowledge. This principle is usually met during students' group discussion where newly gained knowledge is exchanged, critically discussed and then applied.

Engel (1997) proposed that PBL, in relation to adult learning, can enhance the conditions under which it takes place (see Table 3.5).

TABLE 3.5: EXAMPLES OF CONDITIONS FOR EFFECTIVE ADULT LEARNING
* Active learning through posing own questions and seeking the respective answers. * Integrated learning, learning in a variety of subjects or disciplines concurrently through learning in the context in which the learning is to be applied in real-life situations. * Cumulative learning to achieve growing familiarity through a sequence of learning experiences that are relevant to the student's goals, experiences that become progressively less straightforward but more complex, as well as less non-threatening but progressively more challenging. * Learning for understanding, rather than for recall of isolated facts, through frequent feedback, linked with opportunities to practise the application of what has been learned.

(Source: adapted from Engel ,1997, p. 19).

The major outline of problem-based learning has been identified by Barrows (1985) as:

> encountering the problem first, problem-solving with clinical reasoning skills and identifying learning needs in an interactive process, self-study, applying newly gained knowledge to the problem, and summarizing what has been learned (p. 15).

The quality of students' learning in the problem-based curriculum is largely dependent on the quality of problems or cases presented to them. So, to improve students' learning, the effectiveness of such problems/cases should be defined. In this respect, Dolmans et al. (1997) proposed seven principles for effective case design for a problem-based curriculum. These are that:

(1) the content of a problem should be related to students' prior knowledge; (2) a problem should involve many cues that trigger students to elaborate; (3) it should have relevance to the future professional activity; (4) it should introduce relevant basic science knowledge in the context of a clinical problem to foster integration of knowledge; (5) a problem should stimulate self-directed learning by encouraging students to conduct a literature search; (6) a problem should build up students' interest in the subject-issue by stimulating discussion about possible solutions and assist

students to explore alternatives; and (7) a problem should reflect at least one of the faculty objectives.

The major differences between traditional and problem-based learning is outlined in Table 3.6.

TABLE 3.6: McMASTER'S COMPARISON OF STUDENTS' LEARNING IN TRADITIONAL EDUCATION WITH PROBLEM-BASED, TUTORIAL LEARNING

Traditional Learning	Problem-Based learning
Schedule prepared by faculty; fairly tight.	Students largely responsible for own schedule, individually or in groups; unstructured schedule.
Competition with peers for "honours", for place in medical school, etc.	Encouragement to work cooperatively; sharing experiences, opinions, expertise, learning resources. Learning to be comfortable with saying "I don't know".
Main learning events: lectures, laboratory, recommended reading with most students doing same thing.	Wide range of learning resources and events, many more than can be sampled by one person.
Manageable "chunks" of information small enough to be mastered for an examination.	Endless amounts of information, with emphasis not on mastery of information *per se* but on the management of information appropriate to each individual, and its application to problems.
Evaluation by end of course, examination, limited to defined "knowledge" objectives determined by professor.	Ongoing assessment of broad range of goals (including both personal and programme objectives) with student as main evaluator of own progress.
Lecture room environment, with large groups of students.	Few "class-wide" events; close associations with small groups of classmates in tutorials.
Classroom environment, with large groups of students.	Several faculty educational roles, including the general tutor, the "resource person", and the student advisor roles.

(Source: McMaster University , 1976-8).

The advantages of introducing problem-based learning over traditional lecture-based learning is well covered in the literature. In the short term both students and tutors show greater motivation and satisfaction with the PBL approach (Neame, 1982; Hughes Caplow et al., 1997). It facilitates the learning of basic science knowledge by helping to establish the relevance and integration of new information in the context of patient cases (Hughes Caplow et al., 1997). In addition, there is more enjoyment and participation in problem-based learning sessions (Bhattacharya, 1998), and a more

positive attitude toward basic science courses (Kaufman and Mann, 1996; 1997). Moreover, medical students at problem-based medical universities showed a deeper approach to study instead of a "surface" approach (Coles, 1985; Newble and Clarke, 1986).

In the long term, doctors who experience a Problem-based curriculum in their academic life tend to put more emphasis on both the interpersonal and practical aspects of medicine (Mitchell and Hayes, 1983; Hill et al., 1998). They show more confidence in coping with stress, collaborating with a health care team, and managing their self-directed learning (Hill et al., 1998). They show more effective life-long learning (Norman and Schmidt, 1992). Medical students gain more from being students in a PBL curriculum. The advantages involve self-improvement, development of critical thinking and problem-solving skills, particularly if their examination/assessments are of PBL types (Birgegard and Lindquist, 1998) and designed to measure the higher order cognitive skills (Swanson et al., 1991). The main disadvantages of PBL are that they are time consuming and require a greater need for guidance (O'Hanlon et al., 1995).

3.8: MEDICAL SCHOOL LEARNING ENVIRONMENT

The main aim of medical education is to develop doctors who are capable of promoting the health of all (World Federation for Medical Education, 1988). In order to accomplish that aim, many recommendations have been put forward as prerequisites for improving the delivery of health care (World Federation for Medical Education, 1993; Wolf, 1994).

One of these suggestions is the integration of science and clinical practices. Such integration might be achieved through adopting a problem-based curriculum rather than a traditional curriculum (World Federation for Medical Education, 1988; 1993). Such changes in the medical learning environment, in terms of curriculum systems, might lead to changes in medical students' behaviour. For example, Schmidt et al. (1996) reported that the integration of basic science and clinical knowledge results in better diagnostic performance by medical students. Moreover, the majority of undergraduate medical students at the Royal Free Hospital School of Medicine were in agreement with most of the recommendations, namely, greater emphasis on the integration between basic and clinical science, small-group teaching, working in teams, and the development of independent thought (Rosenthal and Ogden, 1998).

There is a consensus among researchers (Hutchins, 1961; Genn and Harden, 1986; Harden, 1995; Mitchell et al., 1999) on the importance of studying learning environments in medical schools. In this regard, Hutchins (1961) stated that the study of environmental variables is "equally important to an understanding of academic success, attainment of clinical proficiency, or the choice of a specific career"[10]. However, there is no agreement on what constitutes "learning environment" in medical schools. Environmental variables vary between medical schools. Hutchins (1961) argued that the environment in medical education differs in terms of the physical plant and research, hospital facilities, and the calibre and attitudes of faculties. Jefferys and Elstons (1989) listed six major variables that influence the environment in medical education:

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[10] Hutchins (1961) assumed that students' career choice was influenced by their financial factors, personal factors, and perceptions of their medical school environment.

> (1) the stage at which entry to medical school takes place (e.g., as undergraduates at age 18 or as graduates at age 22), (2) the criteria set for entry and the procedures used to select students in the first place (e.g., whether quotas are used to favour or disadvantage particular types of applicants for medicine), (3) who bears the cost of training (e.g., the individual student or the state), (4) the methods of testing student performance and of discarding those who do not attain the level required during the course, (5) the emphasis placed in the curriculum on particular areas of knowledge (e.g., the behavioural sciences), and (6) the kinds of professional practice (state or open market, salaried or fee, hospital-or community-based, specialized or general) open to entrants to the profession (p.247).

The environment in medical education is characterised by: (1) complex curriculum in terms of design, organization, and implementation; (2) multidisciplinary topics, e.g., basic science, clinical science; (3) multi-learning-setting, e.g., lecture rooms, tutorial classes, laboratory; (4) multiple activities, e.g., laboratory sessions, patient-oriented problem sessions, case presentation, seminars; (5) multiple-sociological influences, e.g., lecturers, patients; and (6) multiple aims, goals, and purposes of medical education (Cleave-Hogg and Rothman, 1989; Genn and Harden, 1986).

Despite such multiplicity, the major goals of medical education have been categorized into two main orientations:

Task-orientation. This focuses on "complex and diverse tasks, preparing an expert scientist who knows the answers and procedures"; and

Social-emotional orientation. This "concerns the development of a caring, nurturant helper of sick people to get well" (Genn and Harden, 1986).

However, there is a conflict between these two orientations. Such conflict has been expressed in terms of a struggle between scientism and humanism. Accordingly, the medical education environment

> can be simultaneously developmentally desirable and deleterious, in its effects on its student inhabitants. While professionally efficacious, the medical education environment may not be emotionally supportive of students, and in fact may be inimical to the attainment of what humanistic psychologists would call self-actualisation and fulfilment (Genn and Harden, 1986, p.114).

Coles (1994b) indicated that the environment in medical education should be collaborative. Unfortunately, he viewed many medical school environments as unsupportive, passive, threatening, fostering unhealthy competitiveness among students, encouraging meaningless rote learning, and providing unsatisfactory support services for students' welfare.

Cleave-Hogg and Rothman (1989) conducted a study involving interviews with 51 course supervisors in U.S. medical schools. They identified four major factors that influenced roles and responsibilities in medical school:

(1) the clarity of the faculty mission document, in terms of the aims and objectives of the faculty.

(2) active communication between course supervisors in basic sciences and clinicians.

(3) flexible authorities for course supervisors over scheduling, and over allocated financial or management resources.

(4) an environmental climate that enhances both faculty-student trust and faculty-administrators trust. The main sources of mistrust for the former were thought to be the result of examinations and the competitive nature of medical school. The latter were thought to be the result of: (1) the size of the faculty, where communication channels are lacking; and (2) the system of organization, where participation of course supervisors in educational decision making are limited. They concluded that emphasis should be put on defining managerial and administrative structures and on the overall goals of the medical school. In addition, they highlighted the importance of

collaborative communication with a course coordinator to plan courses more effectively and to implement curricular improvements.

Students' perceptions of teaching are an important variable in the learning environment. Metcalf and Matharu (1995) asked students to indicate good and bad teaching occasions for three types of teaching: lectures, non-clinical (e.g., tutorial, seminar), and clinical interactive (e.g., ward round). The results were grouped into three main domains: attitudes and behaviours (e.g., behaviour to students), design and perception (e.g., quality of design, relevance), and delivery of teaching (e.g., aids and handouts). The results indicated that students reported as "good behaviours" a higher score on the ability of their teachers to 'run the session' and on 'involving students actively'. "Bad behaviours" of staff towards students were frequently reported. Overall, students indicated their satisfaction with their environment. Van de Wiel et al. (1999) investigated fourth year medical students' perceptions of real patient-contact in a problem-based learning tutorial. They found that students expressed their high satisfaction with such real contact with patients in their tutorial compared with problem-based tutorials with written cases. Students viewed it as very valuable and very motivating. The author concluded that individuals' contact with stimulated patients is a useful way to test one's own knowledge, and social and communication skills.

It appears that defining the objectives of medical education, creating a supportive environment, involving students actively in their courses, communication between course supervisors, integration between courses on the medical curriculum, exposing students to real stimulated patients, and teaching with a more humanistic, practical and interactive focus are important factors for effective learning.

3.9: USES OF MEASUREMENTS IN THE MEDICAL EDUCATION ENVIRONMENT

The main uses of measurements in the medical education environment are: (1) to find out whether educational objectives have been achieved, (2) to assess the health of a medical school environment, (3) to enhance the quality of the medical education environment, (4) to enhance the medical education process itself, (5) to detect a change within the medical school environment, (6) to compare different environments, and (7) to develop appropriate teaching intervention to counteract learning difficulties (Hutchins, 1961; Rothman and Ayoade, 1970; Patel and Dauphinee, 1985; Genn and Harden, 1986; Davis and Dent, 1994; Schmidt et al., 1996; Mitchell et al., 1999).

3.10: MEASUREMENT OF MEDICAL SCHOOL LEARNING ENVIRONMENT

There are three major instruments used to study the medical students' perceptions of their learning environment. The Medical School Environment Inventory (MSEI) measures the differences among the environments of medical schools. The Medical School Learning Environment Questionnaire (LEQ) is designed to detect a change within the environment of a particular medical school, and the Medical School Learning Environment Survey (MSLES) focuses on the learning environment that relates to students' stress.

3.10.1: THE MEDICAL SCHOOL ENVIRONMENT INVENTORY (MSEI)

The medical school environment has been viewed by Hutchins (1961) as a learning system that has an input and output variable. The input variable includes students' personality in terms of differences in their abilities, interests and personality

characteristics. The output variable includes the changing in behaviour concerning values, attitudes, skills, knowledge, methods of problem-solving, clinical proficiencies, career choices and academic success. The Medical School Environment Inventory (MSEI), developed by Hutchins (1961), was the first instrument used to measure the climate of medical education environment. It was adopted, in part, from the College Characteristics Index (CCI). The MSEI consists of 18 scales of 10 items each. The scales were designed to describe the behaviour of both faculty and students.

The faculty behaviours are covered by nine scales: (1) affiliation, (2) directiveness, (3) enthusiasm, (4) achievement, (5) compliance, (6) supportiveness, (7) humanism, (8) independence, and (9) pragmatism.

The other nine scales describing the students behaviours are: (1) academic achievement, (2) aggression, (3) breadth of interests, (4) competition, (5) humanism, (6) participation, (7) reflectiveness, (8) scientism, and (9) social conformity. The response options were 1= 'false', 2= 'more often false than not', 3= 'more often true than not', and 4= 'true'.

The questionnaires were distributed to a sample of 1901 students in 25 U.S. medical schools. The results indicated that all scales have the ability to measure differences[11] among the medical schools. All students, in general, indicated that their faculties' behaviours showed less affiliation and less directiveness, but tended to have more humanism behaviours and encouraged the students' independent learning.

Medical students indicated that their peer groups' behaviours tended to foster high competition to accomplish academic achievement and to promote a more

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[11] These differences were not mentioned in Hutchins' (1961) study.

reflective and humanistic outlook. However, they reported less participation in social activities outside the university.

Furthermore, Hutchins (1961) classified the 25 medical schools into three categories: (1) schools with a clinical orientation, in which the majority of students chose 'general' or 'speciality' practice, (2) schools with research and teaching orientation, in which the majority choose either 'research' or 'teaching careers', (3) schools with mixed orientation, in which choice of career was more or less equally distributed among the four types of practice. When the type of school classification was related to MSEI, it was found that schools with clinical orientation and schools with research and teaching orientation had significant differences in two of the faculty behaviour scales, compliance and independence. Students in schools with a research and teaching orientation tended to view their faculty as less focused on rules and regulations, but more affiliative, supportive and enthusiastic than those with a clinical orientation.

For the peer group environments, students in schools with a clinical orientation tended to score less in academic achievement and breadth of interest but more in aggressive behaviour and more participation in activities as compared with those in other schools. Hutchins (1961) concluded that there were more differences among medical schools than within them.

Huebner et al. (1981) used the MSEI to measure student reported stress. They described an ecosystem approach to manage stress in students' medical education environment. Their study had three stages. The first stage looked at potential stress by using student brainstorming. The second stage used the MSEI to measure student

reported stress. The third stage involved follow-up interviews to validate the findings of the previous stages.

The results revealed that stress tended to increase as students progressed in their study. For example, students in third and fourth years reported more stress than those in first and second year. In addition, the major source of stress was related to the overload of material, inadequate feedback, time limitations, and the poor quality of interpersonal relationships.

3.10.2: MEDICAL SCHOOL LEARNING ENVIRONMENT QUESTIONNAIRE (LEQ)

This instrument was developed by Rothman and Ayoade (1970) to study differences within medical schools after introducing a change in their environments, namely, moving from a traditional to a new system of curriculum. The items of the LEQ were adopted from the LEI, CUES, and MSEI. The response options were 0= 'definitely false', 1= 'mostly false', 2= 'true and false', 3= 'mostly true', and 4= 'definitely true'. The LEQ has seven scales:

(1) Evaluative Scale. This measures the extent to which students evaluate their medical learning environment in terms of good or bad;

(2) Academic Enthusiasm Scale. This measures the extent to which students describe their academic success and enthusiasm in terms of high or low;

(3) Goal Direction Scale. This measures the extent of clarity of the objectives of the medical course;

(4) Authoritarianism Scale. This measures the perceptions of students as to the extent to which their environment is being controlled;

(5) Breadth of Interest Scale. This measures the range of activities students practise;

(6) Student Interaction Scale. This measures the level of student participation and interaction in their learning environment;

(7) Intellectual Maturity Scale. This measures students' perception of their role in life.

The reliability of these scales ranged from .74 to .83 which indicates a high reliability. Rothman and Ayoade (1970) found that students perceived their environment as high on academic enthusiasm but low on goal direction and breadth of interest. This suggested that students viewed the objectives of the course as being rather vague and demanding of much study, causing a reduction in the participation of extra-curricular activities.

Levy and his colleagues (Levy et al., 1973) conducted a study involving first year medical students at the Medical College of Georgia. The aim was to measure, using the LEQ, the effect of changing the existing traditional curriculum into an innovative curriculum on students' perceptions of their learning environment.

The results indicated that those in the innovative curriculum tended to perceive their faculty and peer groups more favourably than did their counterparts in the traditional curriculum. Students in the traditional curriculum had higher scores in authoritarianism, while those in the innovative curriculum had higher scores in goal direction and academic enthusiasm. This difference in student perceptions regarding their learning environment reflects the sensitivity of the LEQ in detecting the effect of any changes in the educational curriculum.

3.10.3: THE MEDICAL SCHOOL LEARNING ENVIRONMENT SURVEY (MSLES): STRESS AND LEARNING ENVIRONMENT

> Stress, an arousal state which is nonspecific, is a response to a real or perceived, but identifiable, threat to personal security....Educators should attempt to maintain a learning environment which is free from threat and

> assist learners to identify unlabeled fears and anxieties (Mackeracher and Tuijnman, 1996, p.447).

One of the important areas in medical education research relates to student stress and dissatisfaction with their learning environment (e.g., Moor-West et al., 1989; Miller, 1994). Stress may be caused by inadequacy within individuals, the environment or the interaction between the individual and his/her environment (i.e., the whole educational process) (Marshall, 1978).

The curriculum of medical education might contribute mainly to the existence of stress among medical students (Coles, 1994b). Moreover, different sources of stress have been identified at the pre-clinical and clinical level.

At the pre-clinical level, stress results from the following:

(1) content overload, irrelevant material, and information needed for unclear/unspecified reasons (Moore-West et al., 1989; Quirk et al., 1987; Coles, 1994a; Coles, 1994b; Deary, 1994);

(2) interpersonal relations (McMurray et al., 1980; Kaufman et al., 1998);

(3) unsupporting educational environment (Deary, 1994), and the existence of a large number of students within an institution's class, which may enlarge the distance or even block the interactions between students and teachers (Stewart et al., 1997);

(4) reduction in the participation of social activities due to the demands of too much pre-clinical study work (Quirk et al., 1987; McMurray et al., 1980); and

(5) anxiety and depression, related to professional examinations, and academic problems (Kaufman et al., 1998).

In addition, it was found that female students in pre-clinical years ranked problems related to medical school demands and interpersonal relations as being more stressful than male students did (McMurray et al., 1980). Students at the beginning of

the first year experienced more stress, anxiety and depression than at the end of the first year (Miller, 1994). Furthermore, increased concern regarding the medical curriculum and environment, personal competence and endurance, and time devoted to a life outside school were found to be related to an increase in stress among first year medical students (Stewart et al., 1997).

At the clinical level, the stress emerged from the following:

(1) massive academic workload and working long hours (Harth et al., 1992; Mitchell et al., 1999);

(2) uncertainty regarding their own role and quality of their performance, social isolation, extended responsibility (Fain and Schreier, 1989);

(3) inability of students to apply what they know in terms of theoretical information into their professional/practical lives or poor integration skills, (Hunt et al., 1989; 1995; Coles, 1994b; Moore-West et al., 1989);

(4) interpersonal conflict with clinical instructors (Harth et al., 1992); and the students' lack of support from their seniors (Coles, 1994b; Moore-West et al., 1989), and poor interpersonal skills (Hunt et al., 1989; 1995);

(5) inability to focus, and shyness (Hunt et al., 1989; 1995); and death of a family member (Hojat et al., 1999);

(6) dealing with patient death (Harth et al., 1992); and

(7) financial problems (Hojat et al., 1999).

In order to study aspects of learning environment related stress among medical students, Marshall (1978) created the Medical School Learning Environment Survey (MSLES). It consists of seven scales with a total of 50 items. Three out of the seven scales were based on discussions with students:

(1) Meaningful Learning Experience. This measures the extent of the relationship between the demands of study and students' acquisition of knowledge and skills;

(2) Emotional Climate. This measures how students feel about their learning environment; and

(3) Nurturance. This measures the degree to which students perceive their learning environment as being supportive. The remaining four scales, adopted from the LEQ, were: breadth of interest, student interaction, organization (goal direction), and flexibility (authoritarianism).

The response options were 1= seldom, 2= occasionally, 3= more-often-than-not, and 4= very often. In addition, the response format included items' desirability with the choices -1= undesirable, 0= neutral, +1= desirable, +2= very desirable. A response choice, 'insufficient information' was added.

The psychometric characteristics of the MSLES were analysed in a study conducted by Feletti and Clarke (1981). A total sample of 947 medical students participated at four undergraduate Australian medical schools.

The results indicated that five subscales were highly correlated, while the remaining two subscales, namely, 'flexibility' and 'student interaction', showed less correlation. However, the authors indicated that due to the small number of items in each subscale, they did not recommend eliminating these two subscales unless other studies showed any problems.

Other studies have investigated the relationship between introducing a change in learning environment and stress experienced by students in such an environment. For example, Moore-West et al. (1989), at the University of New Mexico School of

Medicine, conducted a longitudinal[12] study to investigate the effect of introducing an educational innovation among 73 medical students. Students were assigned to either traditional curriculum or an innovative track, the Primary Care Curriculum (PCC). Two instruments were used:

(1) Symptom Questionnaire (SQ). This was used to measure dimensions of distress, such as, hostility, anxiety and depression; and

(2) Marshall's Medical School Environment Inventory. This inventory consisted of five subscales: emotional climate, nuturance, student-student interaction, meaningful learning experience, and flexibility subscale. The main results indicated that students in the PCC showed less distress during the first two years of their study compared to those in the traditional track. The reason for such findings was traced back to the features of the innovative track, e.g., the small groups, problem-based curriculum, and the close contact between students and faculty. These features may help students to cope well with distress.

Clark et al. (1984) conducted a cohort study at the University of Newcastle Medical School in Australia to determine the effect of curriculum change from traditional to innovative, and to examine the strength of students' pressure on curriculum change. The MSLES was used to measure students' perceptions of their learning environment. The sample involved undergraduate medical students in each of the five years of the programme (from 1978 to 1982). The perceptions of students in 1982 were compared with their own perceptions in 1978. The results indicated that first year medical students showed a high satisfaction with their learning environment.

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[12] The students completed the questionnaire during their first, second, third, and fourth semester of their first two years.

However, a decline in students' perceptions scores from 1978 to 1979 was noted. Such a decline might reflect a real change in the learning environment. Change in the learning environment includes the following: change in the ability of clinical teachers to manage educational activities in the last year of the programme, and change in the interest in interpersonal relationships between teacher and students. The authors concluded that students in a new innovative medical school tended to have less favourable perceptions of the learning environment.

3.11: REVIEW OF THE MEDICAL LEARNING ENVIRONMENT LITERATURE

The learning environment research in medical education has looked at the differences between medical schools and changes within a particular environment. In addition, such research on learning environment of medical school has been used as both criterion and predictor variables, similar to the research in higher education.

3.11.1: THE MEDICAL LEARNING ENVIRONMENT AS CRITERION AND PREDICTOR VARIABLES

The medical learning environment has been used widely as both criterion and predictor variables. For example, Harth et al. (1992) indicated that age, gender, and academic grades are not significantly related to the perception of learning environment. Strayhorn and Frierson (1989) looked at ethnicity (race) in relation to students' perceptions of their learning environment but found no significant relationship.

In contradiction to these studies, Peplow (1998) investigated the gender differences in terms of attitudes and examination performance of medical students in a

learning environment that had an active, case-based learning programme in an anatomy course. The main features of such a case-based programme are more student-centred and less teacher-centred classes. He found that female students responded more positively than male students to the initial discussion sessions of the programme. Female students perceived the initial discussion sessions as developing deeper learning than the male students did. In addition, female students performed better than males on the case-based learning.

Students at an innovative school perceived their doctor's role as: (a) placing more value on human, family, educative and preventive dimensions of patient care, (b) having more liberal attitudes, (c) being more active participants in the medical profession, (d) having a greater commitment to their work, and (e) acting as a model for healthy life habits.

On the other hand, students at a conventional school perceived their doctor's role as: (a) being more important on the diagnostic and treatment of diseases, (b) placing less value on health promotion, (c) rating low on 'counselling patients on healthy life habits' (Maheux et al., 1989).

Moore-West et al. (1989) reported that the learning environment was perceived differently by students enrolled in different types of curriculum. For example, students enrolled in an innovative curriculum perceived their learning environment as being more positive, more supportive, and their curriculum more meaningful and flexible than those on the traditional track.

In addition, significant relationships were found between the learning environment and a student's affective outcome, in terms of attitudinal change during their course. For example, students perceived themselves as being more concerned

with making money in a medical environment characterised by expensive fees in order to cover the financial sacrifices made during their study (Wolf et al., 1989). Moreover, a significant positive relationship was found between an innovative learning environment and an affective outcome in terms of accurate diagnosis (Schmidt et al., 1996).

The quality of clinical clerkships tutorials was found to be positively associated with a relaxed teaching environment, enthusiasm in teaching, encouragement of student participation, open discussion, motivation of students, and adequate preparation (Harth et al., 1992). However quality was negatively linked with unreasonable expectations of tutors, conflicting information, late arrival to the class, favouritism, anger, patronizing attitudes, victimized and ridiculed students (Harth et al., 1992).

The learning environment in medical education has been perceived differently in different disciplines. Patel and Dauphinee (1985) reported that different disciplinary areas (e.g., medicine, paediatrics, and surgery clerkships) create an inconsistent learning environment. For example, students in a medicine rotation perceived their learning to be over all domains (factual knowledge, clinical skill, interpersonal skill, and attitude to health care), and the contribution of instructors was perceived to be more concerned with learning to organize diagnostic and therapeutic regimes.

Students in paediatrics perceived their learning to be mostly in the factual knowledge domain, and instructors as contributing mostly in the acquisition of factual knowledge. In surgery, learning was in the clinical skills, and the instructors contributed mostly in student acquisition of skills in patient management problems.

Moreover, students perceived themselves as being more passive observers in

surgery than in other disciplines. The highest participation was reported in medicine followed by paediatrics and finally surgery. Students in medicine spent a considerable time in patient care activities (which included problem solving, history taking, and physical examination), more so than students in other fields.

It appears that the medical learning environment has been used widely as a criterion variable. The major determinant variables include: the type of medical school environment (e.g., conventional vs. traditional), the classification of medical school (e.g., clinical, research oriented), the type of curriculum track (innovative vs. traditional), the quality of clinical clerkships tutorial, and different medical disciplines.

On the other hand, studies have indicted that the medical learning environment can be used as a predictor variable of students outcome and well-being. Strayhorn and Frierson (1989) carried out a longitudinal study to investigate the correlation between black and white first-year medical students' perceptions of their learning environment, academic performance, and of their own well-being. The results confirm the existence of a significant association between students' perceptions of their learning environment and their perceptions of mental and social well-being, for both black and white students. In other words the quality of the learning environment was a predictor of both social and mental well-being. However, a highly competitive school was found to be a negative predictor of academic performance for black students, whereas it was a positive predictor for white students.

The impact of the clinical learning environment on students' academic, personal or social well-being has been studied by Harth et al. (1992). They found that

the major positive effect of such an environment was on students' academic well-being.

Mitchell et al.(1999) explored the residents' cognitive learning environments. They developed a model of the cognitive environment of a family medicine rotation in maternal and child health. They use both qualitative, e.g., interviews and observation, and quantitative, e.g., survey, research methods on a sample of resident learners and teachers. They identified seven aspects of cognitive environment[13] that place strong cognitive demands[14] on residents. These are: (1) instability of environment; (2) multiplicity of events; (3) subjectivity of clinical events; (4) level of stress; (5) locus of control; (6) the cognitive nature of clinical cases; and (7) non-clinical responsibilities. The corresponding cognitive demands are: (1) anticipation of the future; (2) simultaneity of thought; (3) cognitive flexibility; (4) self-control of thought and emotions; (5) reflective thinking; (6) conceptual knowledge base; and (7) time management mindset. The authors found that the most important cognitive aspects are multiplicity of events, subjectivity of clinical events, and level of stress. The corresponding cognitive demands are that residents must be able to anticipate future events, evaluate the clinical events in regard to priorities, make quick decisions and perform effectively in stressful situations.

Valentino et al. (1999) conducted a study to identify the important learning events in fourth year acting internship in surgery (AIS) that had an influence on students' learning. They found that events related to 'patent care in the perioperation period' and 'direct performance of procedure' as the most important learning events,

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[13] Cognitive aspects are "environmental attributes that place cognitive demands on residents" (Mitchell et al., 1999).

[14] Cognitive demands are the "cognitive operations/skills residents must perform to fulfill their clinical responsibilities" (Mitchell et al., 1999).

while events related to 'didactic learning', e.g., reference to lectures, discussion, seminars, as the least important learning environment. This indicates that active involvement of students in clinical activities provide them with greater learning experiences than passive learning events.

Other studies have indicated that introducing a change in the learning environment of a medical school can influence the student learning outcome. It can affect students directly and indirectly. Directly, as an actual change in the learning environment and indirectly as an influence on students' attitudes and values (Clark et al., 1984). Davis and Dent (1994) conducted a study to find out the effect of the introduction of out-patient and community-based teaching, when compared to ward-based teaching, on student learning at the University of Dundee in the UK. The results indicated that students learn more in the out-patient clinic than during the ward-round, although students with good examination performance (orthopaedics and all surgical specialities) tended to learn more in out-patient clinics, but had less interaction with patients. In contrast, students with poor performance showed less learning in out-patient clinics, but more interaction with the patients. Accordingly, Davis and Dent (1994) suggested that although students showed more learning in out-patient clinics than in the ward-based round, it would not be advisable to replace the ward-based round all together.

Das et al. (1998) investigated the views of clerks and student interns with regard to the impact of their early exposure to four aspects of clinical skills using stimulated patients, role-play and video on their learning. The four clinical skills are: (1) communication and interviewing skills; (2) physical examination skills; (3) therapeutic and diagnostic skills; and (4) laboratory skills. A majority of students

(>77%) indicated that prior training in the above skills helped them in dealing with patients, detecting the deviation from normality and consolidating their theoretical knowledge.

Other studies revealed a relationship between learning environment and students' affective outcome, such as their attitude. Vernon's (1995) findings showed that medical students evaluated the introduction of new problem-based learning more positively as compared to traditional lecture-based learning. These findings were in line with a study conducted by Bernstein et al. (1995) in Canada, to assess medical students' perceptions of their learning in a new problem-based learning (PBL) curriculum, in contrast to that of traditional methods on four components of learning: knowledge, clinical skills, team work, and relationship to patients.

The results showed that the perceptions of students and faculty changed positively from pre-test to post-test. They agreed that PBL is more effective than traditional methods. In addition students perceived traditional methods as being better for knowledge acquisition, while PBL was better for improving team work and doctor-patient relationships. Finch (1999) investigated the effect of problem-based learning on chiropody students' academic achievement. The author compared the performance of traditional and problem-based students and found the following. Students at problem-based learning schools performed better in tests of deeper understanding and the cognitive skills related to patient management compared with their traditional counterparts. Colliver (1999) recommended that research be carried out on problem-based learning to turn attention to outcome studies on both problem-based learning and non-problem-based learning with a view to finding out the long-term effectiveness of problem-based learning on clinical performance.

In the light of the above, it seems that the medical learning environment has been successfully used as a predictor of students' learning outcome.

3.11.2: THE INTERACTION BETWEEN APPROACHES TO STUDY AND THE LEARNING ENVIRONMENT IN MEDICAL SCHOOLS

Two groups of studies have been conducted in this area. One group focuses on investigating the interaction between learning approaches and the actual/real learning environment, while the other focuses on that between learning approaches and the preferred learning environment.

Davis and Sales (1996) in the UK conducted a comparative study to find out the relationship between approaches to study (using the Biggs' Study Process Questionnaire (SPQ)) and students' perception of their learning environment (using a modified course perception questionnaire[15](CPQ)). The sample consisted of junior and senior students on both dental and life science courses. The results showed significant differences in students' approaches to study on the two courses. Junior dental students reported higher scores on all scales of approaches to study. This indicated that they perceived their studies as being more positive than those on the life sciences course.

In addition, they reported higher scores on achieving approaches than their counterparts. However, results were reversed at the senior level. Moreover, senior dental students reported higher scores on workload and less freedom in learning than their counterparts. Life science students perceived their environment as being more flexible in its time tables. As a results of their findings, the authors suggested a

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[15] According to Davis and Sales (1996) the following aspects of environment are involved in the CPQ "students perceptions of their course in terms of workload, freedom in learning, teaching methods and quality using scales of five questions each, as well as students' attitude to HE (higher Education) and how they organize their work, each determined from four questions".

reduction in the overall curriculum, and for courses to be more motivationally oriented.

Tan and Thanaraj (1993) investigated the interaction between learning approaches to study and students' preferred learning environment in a traditional medical school. They looked at students' study orientations, their preferences for different kinds of learning environment, and their evaluations of the physiology course. The physiology course was characterised by lectured-based teaching, there was a limited number of laboratory practical exercises, and assessment was mostly decided by an end-of-course examination using a multiple-choice format.

The instruments used were: (1) the short form of the approaches to study inventory (ASI); (2) a questionnaire developed to assess the students' preferences for lecture style, tutors, examination and courses; and (3) The course perceptions questionnaire (CPQ). Students with surface preferences preferred lecturers who dictated notes and followed the textbook very closely. They liked examinations that could be answered from notes, tutors who go over lectures, and courses with required reading and where topics are linked directly to the exam. In contrast, students with deep preferences, favoured lecturers who could relate learning to real life experiences, examinations with more open questions that permitted students to show powers of thinking, tutors who provided discussion among groups and commented on students' ideas, and courses where personal interest was catered for. The overall conclusion indicated that students of different learning orientations have a variety of learning needs that need to be considered for teaching effectively. In addition, a learning environment characterised by 'curiosity and a need to know' should be encouraged, while anxiety and competition should be discouraged.

Trigwell and Prosser (1991) conducted a study to find the relationship between students' perceptions of their learning environment (using the Course Experience Questionnaire[16]), their approaches to study (using the Approach to Study Inventory), and the learning outcome[17] for a sample of final year nursing students. They found a positive relationship between students' approaches to study and their perceptions of environment. Students with surface approaches to learning tended to perceive the workload as being heavy and assessments as emphasising rote learning. Students with higher quality learning outcomes were associated with a deep approach to study, had good perceptions of the teaching they experienced, and had clear goals and independence in their learning. Their findings are in line with studies conducted by Newble and Clarke (1986; 1987) which explored the relationship between the characteristics of the faculty of medicine and the students' approaches to learning.

3.11.3: MOTIVATION FOR ENTERING MEDICAL SCHOOL

There are different motivations for pursuing medicine. Some of these include: (1) gaining high social prestige; (2) a good income; (3) enjoyment of learning; (4) a desire to discover new knowledge; (5) job security; (6) enjoying the personal challenge and variety of medicine; (7) influence of family career tradition; and (8) experience of personal illness (Powell et al., 1987; Wagoner and Bridwell, 1989; Fields and Toffler, 1993; Hilliard, 1995).

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[16] The sub-scales of this instrument are: good teaching, clear goals, appropriate workload, appropriate assessment, and emphasis on independence.

[17] The quantitative measures of learning outcome were based on assessment for the course. It consisted of a written analysis by a student of a videotaped interview between a student and a client. The qualitative measures of learning outcome were based on the Structure of the Observed Learning Outcome (SOLO) taxonomy.

3.12: CONCLUSIONS

This chapter has focused on learning environment in terms of definition, components, classification of learning environment, uses of learning environment instruments in higher education in general, and in medical education in particular.

(1) There seems to be no general agreement on the definition of learning environment, nor on what exactly constitutes a particular learning environment. The differing definitions have led to the existence of different classifications of learning environment, however, the majority of the learning environments instruments have been based on Moos' (1974) classification of the human learning environment.

(2) Research on learning environment in higher education in general, and in medical education in particular, has shown relationships between the nature of learning environment and teacher personality, students' characteristics, class size, grade level, types of institutions, and disciplinary areas. In addition, it has shown the ability of the (medical) learning environment measures to predict students' learning outcomes.

(3) Research on learning environment in medical education has revealed that most medical schools around the world are still using a tradition-based curriculum. However, most of these medical schools are moving slowly towards changing their curriculum toward a more innovative one.

(4) The main purpose of moving to a more innovative based curriculum is to ensure self-directed learning and independent study, to develop critical thinking and problem-solving skills, foster motivation for learning, and to build and encourage a supportive learning environment that fosters a deeper approach to learning.

(5) The literature seems to suggest that students at medical schools experienced some social and academic problems that are stress related. Among the major problems are the difficulty in coping with academic demands, and poor interpersonal skills.

Finally, the main motives for pursuing medicine include prestige, money, job security, influence of family tradition career and the challenge provided by this field.

CHAPTER FOUR

LITERATURE REVIEW:

LANGUAGE LEARNING STRATEGIES AND ATTITUDES TOWARDS LEARNING ENGLISH

"In order to teach medicine effectively it is important to clarify the specific language needs of doctors, especially those in overseas situations, and to build on the language training that already exists in their medical education"
(Chur-Hansen and Barrett, 1996, p.412).

4.1: INTRODUCTION

Students' academic outcomes are influenced to a great extent by the learning strategies that they adopt in their studies (see Chapter 2). In addition, learning strategies are determined by students' individual learning styles and by their perceptions of the learning environment (see Chapter 3). The students' perceptions of their learning environment may encompass feelings about their teachers and their courses.

The native language of people in the GCC countries is Arabic and formal instruction at all levels prior to medical university is in Arabic. However, all medical schools in the Gulf region adopt the English language as the medium of instruction. So, English is a foreign language, which could have an implication on what students learn during their studies at medical schools.

The review of the literature covering learning environment and learning strategies referred to above indicated that most studies rarely take into account the effect of teaching/learning in a 'formal instructional language' which is different from the students' native language. Moreover, this teaching/learning often takes place in a different cultural context from that of the target language. The effect of these factors on the students' perceptions of their learning environment and their learning strategies has not been considered in the research on learning styles.

Two main issues are explored: firstly, learning strategies adopted by students in their approaches to studying English as a second language; secondly, students'

attitudes towards learning English that might have an effect on academic outcome. The students' attitudes towards learning English encompass: their attitudes towards the English course, their English teacher, their attitudes towards the English culture, their orientation and motivation to learn English.

This chapter will be organised as follows: The next section discusses definitions of language. The third section reviews theories of second language acquisition. The fourth section presents classification of second language learning strategies. Section five discusses factors that might have an influence on students' academic achievement in learning English as a second language. Section six discusses the role of English in medical education. Finally, section seven presents the conclusions.

4.2: DEFINITION OF LANGUAGE

Page and Thomas (1977) defined language as "a conventional system of expressive signs functioning psychologically, in the individual, as an instrument of conceptual analysis and synthesis, and, socially, as a means of intercommunication"(p.200). Another definition by O'Malley and Chamot (1990) sees language as "a complex cognitive skill that can be described within the context of cognitive theory" (p.1). This definition reflects their views of language learning based on cognitive theory. Behaviourists such as Skinner (1938; 1968) hypothesised that language is acquired through imitation, while Chomsky (1980) suggests an innate element is responsible for learning language.

In the literature on linguistics, attempts have been made to distinguish between second and foreign language acquisition. According to Bley-Vroman (1989, p.42-3)

foreign language acquisition refers to the language learning that takes place "when the language to be learned is not the native language of the society: for example, learning English as a foreign language in Japan". While second language acquisition refers to the language learning that takes place in a country "where the language is spoken: for example, learning English as a second language in the United States". The expression 'second language' is also used to mean "a language acquired by a person in addition to his mother tongue" (Cook, 1996, p.6). Despite such distinctions, researchers such as Bley-Vroman (1989) used the term 'foreign' to refer to both.

In summary, language has been perceived differently based on different theoretical frameworks. In addition, there is no clear distinction between foreign and second language acquisition. For the purpose of this study both terms will be used interchangeably.

4.3: THEORIES OF SECOND LANGUAGE ACQUISITION

Within the process of social research, theory could serve several functions. In this regard, Schunk (1991) and O'Brien (1993) list the following four uses of theory: (1) providing patterns for the interpretation of data, (2) linking one study to another, (3) supplying frameworks where concepts and variables acquire special significance, and (4) allowing the interpretation of the larger meaning of findings.

Several theories have been developed to explain second language acquisition (SLA) (Ellis, 1985), but no single comprehensive one exists (Gregg, 1989). In this regard, Bloom (1993, p.1) indicated that "each aspect of language has unique properties, and it is unlikely that a single theory could capture the entire learning process". However, Cook (1996) has categorized these theories into four main

categories. Each category focuses on a particular theme: (1) models of knowledge, (2) language processing models, (3) mixed models, and (4) social models.

4.3.1: MODELS OF KNOWLEDGE

In such models, attention is directed onto the role of the learner's mind in learning a second language. An example of this category is the Universal Grammar Theory or Model (UGT) which was developed by Chomsky during the 1980s (Chomsky, 1980). This theory focuses on language as a component of the mind and perceives learning as "setting parameters from the actual sentences the learner encounters" (Cook, 1996, p.152). It asserts that such principles and parameters are constructed in the mind and biologically determined and specialized for language learning. In this regard, Chomsky (1980, p.69) argued that:

> Universal grammar is taken to be the set of properties, conditioned, or whatever, that constitute the 'initial' state of the language learner, hence the basis on which knowledge of language develops

The language input goes into the individual's mind and creates a knowledge of language consisting of principles, parameters, and lexical items. Learning is a matter of receiving the appropriate input. Learners do not need to learn the abstract principles because they are innate, however they do need to learn the parameter setting (Cook, 1996).

According to McLaughlin (1987) the UGT does not concern itself with second language acquisition. However, researchers such as Gass and Schachter (1989) and Cook (1996) argued that UGT might indirectly explain how second languages are learnt.

For first language learners, this theory assumed that children come into this world already possessing the principles required for language learning. For second

language learners, the circumstances are very similar, but not identical. Second language learners have access to universal principles either directly, in a similar way as to a child learning its first language, or indirectly, via their native language. The model classified under this category focuses on language knowledge.

4.3.2: LANGUAGE PROCESSING MODELS

The model classified under this category views language learning as active processing and communicating. An example is McLaughlin et al.'s information processing model (1983). In this model, learning starts from controlled processes and gradually becomes automatic over a period of time. The learners are viewed as active organizers with limited capacities. They are information processors in terms of what they can attend to at a time and what they can handle on the basis of knowledge. They distinguish between controlled and automatic processes to "differentiate processes that are capacity-limited and temporary and those that are relatively permanent and nearly always become active in response to a particular input configuration" (p.142). Automatic processing involves the activation of specific nodes in memory every time the right input is present. It needs a considerable amount of training in order to be fully developed and learned. Controlled processing is a temporary activation of specific nodes in a sequence. Its capacity is limited and requires a considerable amount of time to be activated. The acquisition of second language involves the gradual integration of lower-level skills as automatic processes in long-term storage. In the learning process the skill that requires more mental work becomes, as McLaughlin et al. (1983) put it,

> routinized and thereby frees up controlled processes for other functions. As automaticity develops, controlled processing is bypassed and attentional limitations are overcome. This transition from controlled to automatic processing is central to learning (p.152).

They suggest that learners may achieve automaticity in second language acquisition by using either a top-down, or a bottom-up, approach. Top-down information processing is one in which learners make use of internal schemata based on information from wider contexts in the real world. While a bottom-up or inductive approach is one in which learners make use of external input (information carried by the input) by analyzing the meaning of every word or grammatical feature of the text (O'Malley and Chamot, 1990). The model classified under this category focuses on language processing and suggests that learning language is like learning any general skill. In addition practice is the key point in such a model.

4.3.3: MIXED MODELS

Mixed models refer to models that emphasize both language knowledge and language processing. An example is Krashen's (1982) Monitor model. He identifies five hypotheses as fundamental to second language acquisition theory:

(1) Acquisition-learning distinction hypothesis: he distinguished between language 'acquisition' and language 'learning' on the basis of 'conscious' processing of new second language knowledge. 'Acquisition' is used to refer to the subconscious process by which the acquirers are not aware of acquiring language, rather they are aware only of using language for communication in a natural setting. For language acquirers, the language rules are governed by whether language 'sounds' or 'feels' right/wrong. On the other hand, 'learning' is used to refer to the conscious knowledge of language in which the learners are aware of studying the rules of the language.

2) Natural order hypothesis: it draws on research on second language acquisition that indicates that an individual acquires his/her language in an order process in which some language rules, e.g. grammatical structures, are acquired earlier than others

(Krashen, 1982). However, he argued that the order of acquisition for a second language differs from that for the first language despite the similarities shared by them.

3) Monitor hypothesis: he claimed that acquisition has two functions: initiating utterances and managing the fluency of speech, while learning has the function of monitoring in terms of altering or changing the utterance generated from the 'acquired' knowledge. According to him the monitor hypothesis "implies that formal rules, or conscious learning, play only a limited role in second language performance" (p.16). In his view, acquisition is central while learning is peripheral.

4) Input hypothesis: 'Acquisition' takes place as a result of the acquirer having understood input that is beyond the current level of the acquirer's competence or as Krashen (1982) put it "a necessary (but not sufficient) condition to move from stage i to stage i+I is that the acquirer understands input that contains i+I, where 'understand' means that the acquirer is focused on the meaning and not the form of the message". This understanding could be achieved by using the context or other linguistic information. This hypothesis implies that an individual acquires the meaning first and then acquires the structure of the language. In addition, it emphasises that the fluency of speech 'emerges' as the acquirer hears and understands the input language and not by being taught. For this reason, Krashen (1982) suggested that the teaching in the second language classroom (i.e. in a formal environment where the classroom is the main source of input) should encourage language acquisition as well.

5) Affective filter hypothesis: It refers to the extent to which the acquirer is 'open' to the input. It focuses on the relationship between affective variables such as motivation, and the second language acquisition process. He hypothesized that some affective

variables have a direct effect on success in second language acquisition rather than learning when communicative-type tests (which are designed to measure the acquired system only) are used. The cornerstone of this hypothesis is that acquirers differ with regard to the strength or level of their affective filters. For example, people with positive attitudes toward the second language acquisition tend to pursue more input with less or weak filters.

4.3.4: SOCIAL MODELS

The models classified under this category emphasise the social aspects of second language learning. These are important because: (1) learning takes place in a social environment in which people interact with each other (inside and outside the classroom), and (2) learning takes place within the boundaries of a society and has a role within that society (Cook, 1996).

An example is Gardner's (1985) Socio-educational Model. This model aims to explain how individual factors and general characteristics of society interact in second language learning. It comprises four variables: social milieu, individual differences, language acquisition contexts and outcomes. The social context variable deals with several factors which might influence second language acquisition. Such factors include the beliefs about the importance and usefulness of learning the language, the expected skills that might be gained from learning a second language and the individual differences in the language learning process.

Gardner (1985) perceived the learner's successes as a component of two elements: motivation and aptitude[1] or capacity for learning. Motivation encapsulates two main factors: attitude to the learning situation (i.e., to the teacher and the course);

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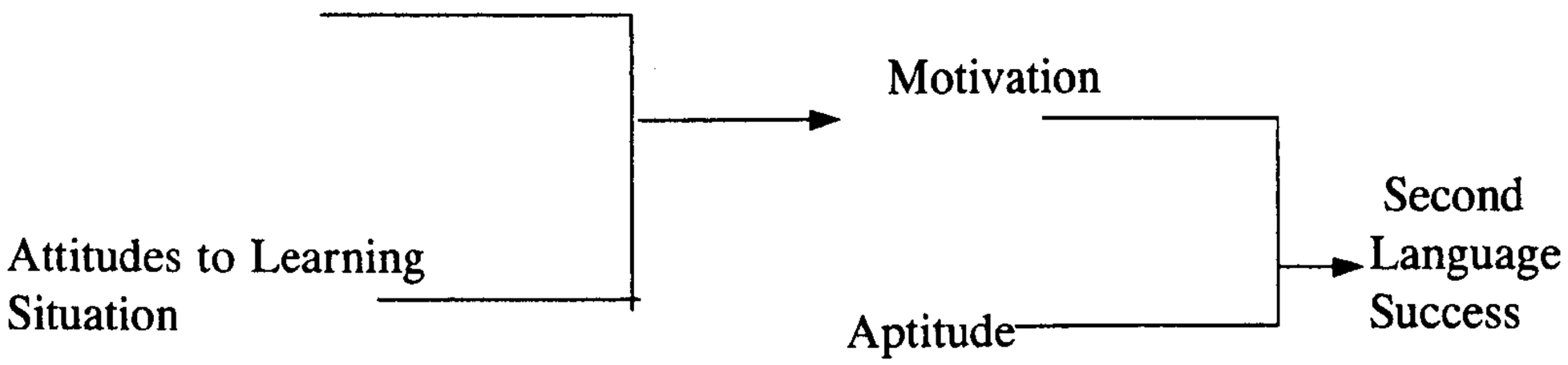
[1] Aptitude is "usually the ability to learn the L2 in an academic classroom" (Cook, 1996, p.100)

and integrativeness, which is an interrelated factor concerning how the learner perceives the culture reflected in second language learning. According to Gardner (1985) integrativeness and attitudes to learning lead to motivation; motivation leads to success. Such attitudes and integrativeness stem from the social environment in which the learner lives.

Figure 4.1: Gardner's socio-educational model of L2 learning (simplified).



Source: adapted from Cook, 1996, p.168.

In summary, theories of second language learning can specifically be used to describe how second languages are learned and what function learning strategies play in the language acquisition process. In addition, they may be used to describe what learning strategies are and how information about such strategies is stored in memory. Moreover, they may be used to describe how strategies are learned and why they affect learning in a positive way (O'Malley and Chamot, 1990).

4.4: CLASSIFICATION OF SECOND LANGUAGE LEARNING STRATEGIES

According to Bialystok (1978, p.71) language learning strategies are the "optimal means for exploiting variable information to improve competence in a second

language". For Oxford (1989, p. 235) learning strategies are "behaviors or actions which learners use to make language more successful, self-directed, and enjoyable". For Cook (1996, p. 103) language learning strategy is "a choice that the learner makes while learning or using the second language that effects learning". O'Malley and Chamot (1990, p.1) see learning strategies as "special thoughts or behavior that individuals use to help them comprehend, learn, or retain new information". For Green and Oxford (1995, p.262) language learning strategies are "specific actions or techniques that students use, often intentionally, to improve their progress in developing L2 skills".

Broadly speaking, it appears that there is no general agreement among writers with respect to how second language learning strategy is defined. The existence of such differences might be traced back to the different theories and methodologies of data collection. However, it seems that two common terms appear in the above definition: that language learning strategies could be thought, i.e. implicit, and action, i.e. explicit.

Initial research concerning language learning strategies emphasised the identification of the psychological characteristics of 'good language learners', e.g., Naiman et al. (1978). However, limited studies have been carried out on identifying the cognitive processes and strategies that may enhance the learning of a second language (Rubin, 1981).

Naiman et al. (1978) interviewed a sample of successful language learners to collect information about the strategies they utilized during their learning of English as a second language. They identified five major strategies. In addition, each major strategy is associated with a number of minor or specific sub-strategies:

(1) Active task approach: good language learners actively engage in the language learning task: (a) by responding positively to learning opportunities, or identifying and seeking preferred learning environments and exploiting them; (b) by adding related language learning activities to regulated classroom programmes; and (c) by participating in practice activities.

(2) Realization of language as a system: good language learners develop or exploit an awareness of language as a system: by (a) referring back to their native language and making comparisons between native and target language; (b) analyzing target language to make inferences.

(3) Realiazation of language as a means of communication and interaction: good language learners develop and exploit an awareness of language as a means of communication (a) by emphasizing fluency over accuracy; (b) by seeking communicative situations with target language members; and (c) by identifying socio-cultural meanings.

(4) Management of affective demands: good language learners cope with affective demands made upon them by language learning.

(5) Monitoring of second language performance: good learners (a) revise and monitor the second language they are acquiring by testing inferences; (b) ask second language native speakers for feedback.

Rubin (1981) conducted a similar study with a sample of young adult learners and focused on the cognitive processes they used. For her, learning is defined as "the process by which storage and retrieval of information is achieved". Cognitive processes are "those general categories of actions which contribute directly to the learning process", while cognitive strategies are "the specific actions which contribute

directly to the learning process". She used classroom observation, an unstructured self-reporting technique, and a directed self-report to collect information about adult learning strategies used for studying second language. She identified eight learning strategies and classified them as:

(1) Clarification/verification: this term involves looking for examples of how to use a word, asking for the correct form to use, translating from the native language to second language, asking the meaning of the words, repeating to confirm understanding, and using a dictionary.

(2) Monitoring: this term involves all conscious or subconscious observations of errors and how the message is received and interpreted by the addressee.

(3) Memorising: this involves taking note of new words, finding associations between words in order to assist storage and retrieval of the message.

(4) Guessing/Inductive inferencing: this term involves using clues from a large domain of possible sources of knowledge to guess the meaning for a specific situation. Examples are: key words in a sentence, pictures, context of discourse, own native language.

(5) Deductive reasoning: this term involves looking for and using general rules. These might include comparing native language to target language to find similarities and differences, using analogy, finding the meaning of a word by breaking it down into parts.

(6) Practice: examples of this strategy include repeating sentences until they are produced easily, talking to oneself in the target language, making use of new words when speaking, listening carefully to what is said and how it is said.

(7) Creating opportunities for practice: this involves creating situations with native speakers to practise the target language.

(8) Production tricks: they involve using communication strategies, such as speaking more slowly, gestures, etc.

It seems that all these cognitive strategies need a significant amount of self-awareness during the process of learning.

O'Malley et al. (1985) argued that many classification schemes of learning strategies lack theory or as they put it:

> The lack of theory to explain learning strategies was compounded in second language acquisition studies by the lack of a comprehensive theory to explain how individuals learn the structures and functions associated with second language use (p.2).

They defined and classified learning strategies based on the theoretical framework of Anderson's (1983) cognitive psychology theory. In studies conducted by O'Malley and her colleagues (Chamot et al., 1987; O'Malley and Chamot, 1990) three types of learning strategies have been identified based on interviews with secondary-school and college students studying English as a second/ foreign language, their teachers, and students' self-report data. These are:

(1) Metacognitive strategies, which involve planning for learning, monitoring of comprehension or production, and self-evaluation of learning.

(2) Cognitive strategies, which are more directly related to students' learning tasks and involve direct manipulation or transformation of information. They focus on comprehension, acquisition, and retention.

(3) Social strategies, which involve interaction with another learner.

According to O'Malley and Chamot (1990)

> Research in metacognitive and cognitive learning strategies suggests that transfer of strategy training to new tasks can be maximized by pairing metacognitive strategies with appropriate cognitive strategies. Students without metacognitive approaches are essentially learners without direction or opportunity to plan their learning, monitor their progress, or review their accomplishments and future learning directions (p.8).

This implies that learners might need to have self-awareness of, and self-control over, their learning. O'Malley and Chamot (1990) suggested that different strategies are appropriate for different levels of knowledge.

Based on the above discussion, it appears that different classifications have been proposed by different researchers. Such differences might be traced back to two factors: sample selections and level of language proficiency. Examples of the first factor include Naiman et al. (1978), who collected their data from a sample of highly successful learners who were known to be good learners in their university. Such a sample might not adequately represent the general population of university students. Rubin (1981) used young adult learners, mainly Japanese students at Hawaii University. In studies conducted by O'Malley and her colleagues, different subjects have been selected. For example, O'Malley et al. (1985), Chamot et al. (1987) used high school students enrolled in English as a second language (ESL) classes, and students studying a foreign language in high school and college settings respectively.

Examples of the second factor also include Naiman et al. (1978), who involved only high advanced language learners with a high level of proficiency, while O'Malley et al. (1985) and Chamot et al. (1987) involved students with different levels of language proficiency, e.g. novice level and intermediate or advanced level students.

However, it seems that there are some similarities across such different classifications. Skehan (1989) pointed to these similarities. For example, Naiman et al.'s (1978) first strategy, the 'active task approach' seems to involve Rubin's (1981)

strategies, namely, 'clarification/verification', 'memorization', and 'practice'. Their second strategy, 'realization of language as a system' seems to be reflected in Rubin's (1981) strategies, the 'guessing/inductive inferencing', and 'deductive reasoning', while their 'monitoring of performance' strategy appears to contain Rubin's (1981) 'monitoring' strategy.

On the other hand, O'Malley et al.'s (1985) classification of learning strategies includes not only cognitive orientation, but also metacognitive orientation as well as social orientation. However, it might be worth mentioning at this point that some of what O'Malley et al. (1985) considered as metacognitive strategies, such as monitoring, are defined by Rubin (1981) as cognitive strategies. Hence what is metacognitive for one researcher might be cognitive for another one. In addition, O'Malley and Chamot (1990) argued that both Naiman et al.'s (1978) and Rubin's (1981) classification schemes did not have any grounding in theories of second language acquisition.

In summary, one could argue that there is no clear-cut way to draw boundaries for each type of language learning strategy. They do overlap. In addition, it has been found that language learning strategies are a major factor affecting students' learning of second/foreign language (as will be discussed next together with other factors).

4.5: FACTORS THAT AFFECT ACADEMIC ACHIEVEMENT IN LEARNING A SECOND LANGUAGE

The literature (Gardner and Lambert, 1972; Faerch et al., 1984; Gardner, 1985; Oxford and Nyikos, 1989; O'Malley and Chamot, 1990) seems to suggest that there is general agreement among researchers that students' academic achievement in a second language is not only influenced by their intelligence, their language aptitude to learn the language but also by a number of other factors. These factors[2] are: the students' learning strategies, their motivation, their attitude towards learning the language, the culture of the target language, their learning environment (such as the students' perception of their course and their teacher), the students' age at which they are first exposed to the target language, their genders, and their English language proficiency.

4.5.1: SECOND LANGUAGE LEARNING STRATEGY

O'Malley & Chamot (1990) explored students' learning strategies used to study English as a second language and the learning strategies used to study a foreign language, in students with different levels of language proficiency. They used retrospective and think aloud interviews with students and their teachers as their research methods. Their results suggest that students categorised by their teachers as being more effective use a different class of strategies and more frequently than those students categorised as being less effective. Secondly, the differences in using learning strategies between more and less effective students are consistent for all students studying language as a second or foreign language[3]. Thirdly, students tend to use both

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[2] It is worth mentioning at this point that it is difficult to define all the factors that may influence students' academic achievement in the English language.

[3] O'Malley and Chamot (1990) differentiated between second and foreign language in their studies.

metacognitive and cognitive strategies for all aspects of language learning such as reading, listening, speaking and writing. Furthermore, they claimed that

> students can learn to use strategies with both integrative and discrete language skills when the teacher provides direct training on strategy use. Second language performance of students taught to use strategies is superior to that performance of students who received no such training, but the effects depend on the task, task difficulty, and the level of support for strategy transfer (p.225).

O'Malley et al. (1985) found that students at intermediate level tend to use metacognitive strategies more frequently than beginners. Oxford and Nyikos (1989) discussed the factors affecting the choice of language learning strategies used by university students. They found a strong relationship between language proficiency self-rating in speaking, reading, and listening and the language learning strategies chosen by university students studying a foreign language. The higher the students' self-perceived proficiency in each of these three skills, the more frequently the students chose to use language learning strategies.

O'Malley and Chamot (1990) concluded that "different strategies may be used, depending on the students' level of proficiency". In support of their findings, Fitzgerald (1995) concluded that more proficient readers of English as second language used a great variety of metacognitive strategies, used selected language strategies more frequently, used more inference strategies, and took more action to solve miscomprehension and checked solutions to problems more often. In the same vein Vandergrift (1997) investigated the relationship between the type of listening learning strategies and the level of language proficiency. The author found that students reported more use of listening learning strategies as the proficiency level of language increased. The author concluded that the use of metacognitive strategies, e.g.

comprehension monitoring, problem identification and selective attention are significant factors differentiating the successful from the less successful listeners. Thus, it can be concluded that language learning strategies and language proficiency are strongly related to each other.

4.5.2: MOTIVATION

Gardner and Lambert (1972) argued that motivation such as 'a fear of failure' or 'a need for achievement' served short-term goals such as passing the course exam in the language. Therefore, they suggested that motivation for second language learning could serve as a long-term goal that might be needed in order to master the language.

> Some process like identification, extended to a whole ethnolinguistic community and coupled with an inquisitiveness and sincere interest in the other group, must underlie the long-term motivation needed to master a second language (Gardner and Lambert, 1972, p.12).

Gardner and Lambert (1972) differentiated between three elements of motivation as applied to language learning: effort, desire, and attitudes. According to Gardner (1982, p.144) effort or motivational intensity "refers to the drive displayed by the student to learn the language", desire refers to " how much the student wants to learn English", and affect or attitude towards learning English "involves the student's emotional reactions toward the experience of learning the language". Moreover, Gardner (1985) added another element: that of motivation being goal directed where the goal is to learn the second language. He categorised levels of motivation into instrumental and integrative orientations which refer to classes or groups of reasons for studying the foreign/second language. The integrative motivation encompasses measures of integrativeness, attitudes towards the learning environment, and

motivation. Gardner (1985) indicated that "the concept of the integrative motive is indicated as comprising the tripartite division of integrativeness, attitudes toward the learning situation and motivation". Integrativeness consists of the integrative orientation, attitudes towards the target language group, and interest in foreign languages. According to Gardner and MacIntyre (1991)

> Integrativeness reflects the individual's willingness and interest in social interaction with members of other groups. It is assessed by three scales, Attitudes Toward the Language Group, Interest in Foreign Languages, and an Integrative Orientation to Language Study (p.159).

The integrative orientation emphasises that learners' motivation to learn a second language stems from a positive disposition to members of the target language and a desire to interact with members of the target group. On the other hand, instrumental motivation consists of instrumentality, attitudes towards the learning environment, and motivation. Instrumentality involves instrumental orientation, attitudes toward the target language group, and interest in foreign languages. Motivation in turn consists of motivational intensity, desire to learn the target language, and attitudes towards learning a language. The instrumental orientation emphasises that motivation stems from a belief that learning a second language can be helpful in getting a job or in furthering one's education. Gardner and Lambert (1972) hypothesised that integrative motivation might have more impact on the long-term motivation required for most of the tasks in second language learning.

Many studies have investigated students' motivation for learning a second language in terms of their reasons or orientations. For example, Burstall (1975) conducted a literature review which focused on factors affecting foreign language learning. One such factor was the motivation for foreign-language learning, in terms of 'integrative' versus 'instrumental' orientations. He found that there was a consensus

that the success in foreign language learning [FLL] depends on the adoption of an 'integrative' orientation towards the foreign language. This integrative orientation refers to the student's desire to share certain features which characterise members of the other 'linguistic community' and to consider him/herself as a member of that community. This study supports the hypothesis of Gardner and Lambert (1972). In their study, Gardner et al. (1985) investigated the role of attitudinal/motivational attributes on the rate of learning French vocabulary for psychology university students. They found that students high on integrative motivation learned faster than those who were low.

A more recent attitudinal study that supports such claims was conducted by AL-Kahtany (1995). He looked at the role of motivation (in terms of integrative orientation and instrumental orientation) in students' attitudes towards three different varieties of English (Standard American English [SAE], Black English [BE], and Indian English [IE]). The sample consisted of 14 Saudi undergraduate and postgraduate students studying at Michigan State University, U.S.A. The results of the study suggested that those students with integrative orientation tend to indicate more favourable attitudes than those with instrumental orientation regarding all three varieties of English.

However, some studies have shown contradictory findings. Luckmani (1972) explored the relationship between the English proficiency of Marathi-speaking high school students in India and their level of motivation. Those students displaying instrumental motivation did better in English proficiency tests than did those with integrative motivation. Good performance in English proficiency tests does not always relate to integrative orientation in all learning environments/contexts. In the same

vein, Clement and Kruidenier (1983) found that orientation other than integrative and instrumental ones did emerge from their study, such as travel, friendship and knowledge orientation. They suggested that the emergence of orientations is determined by "who learns what in what milieu" (p.288).

4.5.3: ATTITUDE

Some researchers view attitude as an integral part of motivation, while others view it as separate. Broadly speaking, there is no general definition of attitude. However, one well-cited definition for attitude, particularly in the research methods text books, is by Oppenheim (1966, 1992). In the second edition of his book Questionnaire Design, Interviewing and attitude Measurement, he defined attitude as "a state of readiness, a tendency to respond in a certain manner when confronted with certain stimuli" (P. 174). Oppenheim (1992, p. 177) reported that "Typically, attitudes do not exist in isolation within the individual. They generally have links with components of other attitudes and with deeper levels of value systems within the person". Krech and Crutchfield (1948) defined attitude as "an enduring organization of motivational, emotional, perceptual, and cognitive processes with respect to some aspect of the individual's world". This definition suggests that attitude involves many components, such as the affect, cognition, and behaviour. Ajzen and Fishbein (1980, p.20) suggested that "all responses to a stimulus object are mediated by the person's attitude towards that object".

Burstall (1975) reviewed studies related to this issue and concluded the following: (a) the existence of a relationship between teachers' attitudes and expectations and students' level of achievement, (b) the positive and significant relationship between students' attitudes toward learning and their outcome degree of

achievement, and (c) the learner's initial experience of success or failure in the language learning context has an influence on the development of attitudes towards learning foreign languages during later years.

Research studies in the literature have shown that students' attitude towards any aspect of a second language course e.g., listening, speaking, reading (Larsen-Freeman and Long, 1991), towards their language teacher (Gardner and Lambert,1972; Gardner, 1985) or towards a specific foreign country in which the second language is spoken (Burstall, 1975; Faerch et al. 1984; Gardner, 1985) has an effect on their success or achievement in that language. For example, the literature reported that the Arab attitude towards their Arabic language might be traced back to the following factors: (1) Arabic was considered the most unifying factor for their countries, (2) Arabic was considered to have a rich vocabulary and systematic grammatical structure, (3) Arabic was viewed by Arabs as 'beautiful', manifested in their appreciation of Arabic poetry, (4) Arabic is the language of religion in which the Quran, the word of God, is revealed in Arabic. It can be translated but cannot be imitated (Yazigy, 1994). Yazigy (1994) conducted a study to explore the effect of the Arabic language as a native language on Arab university students' attitudes and motivation towards learning English as a foreign language in Lebanon. The result showed that students started their English courses, in a series of four courses/levels, with high positive attitudes towards the English studies course, which then rose again in the last course. Gardner (1985) claimed that if learners view speakers of the language being studied positively, then they will be more highly motivated, which in turn affects their learning of that language. In contradiction to Gardner's claims, Svansen (1988) found a negative relationship between English proficiency and attitude

towards the people of target language, in this case, Norwegian. The author concluded that the more students know about language, the more they are able to criticise its culture. In support of Gardner's (1985) claim, Ho (1998) investigated the relationship between the junior high school students' willingness to learn culture studies and their orientation, motivation and attitude towards learning English. The author found strong correlations between students' willingness and the three variables. Thus, students who liked to learn about English-speaking countries tend to have strong orientation, more positive attitude, and higher motivation towards learning English. The author concluded that introducing culture studies is a useful way of increasing students' motivation to learn English and their positive attitude towards English–speaking countries.

4.5.4: GENDER AND LANGUAGE LEARNING

Gender difference is one of the factors mentioned in the literature which has an effect on second language acquisition. A study conducted at primary school level to explore students' attitudes towards learning French, found that boys tended to perform worse than girls and that boys' performance was correlated with a less positive attitude towards the French language (Burstall, 1975). Burstall (1975) concluded that girls tended to indicate higher achievement in learning a foreign language than boys. Faerch and his colleges (Faerch et al., 1984) said that

> if it is the case that girls tend to be more orderly in classrooms, talking less than boys in teacher-centred discourse, asking fewer awkward questions and generally accepting the framework laid down by the teacher to a greater extent than the boys, then one might expect this to mean that the girls have less chance to test hypotheses, stretch their language and develop their communicative competence

Faerch et al (1984) argued that there is a need to conduct studies to find out the role of 'sex-specific' interaction in the classroom where foreign language learning

takes place. A study conducted by Mpofu et al. (1998) investigated the degree of interaction in PBL sessions and English language proficiency of medical students in the Arab world. They found that female students tended to use the English language in their interaction in PBL sessions, while male students tended to use the Arabic language whenever they needed to elaborate unclear, vague ideas.

The above discussion revealed that the existence of gender differences in the acquisition and learning of English as a second language are still valid factors to be taken into consideration.

4.5.5: AGE

There is general agreement among researchers (e.g., Krashen, 1982; Larsen-Freeman and Long, 1991) that children acquire a second language more easily than adults. Krashen and his colleagues (Krashen et al., 1979) reviewed second language research and concluded that most researchers were in agreement regarding the following three generalisations, or as Krashen (1982) put it:

> "1. Adults proceed through the early stages of second language development faster than children do (where time and exposure are held constant).
> 2. Older children acquire [language] faster than younger children, time and exposure held constant.
> 3. Acquirers who begin natural exposure to second languages during childhood generally achieve higher second language proficiency than those beginning as adults" (p.43).

The above generalizations have been summarised by Larsen-Freeman and Long (1991, p.155) in their statement "older is faster, but younger is better". Psychologists have suggested that there is an 'optimal age' or critical period for language acquisition to take place (Faerch et al. 1984; Bloom, 1993). This critical period is around the first seven years of early childhood (Bloom, 1993). In this regard Bloom (1993, p.8) reported that if "exposed to a language prior to the age of 7,

children are capable of becoming totally fluent, but after this age, the prognosis becomes gradually worse".

Faerch et al. (1984) reported that the two main hemispheres of the brain tend to undergo a process of specialisation which might occur prior to adolescence. The left hemisphere is assumed to have a special function controlling analytic processes which is thought to be important in language application. First language acquisition occurs mostly before the process of specialisation. The implication of this explanation for second language acquisition is that in order to acquire a second language as fluently as the first one, it might be better to introduce it early in childhood as suggested by the optimal-age hypothesis.

This 'optimal-age' hypothesis is supported by a number of studies (Krashen, 1982; Newport, 1993). Newport (1993) determined the effect of age on acquisition. He found that a relationship between the age of acquisition and language performance and that of performance declined as the age of acquisition decreased.

On the other hand, the educational literature indicates that some studies do not support this hypothesis. One study carried out in Sweden explored the effect of early exposure of school children to the English language (Faerch et al. 1984). An experimental group started their English learning in their first grade, while the control group started in their third grade. The total amount of time (i.e. number of hours) for teaching English was the same for both groups. The findings indicated that there were no significant differences in English proficiency between the two groups, thus giving little support for the 'optimal age' theory. Based on the finding of this project, Faerch and his colleagues (Faerch et al., 1984) suggested that the effect of age should be combined with other factors such as the motivation of learners, the total time devoted

to learning the language, the length of exposure to learning the language and the intensity of learning.

In support of these findings, Slavoff and Johnson (1995) in the USA investigated the effect of age on the rate of acquisition of English as a second language for immigrant children, aged 7-9 and 10-12. They found no significant differences between the performance of the two groups. Their results did not support the claim that older children tend to be faster than younger children in learning English as a second language.

Based on the above studies, it seems that introducing English language at an early age might be of great advantage to the educational process. However, the debate about the effect of the age factor in learning a second language needs to be explored further in future studies.

4.5.6: ENGLISH LANGUAGE PROFICIENCY

Language proficiency has been defined as "what an individual can and cannot do [with a foreign language], regardless of what, when, or how the language has been learned or acquired" (ACTFL Proficiency Guidelines, 1989). Such proficiency usually measures the four aspects of English language: speaking, listening, reading, and writing (Sparks et al., 1997).

According to Krashen (1982) grades on foreign language courses do not indicate an individual's proficiency in reading, speaking, writing, and listening to a foreign language. In partial support of this view, Graham (1987) argued that students' English language proficiency as assessed by standard tests does not always correlate with their academic success. In contrast to the above findings, Sparks et al. (1997).

suggested that foreign language grades might be used to predict foreign language proficiency.

4.6: THE ENGLISH LANGUAGE AND MEDICAL EDUCATION

It has been suggested that mastering the sophisticated professional and technical language of medical education is the biggest challenge for medical students (Thomas and Steele, 1966; O'Hanlon et al., 1995; Lucas et al., 1997). This challenge becomes even bigger if medical students come from a country that has little contact with the English language (Salager, 1986; Lucas et al., 1997).

The English language is considered as the medium of teaching and learning instruction in many medical schools around the world. For example the University of Adelaide (Hayes and Farnil, 1993) in Australia; the University of Hong Kong (Lucas et al., 1997) in Hong Kong; most of the Arab countries, e.g., King Saud University (El-Hazmi et al., 1987) in Saudi Arabia; Kuwait Medical School (Ahmed et al., 1988) and the Faculty of Medicine and Health Science (Swadi, 1997) in the United Arab Emirates.

Students' lack of English language skills might be considered as a major obstacle to their academic success (Salager, 1986; Chur-Hansen and Barrett, 1996). Medical students' inability to master English could lead to difficulties in clinical settings, e.g., inappropriate intervention (Chur-Hansen and Barrett, 1996).

Different instruments have been used to assess medical students' English language proficiency. For example, standarized tests such as the Testing of English as

a Foreign Language (TOEFL[4]) used by Mpofu et al. (1998) in the UAE; the Screening Test of Adolescent Language (STAL[5]) used by both Hayes and Farnill (1993) and Chur-Hansen (1997) in Australia.

Studies conducted by Ahmed et al. (1988) and Hassan et al. (1995) confirmed the existence of a significant positive correlation between students' medical performance and their English language ability. In support of these findings, Lucas et al. (1997) found a positive correlation between medical students' entrance levels in English language and their final examination results in a gross anatomy course.

Mpofu et al. (1998) investigated the relationship between medical students' English language proficiency and the degree of their interaction within problem-based learning sessions. The English language proficiency was measured by the Test of English as a Foreign Language (TOEFL). The students' interaction was observed in four PBL sessions using the modification of Bales Interaction Process Analysis. This analysis covers classroom interaction, psychotherapy sessions, patient-doctor interaction, and social encounters. They found a positive correlation between the degree of students' interaction and their scores on TOEFL. In addition, they found that TOEFL scores, hence English language proficiency, are the best predictors of the students' contributions in PBL. However, in contradiction to the above findings, Abdulrazzq and Ibrahim (1993) found no significant correlation between the English

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[4] This test consists of multiple choice questions. It covers three language areas: listening comprehension structure, written expression, and vocabulary and reading comprehensions (Mpofu et al., 1998).

[5] The STAL involves four components: vocabulary, in which a synonym is required for a given word; auditory memory span, in which a sentence is heard once and the student is required to write it down; language processing, in which a non-logical sentence is read and the student is required to explain what makes it non-logical; and proverb explanation, in which the meaning of a proverb is required to be explained (Chur-Hansen, 1997). The STAL is limited in its measures of only two aspects of language learning, namely, aural and writing skills (Chur-Hansen, 1997).

proficiency and medical students' grade point average (GPA) after two years of premedicine.

Five major problems related to the English language have been identified by medical students: (1) lack of students' assertiveness which might result in a failure to interact and ask questions during class or clinical setting; (2) lack of sufficient command of informal English language; (3) lack of experience with small groups, interactive teaching and learning; (4) high dependency on rote learning; and (5) inability to recognise the importance of a high level of English language proficiency for success at medical school (Chur-Hansen and Vernon-Roberts, 1998). Studies conducted in both English language speaking countries (Lipton et al., 1984; Hayes and Farnill, 1993;) and in non-English language speaking countries (Kassimi, 1983; El-Hazmi et al., 1987; Ahmed et al., 1988; Alfayez et al. 1990; Hassan et al., 1995) have shown that medical students' academic performance is correlated with their performance in English language. Their academic performance is adversely affected by a low level of English language. Accordingly, discovering whether a similar relationship between the level of English language proficiency and medical academic performance exists in Gulf countries will be a focus of this study.

4.7: CONCLUSION

This chapter has focused on language, theory of second language acquisition, second language strategies, classification of language learning strategies, the factors that might have an effect on learning of a second language, and the role of English language in medical education. The following points have emerged. Firstly, there seems to be no general agreement on the definition of acquisition a second language,

nor on second language learning strategies. However, the majority of second language learning strategies encompass cognitive and metacognitive strategies.

Secondly, there is an overlap/confusion in researchers' definitions of cognitive and metacognitive strategies. What is meant by one researcher as cognitive might be considered as metacognitive by another researcher.

Thirdly, there is no single theory that accounts for all aspects of language learning acquisition, since each aspect has its unique properties. In addition, some concepts of language acquisition, such as 'second' and 'foreign' have been used by many researchers interchangeably.

Fourthly, there are some factors that could influence academic achievement in second language learning. Such factors include: language learning strategies, motivation toward studying the English language, attitude towards the language learning environment, gender, age, and English language proficiency. Finally, the role of English language proficiency in medical education is well documented in the literature. Students' medical academic performance is correlated positively with their English language proficiency.

This segment concludes the literature review considered in the study. In order to gain insights into the local environment of the countries under investigation, the next chapter will explore the political, social, economical and educational environment in such countries and their implications on the different issues explored in the study. It is to these topics we now will turn our attention.

CHAPTER FIVE

LITERATURE RELATED TO:

SOCIAL, POLITICAL, ECONOMIC AND EDUCATIONAL ENVIRONMENT IN SAUDI ARABIA, BAHRAIN, UNITED ARAB EMIRATES

5.1: INTRODUCTION

Background information on the countries under study is essential for an understanding of the factors which influence students' perceptions of their learning environment and their approaches to learning. Thus, the purpose of this chapter is to provide relevant information about the Gulf Cooperation Council countries (GCC). The GCC, which was formed in 1981, includes the following countries: Saudi Arabia, Kuwait, United Arab Emirates, Bahrain, Qatar and Oman. Since the scope of this study will cover only Saudi Arabia, Bahrain, and United Arab Emirates, this chapter will be limited to these countries[1]. The main factors which may influence, either directly or indirectly, the perception of learning environment and approaches to study of the students in the GCC countries will be discussed, including the political structure, culture, economics, and education.

5.2: GENERAL INFORMATION

The Kingdom of Saudi Arabia lies in the furthermost part of south-western Asia. It is bordered to the east by the Arabian Gulf, United Arab Emirates and Qatar, to the west by the Red Sea, to the north by Kuwait, Iraq and Jordan, and to the south by Yemen and Oman (see Figure 5.1). It occupies about 80% of the Arabian Peninsula, with a total area of over 2,250,000 square kilometers. The total population is 16,948,388 of which 72.6% are Saudi citizens (1992 census, Ministry of Planning, 1996).

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[1] The expression GCC countries will be used to refer to these three countries.

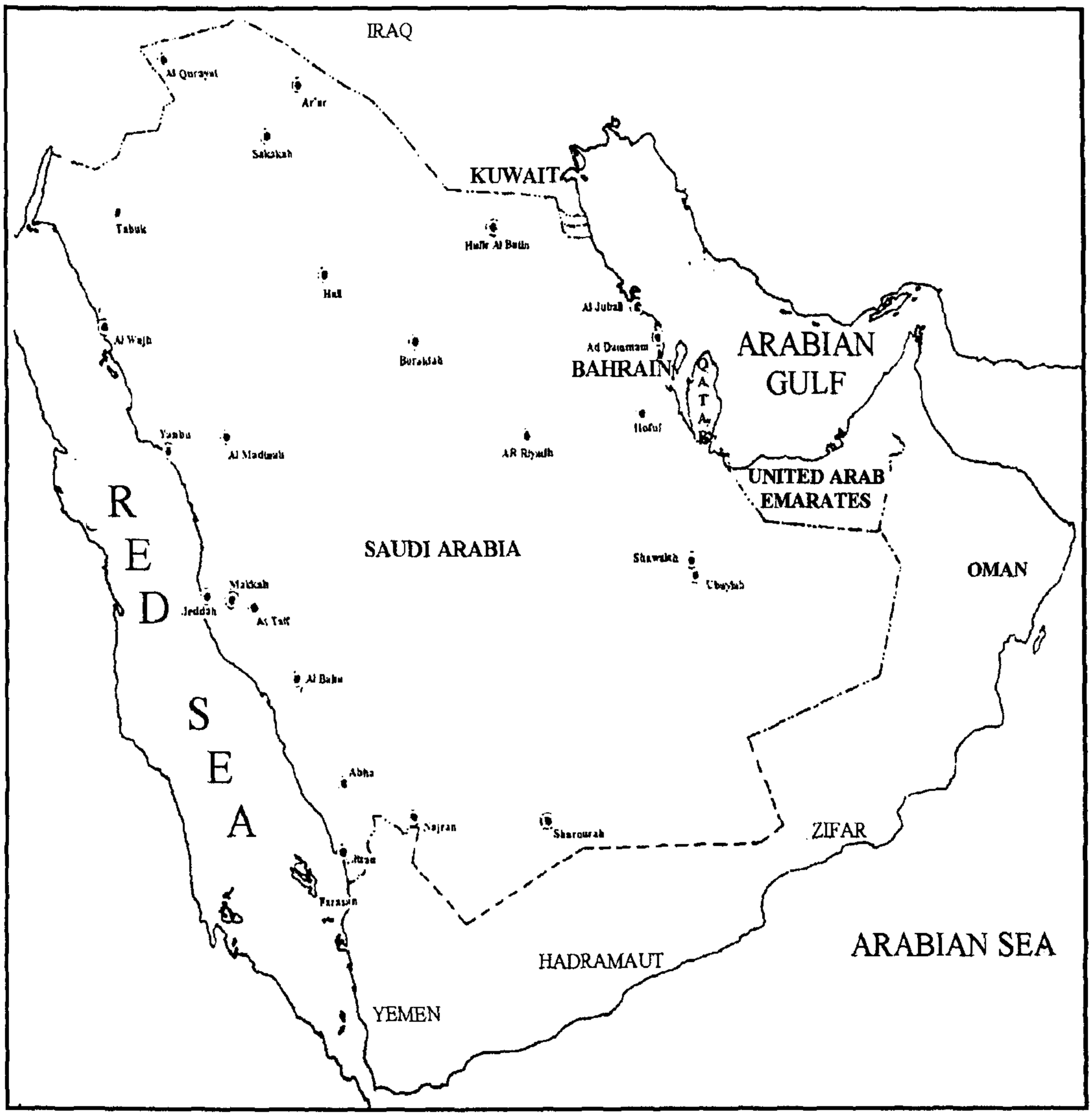

FIGURE 5.1: MAP OF THE GULF COOPERATION COUNCIL COUNTRIES

The state of Bahrain consists of 36 islands located at the centre of the Western shores of the Arabian Gulf. It lies 22 kilometers off the eastern coast of Saudi Arabia, and 28 kilometers from the coast of Qatar. The total area of Bahrain is approximately 706.55 km^2. The largest island is Manama, the capital city. The state has a total population of 508,037 of which 323,305 are Bahraini (1991 census, Ministry of Education, 1996b).

The United Arab Emirates consists of seven federally governed Emirates: Abu-Dhabi (the capital), Dubi, Sharjah, Ras al-Khaimah, Umm al-Qaiween, Fujairah and Ajman. These emirates were known before their independence as "trucial states" and were under the control of the British mandates (The Department of Information, 1989). The total area of the UAE is about 33,000 square miles with a population of 2,230,000 (1994 census, Information Centre Statistical Department, 1997). The UAE is bordered by the Arabian Gulf to the North, Saudi Arabia to the South and West, and the Sultanate of Oman to the East.

5.3: POLITICAL STRUCTURE

All of the GCC countries (except Saudi Arabia) were under the influence/control of Western colonialism during the period between the 1920s and the 1970s. The United Arab Emirates (UAE) became an independent state on December 2, 1971, while Bahrain became independent in 1971 (Niblock, 1980; Angell, 1987).

During the nineteenth century Saudi Arabia consisted of diverse tribal groups within the Arab peninsula. In 1932 King Abdulaziz Ibn Al-Saud was the first Islamic leader to call for the unification of the different tribes into one country, named as the "Kingdom of Saudi Arabia" (Angell, 1987; Ministry of Information, 1992).

The political structure of the Gulf countries shares common characteristics. For example, the shaikhly[2] families hold predominant power. In addition, they relied on alliances with leaders of tribal sections and individual merchants e.g. the Khalifa family of Bahrain, the Al-Saud of Saudi Arabia, and in the United Arab Emirates the Al Nuhayyan family of Abu Dhabi, the Al Maktum of Dubi.

Despite the above two common features of the political systems in the GCC countries, Braibanti (1987) argued that none of these systems was

> a theocracy, nor an absolute monarchy nor a medieval sheikhdom...They are intriguing blends of familial, tribal, religious and technocratic rule, which have been able to maintain both a social and psychological connection between rulers and ruled. In so doing a consensus is achieved within the context of tribal traditions and in the shadow of a pervasive and unbroken continuum of Arabianism and Islam (p.207).

Based on the above discussion, one could argue that the political systems in the GCC share the following characteristics. Firstly, the countries are ruled by families. Secondly, the head of state has the full authority and power to govern the country. Thirdly, religious people, tribal leaders, and major businessmen represent elite groups which have an influence on some of the decisions taken by the government. However, their influence is limited to issues that do not represent any form of threat to the political systems. Fourthly, the process of setting new rules and regulations in most of the GCC countries does not involve a public procedure.

Most of the universities are administered and financed by the individual governments. Furthermore, the governments have overall control over the number of students admitted each year, despite the capacities of each university. Although there

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[2] The term 'Shaikhly' refers to the chief or leader of a large family. At national level, it refers to the leader of a country.

are admission criteria for selecting students to be admitted annually, there is, in some cases, provision for political selection.

5.4: CULTURE OF THE GCC COUNTRIES

Culture at the level of nation/country has been defined by Hofstede (1991, p.262) as "the collective programming of the mind acquired by growing up in a particular country". In Hofstede's (1980, 1984, 1991) view culture consists of four main dimensions:

(1) Power distance (from small to large). It refers to "the extent to which the less powerful members of institutions[3] and organizations within a country expect and accept that power is distributed unequally". In large power distance countries the inequality among people is both expected and accepted. At home, parents teach their children obedience. Children treat their parents with respect. At school, teachers are perceived to be highly respected, wise people so their ideas are never criticized. In the classroom there is strict order. Students usually expect their teacher to initiate discussion. The teachers usually determine the intellectual ways to be followed, while students are supposed to communicate with their teachers only when they are invited to. The educational process is mainly teacher-centred. The quality of students' learning is largely dependent on the excellence of teachers.

In the small power distance societies, the educational process is student-centred. In the classroom students are encouraged to initiate discussion and interaction with their teachers. They are encouraged to find their own intellectual ways. Students

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[3] Institutions refer to the basic elements of society, such as family, school, and the community; while organization refer to the places where people work (Hofstede, 1991).

can ask questions when they need to, argue, and express their disagreement and criticisms of their teachers. The quality of learning is largely determined by the excellence of the students. The effectiveness of learning is largely dependent on the development of two-way communication between students and their teachers.

(2) Collectivism versus individualism. Collectivism refers to a "society in which people from birth onwards are integrated into strong, cohesive in-groups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty" (Hofstede, 1991), while individualism refers to a "society in which the ties between individuals are loose: everyone is expected to look after himself or herself and his or her immediate family only". The perception of education in terms of its purpose and the role of the educational certificate is different in collective and individualistic style cultures. In a collective style culture the purpose of education is to learn how to do things. Learning is viewed as a single time process, offered to the younger people only. The role of the certificate is to gain higher status in their society. On the other hand, in individualism the purpose of education is to learn how to learn, on the assumption that learning is lifelong. The role of the certificate is to improve individuals' economic (financial) position, provide the individual with a sense of self-satisfaction and increase the individual's self-respect and self-confidence.

In the classroom, the nature of teacher-student and student-student relationships is different in each culture. In collectivism, the classroom teacher treats each student as part of an in-group, not as an isolated individual. Students usually form subgroups in class according to their ethnic and/or family background. Students from the same ethnic or family background as the teacher will anticipate preferential treatment on these grounds. Students, in a collectivist society, prefer to speak up in a

small group. The individualist classroom teacher treats students as individuals and equally, despite their ethnic or family background. Students form subgroups according to the task in hand and the skills involved. Students, in an individualist society, do not hesitate to speak up in a large group.

(3) Femininity versus masculinity. Femininity is the term used to refer to a society in which "social gender roles overlap: both men and women are supposed to be modest, tender, and concerned with the quality of life" (Hofstede, 1991). While masculinity refers to the "society in which social gender roles are clearly distinct: men are supposed to be assertive, tough, and focused on material success; women are supposed to be more modest, tender, and concerned with the quality of life" (Hofstede, 1991). The subject or area of study chosen by male versus female students at universities differs in masculinity-femininity cultures. In a masculine culture, male and female students study different subjects, while in a feminine society, both males and females study the same subjects. In a rich and masculine culture, males and females are more segregated at universities than in a rich and feminine culture. In a masculine culture, females mainly teach younger children and males teach at universities. In a feminine culture the situation is mixed and males also teach younger children. In a masculine society job selections are mostly guided by perceived career opportunities, while in a feminine society, a student's intrinsic interest in the subject has a stronger influence. The criteria for teacher evaluation differ between masculine and feminine cultures. In a masculine culture, a teacher's academic reputation and the students' academic performance are the main factors. In the feminine culture a teacher's friendliness and social skills and the students' social adaptation are the main factors. In addition, in the classroom environment in a masculinist society students

compete with each other and try to make themselves visible (recognition). On the other hand, in the classroom environment in a feminist society, students practise mutual solidarity and behave modestly.

(4) Uncertainty avoidance (from weak to strong) refers to the "extent to which the members of a culture feel threatened by uncertain or unknown situations" (Hofstede, 1991). Students from strong uncertainty avoidance societies expect their teachers to be experts who have all the answers. They prefer structured learning classes that have precise objectives, detailed assignments, one correct answer, and strict timetables. Students from weak uncertainty avoidance societies accept and respect a teacher who admits that he/she 'does not know' the answer and who uses plain language. They prefer open-ended learning classes that have vague objectives, wide assignments, more than one correct answer and no timetables at all.

Applying Hofstede's view of culture to the GCC countries, the following educational points emerge. Firstly, the GCC countries are characterised as large power distance cultures. This implies prevailing respect and the avoidance of criticism of older and more knowledgeable/educated people, e.g., teachers. The teacher is the dominant individual in the class, where instruction is mainly in the form of a lecture, and the teacher usually initiates the discussion. In addition, students expect teachers to give them guidelines to follow. The main emphasis of the educational process is teacher-centred, despite some effort to adopt a student-centred strategy.

Secondly, it is collective in nature. The roles of friendship and family ties are significant. In addition, in such a society there is a greater opportunity for younger people to continue their higher education studies than for older ones. This issue is

clearly apparent in most of the GCC university admission criteria, where the age of applicants is taken into consideration.

Thirdly, it is masculine in nature. There is a limited choice of subjects available to female students. For example, in pre-university education, admission to religious, agricultural, and industrial education is limited to males (Arab Bureau of Education for the Gulf States, 1997). In addition, there is segregation in the educational system in most GCC countries. In higher education, female teachers teach only female students in most of the GCC countries, whereas male teachers can teach female students in some disciplines e.g., if there is a shortage of female staff.

Fourthly, it is a strong uncertainty avoidance culture. The educational system in most GCC universities is mainly traditional, with the main method of instruction being structured lectures. The learning objective is precisely known, and the timetable is fixed. Students prefer to be told exactly what they are required to do in their assignments.

In addition to the above, the GCC countries share two common cultural dimensions: language and religion. These cultural dimensions are deemed important because of their significance in the scope of this research. The language, which is Arabic, is the official language of instruction in educational policy for the pre-university level, from elementary to secondary level. However, in some fields of higher education, such as engineering and medicine, English language is the medium of instruction. The fact that students transfer from an Arabic-instruction setting in the pre-university level to an English-instruction setting at a higher education level may have an influence on the educational outcome/performance. This issue will be discussed in more detail in the upcoming chapters.

The religion of the GCC countries is Islam. The word "Islam" means peace, submission and obedience. Islam was propagated by the Prophet Mohammed (peace be upon him) in the early part of the seventh century AD (604-632). The essence of Islam is embodied in the holy book the "Quran", the word of God. The emphasis of Islam is on the worship of the one and only God (Allah), belief in his angels, scriptures, prophets, life after death, equality among people and tolerance of other religions. There are five fundamental principles in Islam: (1) The absolute unity of God and the affirmation that the Prophet Mohammed is his last messenger; (2) The requirement to pray five times daily at certain times; (3) The payment of Zakat (religious tax) to the poor and needy people; (4) The requirement of fasting between sunrise and sunset during the holy month of Ramadan; and (5) Pilgrimage to the holy city of Mekkah at least once in the lifetime of those who are capable financially and physically of conducting the journey. The life of muslims is directed by two primary sources: (1) The Quran; the word of God, and (2) The Sunna; the teachings, sayings and performance of the Prophet Mohammed, reported and gathered by his devoted companions, which explain and elaborate on the Quranic verses.

Taking into consideration the fact that the GCC countries are Islamic nations, one would expect that the objectives of higher education would be set in a manner that does not conflict with Islamic rules. In addition, it is worth mentioning that single-sex education is the policy of the educational system at public pre-university level for all GCC countries. It is also the policy at higher education level for most of the GCC countries. Such segregation in educational policy could be attributed to either applying a restricted Islamic rule and/or a restricted Arab traditional rule. However, this issue is beyond the scope of this research.

However, even though the GCC countries share a common language and religion, there are some differences in the socio-cultural features, e.g. the degree of liberalism in terms of interpreting the law and implementing religious practice and principle. In this regard Bahrain, where a co-educational system is adopted, is considered as a liberal country while Saudi Arabia and some states of the United Arab Emirates, where a single-gender educational system is adopted, are considered more conservative.

5.5: ECONOMIES OF THE GCC COUNTRIES

Prior to the discovery of oil, the main economic resources of the GCC countries were pearl-diving, fishing, trading activities, agriculture, and fees from pilgrimages to holy places (for Saudi Arabia only) (Rumaihi, 1980). Since the 1920s, the economic base of the GCC countries has, to a large extent, been dependent on the extraction and export of a single depletable resource: oil (Askari and Dastmaltschi, 1987). The availability of oil revenues especially in the last twenty years enabled these counties to start building their infrastructure to facilitate their economic development. One dimension of this infrastructure is the development of health care systems. Another dimension is the development of an educational system, which has included the building of many universities. These universities include different colleges providing undergraduate degrees in almost all fields and postgraduate degrees in some disciplines[4]. Most of the universities have a college of medicine.

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[4] It is worth noting at this point that the dates for establishing these universities differ among GCC countries.

5.6: EDUCATION IN THE GCC COUNTRIES

5.6.1: EDUCATION IN SAUDI ARABIA:

Over the last twenty years, education in the Kingdom of Saudi Arabia (KSA) has witnessed a remarkable development at all levels (see Table 5.1). There are 42 educational districts around the country (Arab Bureau of Education for the Gulf States, 1998). The budget for education was increased by 8,853 million Rials during the fifth development plan (1990/1991-1994/95) over that for the fourth development plan (Arab Bureau of Education for the Gulf States, 1998).

There is a uniform curriculum in the country. It is similar for male and female students, except that females have home management and cooking (General Presidency of Girls' Education, 1994). Education in Saudi Arabia is free and available to all residents.

TABLE 5.1: SCHOOLS, COLLEGES, STUDENTS AND TEACHERS DURING THE PERIOD 1983/84-1993/94

Statement	Sex	1983/84	1993/94	% Growth
Schools and Colleges	Male	8460	10928	29.2
	Female	6619	10725	62.0
	Total	15079	21653	43.6
Students	Male	1269177	2078629	63.8
	Female	886583	1864506	110.3
	Total	2155760	3943135	82.9
Teachers	Male	82556	146314	77.2
	Female	54669	147146	169.2
	Total	137225	293460	113.9

Source: adopted from Ministry of Education (1996a, p. 21).

I. The Structure of the Saudi Education System:

The educational sector in the KSA is administered by four major governmental agencies: (1) the Ministry of Education; (2) the Presidency General for Girls' Education; (3) the Ministry of Higher Education and (4) the General Organization for Technical Education and Vocational Training (Ministry of Education, 1996a).

(1) The Ministry of Education was founded in 1953. The main service offered by this ministry is to provide general education for males only. General education comprises three stages: elementary, intermediate and secondary.

(2) The Presidency General for Girls' Education was founded in 1960. Its main function is to develop the programmes and curriculum for girls' education. One curriculum deals with general education.

In addition to the general education provided by both the Ministry of Education and the Presidency General for Girls' Education, there are other types of education, such as vocational education and training. However, students who pursue these types of education are not allowed to pursue medical education at a later date. Only students with general education have the opportunity to pursue studies in medical education. Therefore, only general education will be considered briefly.

General education involves three stages as follows:

(1) The Elementary Stage:

This is the first stage of the official education system. It is a six year programme where children will normally join at the age of six. In this stage the curriculum emphasises basic subjects such as Islamic religion, Arabic language and general culture and science. In order to move from one grade to the next, the students are required to pass the compulsory examinations in all subjects taught during the two semesters (Ministry of Education, 1996a; Al-Kateeb, 1999).

(2) The Intermediate Stage:

Following the six years of elementary schooling, students pass to the intermediate stage, normally at the age of 12. In this stage, the study period is three years. The purpose of this stage is to extend the students' general education. The

examination system in this stage is identical to that of the elementary stage (Ministry of Education, 1996a; Al-Kateeb, 1999).

(3) The Secondary Stage:

Following the three years of intermediate schooling, students enrol in this stage, usually at the age of 15. Here, they study for three years. They have the chance to pursue their study of either art or science studies. At the end of the third year, students who successfully pass the secondary examination will be awarded the secondary certificate. Students who successfully complete their general education have the opportunity to pursue their higher education -undergraduate and postgraduate studies. It is worth noting that only those students who pursue studies that emphasise science are allowed to apply for medical school at a later date (Ministry of Education, 1996a; Al-Kateeb, 1999).

(3) General Organization of Technical Education and Vocational Training:

This was founded in 1980. The main function is to provide technical education and vocational training to meet national manpower requirements according to the policies suggested by the Manpower Council for Training and Technical Education. Such training and education cover the fields of industry, agriculture and commerce (The Ministry of Education, 1996a).

(4) Ministry of Higher Education:

The Ministry of Higher Education was founded in 1975. Its main function is to supervise the execution of the national policy in the field of higher education. It supervises all universities in Saudi Arabia.

There are seven universities in the KSA. Most of these universities provide their students with MSc. and Ph.D. degrees in addition to bachelor degrees. These universities are detailed below:

(1) The King Saud University was the first Saudi Arabian University, founded in 1957. It has fourteen faculties, including a Faculty of Medicine.

(2) The Islamic University was founded in 1961. It has five faculties, all of which emphasise religious affairs and Islamic laws (Ministry of Higher Education, 1996c).

(3) King Abdulaziz University is located in the western region of the KSA, and was established as a private institution in 1967. Later in 1971, it was converted into a public university. It has nine faculties, including a faculty of Medicine (King Abdulaziz Faculty of Medicine and Allied Sciences, 1997).

(4) King Faisal University was founded in 1974 and is located in the eastern region of the KSA. It has six faculties, one of which is the faculty of Medicine (Ministry of Higher Education, 1998b).

(5) Imam Mohammed Bin Saud Islamic University was founded in 1974 and has nine faculties. It is religiously oriented, with emphasis on religious studies and Islamic laws and has four branches distributed around the KSA (Ministry of Higher Education, 1996c).

(6) King Fahad University of Petroleum and Minerals was founded in 1975 and has six faculties. Its main focus is on the fields of engineering and management with particular reference to the oil industry. It is in Dhahran, in the eastern region of the KSA, where the largest section of the oil industry is located (Ministry of Higher Education, 1996c).

(7) Umm AlQura University was founded in 1981 and is located in the western region of the KSA. It has nine faculties, one of which is the faculty of medicine.

Undergraduate studies last four years for humanities and social sciences, five years for engineering and pharmacy, and six years for medicine. The latest available Higher Education statistics indicate that the total number of male and female students enrolled in the KSA universities was 174,071 for the academic year 1994/95. Only 4.5% of this number enrolled in the field of medicine (see Table 5.2).

TABLE 5.2: THE DISTRIBUTION OF STUDENT ENROLLMENT IN UNIVERSITIES ACCORDING TO THE FIELD OF STUDY

Field of Study	Number	% of Total
Medicine	7,773	4.5
Education	51,536	29.6
Engineering	11,891	6.8
Agriculture	2,559	1.5
Natural Science	14,168	8.1
Economics & Administration	14,321	8.2
Social Studies	2,291	1.3
Islamic Studies	26,193	15.1
Humanities	41,720	24.0
Others	1,619	0.9
Total	174,071	100.0

Source: adapted from The Ministry of Education, 1996a, p. 86).

The main objectives of higher education in Saudi Arabia are:

(1) Preparing competent and intellectually and scientifically qualified citizens to perform their duty in the service of their country and the progress of their nation in the light of sound Islamic principles and ideology.

(2) Providing gifted students with the opportunity to continue higher education in all fields.

(3) Performing a positive role in the field of scientific research which contributes to world progress in art, sciences and inventions, and finding sound solutions for the requirement of a developed life and technological trends.

(4) Promoting writing and scientific production in what ever brings sciences into the service of Islamic thought and enables the country to perform its leadership role in building human civilization based on Islam's genuine principles that steer mankind to righteousness and spare humanity from material and atheistic deviations.

(5) Translating science and useful arts of knowledge to the language of the Quran and enriching the Arabic Language with new expressions to fill the need for arabicization, and putting knowledge at the disposal of the largest (possible) number of citizens.

(6) Offering training services and reorientation courses to enable graduates who are already working to keep pace with new developments (Ministry of Education, 1974, pp.21-22).

II. Medical Schools in Saudi Arabia:

There are four main universities that provide medical studies in the KSA.

(1) King Saud University. The main campus of KSU is in the central region, in Riyadh. In addition, it has two branches off-campus. One of these, at Abha, offers medical studies as well. The total number of male and female students was 34,596 in 1995, of which 2,895 students were in the faculty of medicine, applied medical science, and dentistry (Ministry of Higher Education, 1996b).

(2) King Abdulaziz University. This university is in Jeddah, in the western region. The total number of male and female students was 32,991 in 1995, of which 2,591 students were in the faculty of medicine and medical science and dentistry (Ministry of Higher Education, 1996b).

(3) King Faisal University is in Dammam, in the eastern region. The total number of male and female students was 6,745 in 1995, of which 838 students were in the faculty of medicine and medical science (Ministry of Higher Education, 1996b).

(4) Umm AlQura University is in Makah, the holy city in the western region. The total number of male and female students was 20,600, they study in nine faculties.

A. Students' Admission Criteria for Medical Schools in Saudi Arabia:

The general criteria for students' admission for medical schools are: (1) students should obtain 85% or more of the general Grade Point Average (GPA) of the

total marks in the subjects of secondary school, (2) students should obtain at least 85% of the total marks in chemistry, biology, physics, and mathematics in the secondary general education certificate, (3) students should pass an academic interview, (4) students should pass the entry examination that emphasises competence in science and English language (Arab Bureau of Education for the Gulf States, 1985; Ministry of Higher Education, 1997; Ministry of Higher Education, 1998b; Ministry of Higher Education, 1999).

Although student age at the time of applying for medical school is not mentioned by the three universities as one of the requirements, preference is give to students who apply immediately after graduating from school. This means that the age of students is normally between 18 and 20.

B. Curriculum in the Medical Schools in Saudi Arabia:

The undergraduate curriculum extends over six years. The academic year covers two semesters. A semester lasts for a 16-week period of which two weeks are used for review and examination. Usually the first year of the programme covers the premedical courses such as general English, biology, chemistry, physics and mathematics. The second and third years consist mainly of pre-clinical courses such as anatomy, biochemistry, physiology, microbiology, and pathology. In addition, courses such as Islamic studies and physical education are distributed throughout the first three years of the programme. The fourth and fifth years consist mainly of clinical courses such as pharmacology, medicine, surgery, community medicine, and primary health care. The sixth year consists of clinical attachments, mainly in medicine and surgery specialities and paediatrics.

The final part of the programme is the internship year where students conduct clinical rotations. The main objective of such a year is to provide students with general clinical experience for the purpose of acquiring the necessary knowledge and skills for the practice of medicine (Ministry of Higher Education, 1999; Ministry of Higher Education, 1996a; King Abdulaziz University Faculty of Medicine and Allied Sciences, 1997).

The main features of the curriculum in Saudi medical schools can be summarized as follows (based on the Ministry of Higher Education, 1999; King Faisal University, 1998b; Ministry of Higher Education, 1996a; King Abdulaziz University Faculty of Medicine and Allied Sciences Programs of Study, 1997; An Interview with a Faculty Member at King Faisal University, 1998; A telephone interview with a Faculty Member at King Abdulaziz University, 1998):

(1) The study extends over six years in addition to one internship year.

(2) The annual system is used in all universities. One of the main features of such a system is that students are required to attend a specific number of 50-minute lectures covering a list of subject areas. In other words, the courses and the timing for lectures, tutorials, and practical sessions for each year is fixed for all students.

(3) The curriculum includes only core subjects with no elective courses for any years, except the internship year. During the internship year, students are offered elective courses in clinical disciplines, normally for one month.

(4) Lectures are the main method of instruction, but practical and tutorial classes are included.

(5) Horizontal and vertical integration between different disciplines is one of the target strategies of teaching. Such integration is conducted through, for example, 'co-

ordinate teaching' where relevant subjects are scheduled in the course simultaneously (King Faisal University, 1998b; Ministry of Higher Education, 1996a). However, in reality such integration basically means some co-ordinating takes place (i.e., it is not fully co-ordinated) between different disciplines only in some seminars/tutorials (i.e., not at all seminars nor at all lectures) (An Interview with a Faculty Member at King Faisal University).

(6) The assessment procedure consists of 3-5 continuous assessments throughout the year, which usually account for 40% of the total marks, in addition to one final (comprehensive) examination at the end of the year (i.e., at the end of the second semester) which accounts for 60% of the total marks. Such a final examination is based on course work done during the whole year.

(7) The most common methods of assessment are multiple-choice questions, essay questions and, in some disciplines, oral and practical tests.

(8) Every medical school in Saudi Arabia has its own teaching hospital attached to it.

(9) The English course is offered for all students during the first two years of the programme. The main purpose of introducing such a course is to serve the student needs in attempting to adjust to an English medium curriculum. The main objective of this course is to develop the English language competence of medical students in linguistic areas, i.e., in reading, listening, writing, and structure. The main emphasis of teaching is on building scientific and medical vocabulary skills (e.g., using a dictionary) and specific reading and writing skills (e.g., finding the main ideas, defining words in context, drawing conclusions, writing laboratory reports). In addition the development of communication skills is emphasised in the structure

course (King Faisal University, 1998a; King Abdulaiziz University Faculty of Medicine and Allied Sciences, 1997; Ministry of Higher Education, 1996a).

Finally, it should be noted that study in medical school is free for all students. Moreover, monthly stipends are offered to Saudi students to encourage them to continue their study. Also, living on the campus as well as travelling from the campus to university or to the teaching hospital is free of charge for all students.

5.6.2: EDUCATION IN BAHRAIN

The Ministry of Education is the body responsible for administration of the public education system in the State of Bahrain at all levels. Its main functions are to execute the State's educational policy, direct the educational system at all stages, plan its policies, and supervise its departments (Ministry of Education, 1996b). Education is provided free for all residents at all school levels. The Ministry of Education provides two main types of education: General Education and Religious Education. The former is provided to both male and female, while the latter is provided only for male students. Single-sex education is provided at public under-graduate levels. The general education consists of three levels:

(1) Primary Level. It lasts for six years and includes the six-eleven year old age group.

(2) Intermediate Level. Students are transferred to this level upon successful completion of the primary level. This level lasts for three years and is for students between twelve and fourteen years of age.

(3) Secondary Level. Students are promoted to this level upon successful completion of the Intermediate School Certificate or its equivalent. This level lasts for three years. The credit-hours system is applied at this level. Such a system provides

broad choices of subjects and courses, which may allow students to select the curriculum that suits their desires. There are five main types of curriculum: a science curriculum, a literary curriculum, a commercial curriculum, applied curricula[5], and a technical curriculum.

I. Higher Education in Bahrain:

For students to be admitted to higher education, they must have successfully completed General Secondary Education. There are two universities and one Health Science College in Bahrain.

(1) The University of Bahrain was founded in 1986. The Ministry of Education is responsible for planning the policy and maintaining the regulations of the university. The university is financed from two sources: government financial support and student fees. It offers a number of programmes at various levels such as Bachelor degree programmes; Masters degree programmes; Post-graduate Diploma. The university consists of five main colleges: arts, science, education, business administration, and engineering (Ministry of Education, 1996b).

(2) The Arabian Gulf University (AGU) was founded in 1980 by a Decree of the General Council of Ministers of Education of the Gulf Co-operation Council States in the Arabian Gulf Region. The Board of Trustees is the official body responsible for planning the university general policy, proposing the required budget, establishing new programmes/colleges and recommending changes in the structure and regulations of the University (Ministry of Education, 1996b). The University Council supervises academic, research, educational, administrative and financial activities.

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[5] There are five branches under this curriculum: agriculture and livestock resources, printing, hotel business for boys only, while textile and clothing, and printed advertisements are for girls only.

The University is financed by the contributions made by the members of the GCC countries and other resources (Ministry of Education, 1996b, Arabian Gulf University, 1997). There are two main colleges: the medicine and medical sciences college and the post-graduate college.

(3) The College of Health Sciences (CHS) was founded in 1979 with the aim of providing the country with qualified health manpower. It provides a number of programmes such as an associate degree in general nursing; laboratory; radiography; public health inspection; and nursing-midwifery. In addition, it provides diploma degrees in several areas, for example, community health nursing (Ministry of Education, 1996b).

II. Medical School in Bahrain:

The Arabian Gulf University (AGU), mentioned above, is the only one that provides a bachelor degree in medicine in Bahrain. The medical programme started in 1984. Approximately 30-70 students are admitted yearly from GCC member countries according to agreed allocation formula (Arabian Gulf University, 1997).

Objective of the College of Medicine and Medical Sciences at the AGU:

The main objective is to graduate competent physicians who

(1) Have acquired:

Knowledge of Medical Sciences, and the necessary professional responsibilities (towards patients and families, colleagues, self and the community).
Essential professional skills (clinical, communication, ethical and behavioural) to enable them to undertake work in the comprehensive health care field (preventive, curative, rehabilitative and developmental).

(2) Interact positively with the community; participate in comprehensive care planning and the education of the community.

(3) Are well versed in identifying patient problems, generating appropriate hypotheses of illness and instituting appropriate plans of investigation and treatment.

(4) Have demonstrated abilities of self learning and continuing self-education.

(5) Are capable of activating and undertaking research programmes in the basic, clinical, or related social fields.
(6) Enhance the humanistic values of Islam and Arab civilization.

(7) Have a keen insight into the economics and the cost effectiveness of health care delivery strategies (Arabian Gulf University, 1997, pp.19).

Students' admission criteria:

(1) Students should be citizens of one of the GCC countries or Arab students who are residents in one of the GCC countries.

(2) Students should have a high school diploma with a satisfactory GPA of at least 85%.

(3) Students should apply to the AGU within a maximum of two years of graduation from high school.

(4) Students' age should not exceed 24 years at the time of applying for the pre-medical programme.

(5) Students should obtain satisfactory results in the English language examination on entry.

(7) Students should obtain satisfactory results in the basic sciences examination on entry.

(8) Students should attend a structured interview conducted by a committee of faculty (Arabian Gulf University, 1997; Arabian Gulf University Newsletter, 1997; Arabian Gulf University, 1998b).

The University adopts the credit hours system in the pre-medical programme. The academic year consists of two semesters, each consisting of 16 weeks. In addition, there is a summer session consisting of 8 weeks. Students pay fees for their

study unless they have scholarships from their government (Arabian Gulf University, 1998b).

The medical education in AGU is characterised by the following features:

(1) The curriculum is integrated, and community oriented.

(2) The curriculum is based heavily on problem based and self-directed learning.

(3) The teaching process involves small groups of students working with faculty members who behave as facilitators, advisors and resource personnel (Arabian Gulf University Newsletter, 1996).

Medical Curriculum Structure in Bahrain:

The curriculum is divided into three phases:

(1) Pre-medical phase.

The pre-medical phase lasts for one year. In this preparation programme, students must complete the following eight courses in order to be accepted into the medical programme: English, chemistry, biology, psychosocial science, computer science, Islam and history of medicine, biostatistics, and physics. The main objective of such a programme is to help students to prepare for their academic life, self-directed learning and problem solving methods. Furthermore, it seeks to improve the students' ability in reading and writing in English. Two English courses are offered in the pre-medical phase. In these courses, the emphasis is directed toward improving the English skills practised by students, in terms of speaking, writing, reading, and grammar. The vocabulary component concentrates on language related to medicine and medical terms. The main aim is to help students improve their ability to use English in this context, and to prepare them for the study of complex and detailed medical descriptions later.

(2) Unit System Phase:

The unit system phase lasts for three years. The objective of this phase is to address the concepts and principles of medicine in an integrated way. This encompasses clinical and basic medical science, professional skills, community health problems, and behavioural and ethical problems. This phase is divided into seven units, each dealing with a system/organ. The study of a specific system/organ is based on the study of a health problem that integrates different disciplines/subjects related to that system. The seven units are: (1) Concepts and principles; (2) Life cycle and reproduction; (3) Cardiovascular; respiratory and renal; (4) Reticulo-endothelial; immunity and infectious diseases; (5) Metabolism; endocrine and GIT; (6) Nervous system and human behaviour; (7) Musculo-skeletal and skin.

Students who successfully complete the course up to the end of fourth year get a Bachelor Degree in Basic Medical Sciences [BSc].

(3) Clerkship Phase:

The clerkship phase lasts for two years and includes clinical training, which is hospital or health centre based. The objective of this phase is to prepare students for their professional life and future career. At the end of the sixth year, the students get their Degree in Medical Qualifying Examinations [M.D] (Arabian Gulf University, 1997; Arabian Gulf University Newsletter, 1998).

It should be noted at this point that the AGU does not have access to a University Teaching Hospital, although such a facility is regarded as necessary for good medical education (Arabian Gulf University Newsletter, 1996). However, arrangements have been made to manage/co-ordinate clinical training in two affiliated hospitals, the Salmaniya Medical Centre, which is the main hospital of the Ministry of Health, and

the Bahrain Defence Force Hospital. (Arabian Gulf University, 1997; An interview with a faculty member, 1998).

ASSESSMENT SYSTEM IN THE AGU:

Assessment in the Unit System Phase consists of: (a) continuous assessment, which accounts for 40%, and includes written examinations at the end of units, professional skills, and community health activities; (b) End of Unit System Phase Comprehensive examination, which accounts for 60%. This consists of a written examination and an objective structured practical examination [OSPE].

Assessment in the Clerkship Phase consists of (a) continuous assessments, which account for 25%, and (b) an End of Rotation examination, which accounts for 75% of the marks. The Final M.D. Qualifying Examination consists of continuous assessments, which account for 25%, and a Final examination, which accounts for 75% and involves a written and clinical examination (Arabian Gulf University, 1997).

5.6.3: EDUCATION IN THE UAE:

After the discovery of oil in 1962, the UAE experienced a dramatic change in all sectors, including education. Education became a priority in the UAE budget. For example, it accounted for 15.2% of the total budget in 1992 (Arab Bureau of Education for the Gulf States, 1998). The Ministry of Education, founded in 1972, is the official government body responsible for General Education. Drawing up plans for and administering the educational system in the UAE are the main functions of the Ministry of Education. In addition, it makes provision for other branches of education such as Religious and Vocational education. However, a General education is the main requirement for students' enrolment in medical education.

The General education under the Ministry of Education consists of the following stages:

(1) Kindergarten stage is an option. It consists of two years before the primary stage for children aged 4 to 5.

(2) Primary stage is compulsory for all children. It consists of six years of schooling for children aged 6 to 12 years old.

(3) Preparatory stage consists of three years of schooling for children, normally aged 13 to 15.

(4) Secondary stage consists of three years of schooling for students aged 16 to 18. In the first year, students study general subjects such as religious education, the Arabic and the English languages, social studies, mathematics, and science. In the second year of secondary education, students can choose to study either art or science subjects. Then students continue their study to the third year.

The education system is free of charge for all UAE citizens at all levels including higher education. In addition monthly stipends are paid, and clothes and books are supplied to students. Arabic is the official language of instruction at all under-graduate educational stages. Single-sex education is the policy of the Ministry of Education (Ministry of Education, 1993; Ministry of Education, 1996c).

I. Higher Education: The University of the United Arab Emirates

The University of the United Arab Emirates was established in 1977. This university is the official body responsible for higher education in the UAE. It was built in the city of Al-Ain because this city is located centrally within the federation. The university has several colleges including a college of medicine.

The objective of Higher Education in the United Arab Emirates:

(1) Stressing the principles and judgements of the True Islamic Religion, acquainting the student with the Islamic and Arabian cultures, keeping, deepening and developing an awareness of the heritage, and developing the student's pride in the society's heritage, habits and traditions.

(2) Developing the citizen's sense of belonging to the homeland and desire to serve and develop the society.

(3) Developing the knowledge, care of culture and higher studies in branches of literature, the sciences and arts, preparing the specialists and technicians in these branches and other aspects of knowledge, forming the scientific and human personality, stressing the Islamic values, Arabian origins and scientific development.

(4) Providing a high level of training to technicians, specialists, researchers and experts in the different fields of knowledge to meet the comprehensive development requirements in the country.

(5) Making provision for studies of Arab and Islamic civilizations, while stressing the shared relationship within the Gulf and Peninsula.

(6) Conducting theoretical research and scientific and applied studies which participate in scientific development, together with stressing the research and studies applied by the comprehensive development plans in the country in different sectors and services.

(7) Providing the technical consultation and services in sciences, technologies to the governmental and private authorities and establishments.

(8) Boosting the development of literary work, translation and scientific production, assisting the higher education Institutions in the country to play a leading role in the development of Arab and Islamic civilization and human civilization in general.

(9) Holding forums and conferences, organizing continuous training and education, leading to the development of human resources in the country.

(10) Seeking to strengthen the cultural, scientific and educational relations with the universities and higher education institutes, and the Arab, Islamic and international scientific authorities and institutions (Ministry of Education, 1992).

II. Medical School in the United Arab Emirates:

The faculty of medicine of Al-Ain was founded in 1984. The first cohort of 33 students was admitted in 1986. By the academic year 1997-1998, this number had risen to 217 students. In 1993-1994 the first graduate medical students entered their professional life. Since then approximately 25-35 medical students have graduated annually. There were 100 faculty members, 180 support staff, and 217 students in the faculty of medicine for the academic year 1997-1998. There are fourteen academic departments in the faculty of medicine: anatomy, biochemistry, community medicine, family medicine, internal medicine, medical microbiology, obstetrics and gynaecology, paediatrics, pathology, pharmacology, physiology, psychiatry, radiology, and surgery. In addition, a medical education department was founded to support curriculum development, teaching, student learning, research and service mission. The mission of the faculty of medicine is summarised in Table 5.3.

TABLE 5.3: MISSION OF THE FACULTY OF MEDICINE OF UAE
• To provide an undergraduate medical programme oriented to the needs of the UAE community that meets high international standards of quality and enables its graduates to compete successfully for advanced training in the best centres worldwide. • To be involved in the provision of programmes of postgraduate and continuing medical education designed to maintain and upgrade the competence of doctors currently practising in the Emirates. • To develop and support programmes of research in the medical and clinical sciences, with emphasis on areas of special need to the UAE. • To be actively involved in the delivery and development of health care in the Al-Ain Medical District.

Source: United Arab Emirates University (1998b, p.3).

The enrolment policy in the School of Medicine requires that students:

(1) Have UAE citizenship.

(2) Have a high school diploma with a GPA of more than 80% of total marks. This constitutes 60% of the total marks of the selection criteria.

(3) Pass a written test on entry. This constitutes 20% of the selection criteria.

(3) Pass an interview. This constitutes 20% of the selection criteria.

(4) Be ranked based on the total marks of selection criteria students then selected by the university (United Arab Emirates University, 1998b; An interview with the Vice Dean of the UAE University, 1998).

Medical Curriculum in the United Arab Emirates University:

The duration of study is seven years, in which all students are enrolled full-time. Students are required to spend one year studying 'University General Requirements Units' [UGRU]. The objective of such a program is to provide the student with basic educational courses such as mathematics & computing for sciences, Arabic and English language, Emirates society, Islamic thought, and an introduction to English for medicine.

The medical curriculum has four courses:

(1) Preparatory course. The preparatory course lasts one year. It covers English language for medicine, and chemical and biological sciences.

(2) Integrated biological and medical sciences course. This course lasts one year. It covers biomedical sciences, English, medical communication and study skills, human and developmental sciences, microbiological and pathological sciences.

In both the preparatory course (medical year 1) and the integrated biological and medical science course (medical year 2), students are required to take 'English Communication and Study Skills' [ECSS] modules. In such modules emphasis is placed on correctness in written and oral communication, lecture note-taking skills and an introduction to the basic concepts of medical terminology.

(3) Organ systems course. This course lasts two years and covers haematology and immunology, the alimentary system, the cardiovascular system, the respiratory system, the musculoskeletal and peripheral nervous system, the urogenital and reproduction system, the endocrine and metabolism, the neurosciences and special senses, and the behavioural sciences.

(4) Clinical sciences course. The clinical sciences course lasts two years, covering internal medicine, surgery, paediatrics, psychiatry/neurology, family medicine, obstetrics and gynaecology, community medicine. Following successful completion of the clinical sciences course, students are awarded the combined degrees of Bachelor of Medicine and Bachelor of Surgery [MBBS]. A compulsory one-year Internship follows. Based on successful completion of such internship, students obtain a licence to practise medicine. The following table shows the distribution of studying hours (see Table 5.4).

TABLE 5.4: THE DISTRIBUTION OF STUDYING HOURS			
	Preparatory course	Integrated biological and medical science course	Organ system course
Seminar Tutorial	384 -	415	778
PBL Session	50	88	82
Practicals	123	165	148
Skills Lab.	30	-	76
Field trips	8	16	-
Library research	-	20	60
Clinical	-	-	112
Assessment	57	39	99
Total	652	743	1355

Each course in the above curriculum is sub-divided into a number of modules. Each module is based on learning objectives designed for each session. The learning strategy is problem-based and involves independent learning in small groups using simulated clinical problems, seminars and tutorials. The curriculum is integrated and organised in blocks of organ/biological systems, e.g. normal structure and function, abnormal structure and function, and clinical application. Horizontal and vertical integration are adopted for the entire curriculum content and process. Integration refers to the "organization of material so as to interrelate attitudes, knowledge and skills as a unified whole across disciplines rather than teaching them as separate disciplines". Horizontal integration refers to "interrelating specific disciplines within the same time-frame of the curriculum", while vertical integration refers to "integration of disciplines over time, throughout the whole curriculum". Students are provided with a guidebook that explains the objectives, schedules and assessment programme for each course and each module within the course.

The major medical curriculum founding principles are: firstly, the curriculum will be oriented to reflect the health needs of the UAE community. Secondly, it will be

based on medical knowledge, skills and attitudes required to practise humanitarian medicine. Thirdly, it will be integrated and organized in horizontal and vertical integration. Fourthly, it will enhance and facilitate self-learning and active learning instead of passive learning. Fifthly, a study guide will be provided to students to enhance their learning. Sixthly, different teaching/learning methods will be used with an emphasis on problem based learning. Finally, elective courses will be included in the curriculum (United Arab Emirates University, 1998b).

Assessment in the United Arab Emirates University:

Two types of assessment are used. One is for the 'University General Requirements Units' and is taken in the first year. The credit hours system is used in UGRU. The other is the weighting factors system used for each module. This system presents a combination of the length in weeks of a specific module and the relative importance the faculty council places on that module. Formative and summative assessments are used to evaluate students' progress in each course.

In addition, two components of assessment are used. (1) In-course assessment includes module tests and a task mark and accounts for 60% of the total marks in a course. (2) End-of course assessments account for the remaining 40%. These include essays, multiple-choice and short answers, an objective structured practical and clinical examination (OSPE/OSCE), and an oral examination. Students are required to obtain a total mark of 75% or over to be permitted to continue with medical studies (United Arab Emirates University, 1998a).

5.7: CONCLUSIONS

Generally speaking, the Gulf region over the last sixty years appears to have followed a fairly conventional route from a basic agrarian and tribal society through to an emerging economy. The availability of oil revenues has enabled the Gulf governments to stimulate economic development and develop the essential infrastructure. In order to encourage the development of the educational sector, the Gulf governments offered to finance the higher education institutions, and provide free education for their students. Moreover, in an effort to encourage Gulf citizens to enroll in higher education, a monthly allowance has been provided for students in some Gulf states.

However, in other respects there are many key factors in the Gulf region that may need special consideration. First, the government is the main provider for financing the educational activities in this region. Consequently, it has overall control of the educational policy and procedure, e.g. the number of students accepted each year.

Second, the Islamic religion influence represents a cornerstone in the Gulf society. As a result, one should not put a lot of expectation on the acceptance of any material to be taught or any educational policies which are in conflict with Islamic principles. From this prospective, the extent to which involving both sexes in a co-educational university could be perceived as in conflict with either Islamic rules or society traditions is hard to define.

Finally, based on Hofstede's categories of cultural dimensions, this chapter has concluded that the Gulf region has a large power distance and a long history of

masculinism and collectivism. Some of the main implications of such cultural features include:

1) The nature of student-teacher relationships. This may be expected to have an effect on the nature of students' interaction with their teachers, participation in class discussion, and the extent of involvement in the learning process.

2) The prevailing role of friendship and family ties. This may be expected to have an effect on students' decisions on whether to continue or discontinue their higher education study. In addition, it has an influence on the selection of subject area.

3) The extent of gender involvement in higher education. In some Gulf countries, higher education institutions adopt a single-gender approach while others adopt a co-educational approach.

4) The area of study available to both genders. The gender role has an effect on selecting a particular field of study. For example, females have a limited choice of area of study in higher education. The major fields available for females are education and medicine. This may result in the unequal distribution of both sexes in many disciplines.

5) The nature of the curriculum. In most of the Gulf regions, the nature of the medical curriculum is still traditional where the class is dominated by the teacher-centred approach. However, there are some attempts in a small number of Gulf medical schools to transfer the nature of curriculum into more problem-based learning where the emphasis is more student-centred.

CHAPTER SIX

RESEARCH METHODS

6.1: INTRODUCTION

Educational literature would seem to suggest that there is no general agreement among researchers on a unique system of categorizing research methods (Johnson, 1977). Also, it has been argued that several research methods could be used in the same project/study (Johnson, 1977). Such variations in utilizing one or more research methods are attributed mainly to the nature of the research area, discipline base, and research objectives. In this respect Fowler (1984) argues that:

> The choice of data collection mode - mail, telephone, personal interview, or group administration is related directly to the sample frame, research topic, characteristics of the sample, and available staff and facilities; it has implications for response rate, questions forms, and survey costs (p.61).

Johnson (1977) defined research methods as "procedures an investigator follows in attempting to achieve the goals of a study". He suggested that 'description' represents a basic method of research that might be used in tandem with any other research method. In addition, he argued that 'correlational analyses', 'surveys', and 'statistical methods' that encompass the analysis and interpretation of numerical information could be considered as 'methods of research'. In the light of the above and taking into consideration the context of this study, the researcher decided to utilize more than one method. These methods are: 'descriptive', the 'empirical survey', and the 'statistical method'.

The descriptive method consists of reviewing a broad scope of literature, related to the context of the study, for the purpose of constructing a background to the study (chapters 2-5). This review has covered the significance of learning styles and approaches to study; the learning environment; the motives for pursuing medicine; and the strategies used by students for studying English as a second language on

students' overall academic achievement. In particular, a major emphasis was placed upon these issues within the context of medical schools. The descriptive method will also be used to describe and examine the learning styles and approaches to study, learning environment, and the strategies used by medical students to study English as a second language, since it is the main instrument of instruction, in GCC countries. In addition, the descriptive method will also be used to describe the social cultural, political, economical, and educational environment in the countries under the study in relation to the issues of this study.

An 'empirical survey' will be used to provide evidence with respect to the key issues. While there are different forms of empirical survey that could be utilized to collect the required data for the study, inventories and questionnaire instruments have been chosen to explore the perceptions of a sample of medical students with respect to the relevant issues. These instruments include two inventories or standardized questionnaires and two constructed questionnaires. (The justifications for using such instruments will be discussed later in the chapter). Finally, the 'statistical methods' will involve descriptive statistics and correlational analyses of specific variables for the purpose of testing the hypotheses reported later in the chapter.

This chapter's aim is to describe the main research methods used. To achieve this objective, the chapter will be divided into nine sections. The second section describes the rationale for utilizing the selected research method. The third section reports the main approach for distributing the survey. The fourth section describes the first components of the survey, namely: (a) the demographic data, (b) the Approach to Study Inventory (ASI) and (c) the Dundee Ready Education Environment Measure (DREEM). The fifth section describes the second component of the survey, namely,

(a) the motives for entering medical school, and (b) the development of the attitudinal measure of students' perceptions of English as a second language (AMLESL). The sixth section describes the scaling of the survey. Section seven presents the sample of the study. Section eight reports the hypotheses developed for the purpose of this study. Finally, section nine describes the procedures for distributing the survey.

6.2: RATIONALE FOR USING THE SELECTED RESEARCH METHODS

6.2.1: RATIONALE FOR USING INVENTORIES

In general, the main purpose of the empirical survey is to gather data or information about medical students' 'personality'[1] in terms of their perception or attitude toward the variables under study. Gathering such data about personality can be achieved by: observational approaches such as rating scales and/or self-report approaches such as personality inventories (Noll et al., 1979).

In more specific terms, research concerning both educational climate and learning styles suggests that there are two main approaches to measuring students' perceptions, attitudes and preferences toward their learning environment and the approaches they use in their studying: interviews with students and self-report inventories. The advantages and limitations of such approaches will be discussed next.

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[1] Personality has been defined as " the most inclusive frame of reference in which an individual can be judged. It includes the sum of one's characteristics and behavior-intelligence, knowledge, attitudes, interests, and interactions with the environment" (Noll et al. 1979).

Advantages and Limitations of conducting an interview

The main advantages of conducting an interview can be summarized as follows:

(1) It allows a high degree of flexibility during the questioning-giving the interviewer the chance to explain questions in more detail and clarify difficult terminology.

(2) It results in a higher response rate compared to other research methods such as mailed questionnaires. For example, difficulties such as language barriers or respondents' poor reading or writing skills can be overcome in the interview setting.

(3) It allows the gathering of supplementary information about the participants (Miller, 1991 and Frankfort-Nachmias and Nachmias, 1992; Sarantakos, 1998).

The limitations of conducting an interview can be summarized as follows:

(1) The costs are higher compared with other research methods such as mailed questionnaires. The added expenditure covers the training of interviewers and their traveling costs.

(2) It can result in interviewer bias. For example different interviewers might interpret the same respondents' answers differently.

(3) It lacks anonymity.

(4) It is more time consuming than mailed questionnaires, particularly if the participants live geographically far apart (Miller, 1991; Frankfort-Nachmias and Nachmias, 1992; Sarantakos, 1998).

Advantages and Limitations of conducting Self-report Inventories

The self-report inventory (personality inventory) is an instrument that is "typically planned from some rationale conceived in terms of either areas of activity

(such as at home, in school, and on the job) or a set of psychological constructs" (Noll et al., 1979). It provides the respondent with "a uniform set of questions in a predetermined order, and provides him [the respondent] with a limited set of categories or options from among which he must make his choice" (Thorndike and Hagen, 1969). This standard set of questions is also usually presented with a standard scoring key (Thorndike and Hagen, 1969).

According to Borg and Gall (1989), self-report inventories are used in educational research for two main purposes. Firstly, to describe the personality traits of different groups, such as a member of a particular profession. Secondly, to determine certain personality types for use in research regarding, for example, the interrelationship between personality traits and academic achievement.

The main advantages of such an inventory are the low cost and ease of distribution and data scoring. On the other hand its main disadvantage is that its usefulness is limited by the respondents' likely desire to reveal themselves honestly (Thorndike and Hagen, 1969; Collins et al., 1976; Borg and Gall, 1989).

6.2.2: RATIONALE FOR USING QUESTIONNAIRES

Several research methods can be used in social research. However there are many factors which can influence the selection of a particular method. The objectives of the research, the time frame for conducting the research and the available resources are all important. For the purpose of this study two questionnaires were constructed: one to identify the students' motives for entering medical school, the other one to measure the students' perceptions of English as a second language. The following

paragraphs will shed light on the advantages and disadvantages of using a questionnaire[2].

The main advantages are: firstly, questionnaires can be administered to a large group of participants at a relatively low cost. Secondly, questionnaires enable the researcher to avoid interviewer bias. Thirdly, questionnaires (in this case mail questionnaires) provide more time for the respondents to answer the questions compared to the interview method. Finally, questionnaires enable the participants to remain anonymous (Miller, 1991; Kidder and Judd, 1986; and Blaxter et al., 1996; Sarantakos, 1998). On the other hand, the main disadvantages include the following. Firstly, it may produce a low response rate. Secondly, there may be difficulty maintaining motivation for respondents to complete detailed answers. Thirdly, it does not allow the researcher to explain any possible ambiguity in the questionnaire. Finally, it may be unsuitable for respondents with language difficulties (Kidder and Judd, 1986; Blaxter et al., 1996; Sarantakos, 1998).

The selection of inventories and questionnaires for this study is based on the following factors. Firstly, there was a need to survey a large number of students. Self-report inventories and questionnaires are a convenient way of achieving this. Secondly, this study covers three different locations (three different countries) which makes using self-report inventories and questionnaires more convenient and cost-effective than interviews. Thirdly, since the essence of the empirical work in this study depends on the perceptions of a sample of medical students, using self-report inventories and questionnaires provides students with anonymity which encourages

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[2] It is worth mentioning at this point that the researcher differentiates between advantages and limitations of the questionnaire as a research method and advantages and disadvantages of approaches of how the questionnaire can be administrated (e.g., mail survey, self administrated) which will be discussed later in the chapter.

more honest opinions. Finally, since the researcher is a female who conducted the empirical study in some of the GCC countries that are more conservative in terms of the degree of accessibility and direct communication with the target population of opposite gender, using self-report inventories and questionnaires rather than interviews was more practical.

6.3: METHODS OF DISTRIBUTING BOTH THE INVENTORIES AND THE QUESTIONNAIRES

Broadly speaking, there are two main approaches to distributing inventories and questionnaires. These are by mail and self-administration. With respect to sending inventories/questionnaires by mail, the following advantages are evident: (1) the low cost of data collection compared with personal, delivered questionnaires/inventories, (2) the avoidance of interviewer bias, and (3) an easy way of reaching respondents who live in dispersed geographic areas (Fowler, 1984; Oppenheim, 1992).

However, the main disadvantages of mail/postal questionnaires/inventories are the following: (1) no opportunity to correct any ambiguities which the respondents might be face with, (2) an inability to check for incomplete responses, (3) no way of knowing if the intended respondent has completed the questionnaire, (4) low response rate, and (5) difficulty in obtaining up to date mailing lists for potential respondents (Fowler, 1984; Kidder and Judd, 1986; Miller, 1991; Oppenheim, 1992).

In the case of the self-administered approach, the following advantages have been highlighted: (1) the researcher may have the opportunity to explain his/her subject to the potential respondents, (2) it provides a high response rate, (3) it helps the researcher to obtain an accurate sampling, (4) it may prevent interviewer bias, (5)

the researcher can provide an explanation of any misunderstandings that the respondents might have, and (6) questionnaires can be completed on the spot (Oppenheim, 1992). However, the main limitation of self-administered questionnaires/inventories is the high cost of their delivery, particularly if the respondents are widely dispersed.

The researcher chose personally to deliver the questionnaires/inventories as the research instrument of this study. By selecting this method, the researcher was able to: (1) introduce the research subject and encourage the students to complete both inventories and the questionnaires; (2) correct any misunderstandings; and (3) gather all the completed questionnaires/inventories within a relatively short period of time.

6.4: THE FIRST COMPONENT OF THE SURVEY

The survey used in this study is divided into five parts. Each part encompasses several statements as shown in Table 6.1.

TABLE 6.1: SUBJECTS COVERED IN THE DIFFERENT PARTS OF THE SURVEY

Part	Number of Statements	Subjects Covered
I.	9	Demographics
II.	9	Motives for Entering Medical School
III.	30	Approach to Learning
IV.	50	Learning Environment
V.	52	Language Learning Strategies and Attitude towards Learning English as a second Language

6.4.1: THE DEMOGRAPHIC DATA

This section consists of the age, sex, and age at which students were first exposed to English Language, year of study, school level in which the student started studying English in formal education, Grade Point Average (GPA) for English Language at the end of their pre-medical years, Grade Point Average (GPA) for

medical courses, nationality, and country where their high school certificate was obtained. These demographic data will provide a basis for comparing the students' perceptions of the issues explored in the survey. In this respect, Alreck and Settle (1985) proposed three purposes for demographic variables. These are "First, the profiles portray the nature of the sample. Second, the demographic profile of the sample can be compared to that of the population as a whole, when these parameters are known. Third, the items can be used to divide the sample into subsamples by age, sex, etc".

6.4.2: A SHORT VERSION OF THE LANCASTER APPROACHES TO STUDY INVENTORY (ASI)

This instrument (Ramsden and Entwistle, 1981; Entwistle and Ramsden, 1983) consists of thirty items in eight scales that describe different orientations to study (a copy of this inventory is provided in part 2 of Appendix 6.1). These orientations are: meaning orientation; reproducing orientation; achieving orientation; comprehension learning; operation learning; versatile approach; learning pathologies; and prediction for success. The meaning and scoring of such orientations are listed in Appendix 6.2.

It uses a five-point Likert scale- 4='strongly agree'; 3='agree with reservation'; 1='disagree with reservations'; 0=' strongly disagree '; and 2='use only if you can not make up your mind one way or the other'. The ASI will be used in this study to measure the approaches of study adopted by medical students in Gulf countries.

6.4.3: THE DUNDEE READY EDUCATION ENVIRONMENT MEASURE (DREEM)

This instrument was based on a form of grounded theory that used the Delphi technique in order to come up with criteria that might describe aspects of educational

climate relating to medical environment (Roff et al., 1997).

In its preliminary stage, the instruments contained 110 items. During 1996 the researcher participated in the third iteration in the Delphi process. Based on this last Delphi process, the inventory was reduced to fifty-eight items. The inventory has a five-point Likert scale ranging from 4= 'strongly agree' to 0= 'strongly disagree'

The 58-item DREEM was used in studies conducted at Dhaka Medical College, Faculty of Medicine of Tucuman in Argentina; and at the Africa Leprosy and Rehabilitation Training Centre in Ethiopia (Roff et al. 1997). Consequently, the inventory was reduced to 50 items. This final version of DREEM includes five scales: students' perception of teaching, students' perception of teachers, student's academic self-perception, students' perceptions of atmosphere, and student's social self-perceptions (a copy of this inventory is provided in part 3 of Appendix 6.1, while the subscales of DREEM will be provided in Appendix 6.3).

The DREEM will be used in this study to measure medical students' perceptions of their learning environment. This learning environment will encompass the students' perception of their medical and clinical environment.

6.5: THE DEVELOPMENT OF THE SECOND PART OF THE SURVEY

Two questionnaires were constructed, one to identify the students' motives for entering medical school, the other to measure students' perceptions toward their English language learning environment. In an attempt to write down the statements for each variable in these questionnaires, the researcher kept in mind the following points from Borg and Gall (1989):

(1) avoid using any ambiguous terms in the statements such as 'several', 'most'.

(2) focus on short statements rather than long ones because they are easier to understand.

(3) avoid using negative statements as they can confuse.

(4) avoid using 'double-barreled' statements.

(5) avoid using jargon or words that might be difficult for students to understand.

(6) avoid using leading questions that might provide the students with hints to the answer preferred by the researcher.

Both questionnaires used a closed-ended format. There are two key advantages; (1) its structure provides for short answers; and (2) the answer can be transferred into quantitative terms for the process of data analysis. On the other hand, the main disadvantage is that such a format could force respondents into selecting an answer they were not totally in agreement with.

6.5.1: MOTIVATION FOR ENTERING MEDICAL SCHOOL

A short questionnaire was developed to explore the students' motives for entering medical school. It consists of nine statements that cover two strands: extrinsic motivation (statements 1, 3, 5, 6, 7,and 9) and intrinsic motivation (statements 2, 4, and 8) (see part 1 of Appendix 6.1). It was developed from the medical education literature (Powell et al., 1987; Wagoner and Bridwell, 1989; Fields and Toffler, 1993; Hilliard, 1995) and suggestions from staff at the Centre for Medical Education. A Likert scale ranging from 4= very important, 3= some important, 2= about average, 1= little important, to 0= not important at all was used.

6.5.2: ATTITUDINAL MEASURE OF LEARNERS OF ENGLISH AS A SECOND LANGUAGE [AMLESL]

The purpose of developing the [AMLESL] was to collect data concerning: (1) strategies used to study English as a second language, (2) issues relating to the environment where English learning is taking place, (3) the motivations to study English (see part 4 of Appendix 6.1). In addition, it explores the effect of such perceptions on students' English language proficiency grades. The development of the questionnaire will be discussed under four headings: selection of the variables; source of the statements; questionnaire design; and constructing the questionnaire.

(A) Selection of the Variables

The following variables were included in the questionnaire: strategies for studying English as a second language; the environment where English learning takes place, in terms of perceptions towards teachers and courses; the attitude towards people speaking English (integrativeness); and the motivation for studying English.

(B) Source of the Statements

The author used the following sources to construct the items: (1) medical education literature related to approaches to learning, learning environment, academic achievement and motivation (e.g., Ahmed et al., 1988; Gallagher, 1989; Alfayez, et al., 1990; Hayes and Farnill, 1993; Maher, 1993); (2) educational literature related to studies of English as a second/foreign language (e.g., Jenkin et al., 1993; Yazigy, 1994; Byram et al., 1995; Coleman, 1995; Eckart, 1995; Harris, 1995); and (3) psycholinguistic literature in which two key sources were utilized. These sources were Gardner's works (Gardner and Lambert, 1972; Gardner, 1982; 1985; 1988; and Gardner et al., 1992), from which some statements have been adopted, and that of O'Malley and Chamot (1990) in which the definition of the strategies used for

studying English as a second language was converted into a number of operational statements.

(C) Questionnaire Design

The questionnaire was divided into two main subsections:

First Subsection:

This part of the questionnaire relates to the strategies students used for studying English as a second language. A total of 23 statements were developed based on the definition of such strategies suggested by O'Malley and Chamot (1990). These statements were classified into three groups.

(1) Metacognitive Strategies:

Under this category, there are six strategies, each with a different number of statements.

Advance Organizer:

(S1) I prepare myself for a classroom session in which new material is expected to be presented
(S2) I look at the topic(s) prior to the class
(S3) I prepare myself for the new information/lecture by reviewing the previous one prior to attending the lecture

Direct Attention:

(S4) I decide in advance to attend the required sessions in English courses

Selective Attention:
(S5) I enjoy attending extra elective sessions in English courses

Self Management:

(S6) I get benefits, in terms of enhancing my English learning, from attending seminars in English class
(S7) I get benefits, in terms of enhancing my English learning, through watching English TV programmes

(S8) I attend private classroom programmes for learning English during the summer holidays
(S9) I monitor my own speech, in my English class, through checking my pronunciation.

Self Monitor:

(S10) I monitor my own speech through checking the accuracy of my vocabulary in English class
(S11) I check my grammar during my conversation in the English classroom.

Self Evaluation:

(S12) During my English language courses I check my results (for example written exams) with the correct/standard answers

(2) Cognitive Strategies:

This heading encapsulates five strategies.

Resourcing:

(S13) I refer to an English dictionary whenever I am faced with unfamiliar concepts during my reading.

Translation:

(S14) I consult my native language dictionary whenever I am faced with word(s) I do not understand during the class
(S15) I consult a specialized medical dictionary, in my native language, for clarification of meaning

Note-Taking

(S16) I keep up with my own note-taking
(S17) During lectures, I try to write down the important points
(S18) During my reading of the English course materials I write down the main ideas

Elaboration:

(S19) I relate new information to the old

Inferring:

(S20) During my reading, I guess the meaning of new words based on their context in the statement

(3) Social Strategies:

There are two types of strategies:

Questions For Clarification

(S21) I ask the English course teacher for clarification about new concepts
(S22) In the class, I ask an English speaker to explain any difficult English phrase(s)

Co-operation:

(S23) During the English course I enjoy participating in group discussion activities
(S24) In my English courses, I like to join my English course classmates in conducting learning activities as a group.

Second Subsection:

This part of the questionnaire was designed to investigate: students' motivation to study English language, perception toward their English language course, teacher, integrativeness, and orientations to study English Language. This part contains 28 statements, which have been divided into five groups:

(1) Motivation toward studying English as a second language.

(S49) During my English course, I really worked hard to learn the language
(S50) Compared to my other courses, I spent very little time studying English.
(S51) When I have a problem understanding something we are learning in English class, I just forget about it. (Negative statement).
(S36) Learning English is very important for lifelong learning particularly in medicine.
(S37) I enjoy communicating in English language, with other English speaking teachers
(S38) I do not like to express my opinion in English language during a class/tutorial discussion. (Negative statement).
(S40) I practice English language outside the classroom
(S41) I look for English programmes on the TV.

(2) Integrativeness:

(S46) The English-speaking people have produced pioneers, artists and scientists.
(S47) I have a favorable attitude toward English-speaking people
(S48) The more I learn about the English-speaking people, the more I admire them.

(S39) I enjoy using English language in discussion with my classmates of my own nationality.
(S52) I have a dream that I master English as fluently as a native speaker.

(3) Instrumental Orientation:

(S28) Studying English is important for me only because I will need it for my future career.
(S29) Studying English is important for me because it will make me a more medically knowledgeable person
(S30) Studying English is important for me because I think it will someday be useful in getting a good job
(S31) Studying English is important for me because other people will respect me more if I have a knowledge of a foreign language

(4) Integrative Orientation:

(S32) Studying English is important to me because it will allow me to be more at ease with those classmates who speak English
(S33) Studying English is important for me because it will allow me to meet and converse with a greater variety of people
(S34) Studying English is important for me because it will enable me to better understand and appreciate English art and literature.
(S35) Studying English is important for me because I will be able to participate more freely in the activities of other cultural groups.

(5) Perception Toward Learning Environment Where English Learning is Taking Place: (a) Perception Toward English Course which includes three statements:

(S25) My English course is necessary because English is the best language for studying science.
(S26) My English language course is very useful for me
(S27) My English course is a difficult subject to understand. (Negative statement).

(b) Perception Toward English Language Teachers which has four statements:

(S42) My English teachers encourage me to speak in English outside the class.
(S43) My English teachers are helpful in providing me with answers to questions I have concerning English language materials.
(S44) During the English courses, my English teachers are aware of the different levels of students' understanding.
(S45) Whenever I make a mistake in English, my teachers tend to correct me in an encouraging way

(D) Constructing the Questionnaire

The construction of the questionnaire involved three stages. The first stage consisted of developing the first draft of the questionnaire based on the medical education and foreign studies of English language (psycholinguistic) literature. Then, a thorough revision took place based on discussions with key medical educationalists[3], the researcher then prepared the second draft of the questionnaire.

The second stage consisted of circulating the questionnaire to staff at the Medical Education Center at the University of Dundee to test the clarity of the English language version of the questionnaire. Some suggestions were made and taken into consideration for preparing the third draft.

The third stage consisted of conducting a pilot study in which the third draft was circulated to twenty one postgraduate foreign students at the Centre for Medical Education at the University of Dundee in November, 1996. A total of nineteen questionnaires were returned which represents a 90% response rate. The sample consisted of eleven males (58%) and eight female (42%). The average age of the sample was 39.9 years. The reliability coefficient for the overall learning strategies of English as a second language questionnaire was 0.78 which was considered satisfactory. In addition, it was noted that there were significant differences between male and female students on four statements. The females tended to report higher agreement than males in terms of: (a) their ability to guess the meaning of a new English word based on its context in the statement; (b) their views on the importance of English language for knowledgeable medical practitioners; (c) their views on the importance of the English language for making a person more respected by other

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[3] The author is grateful to Dr Sean McAleer and Mrs Sue Roff for their reviews, efforts and suggestions for the questionnaire.

people; (d) their hopes of mastering the English language as fluently as a native speaker. Based on the participants' comments on the wording of the questionnaire some changes were carried out. The final copy of the English version of the questionnaire was produced.

6.6: SCALING OF THE SURVEY

Two types of measurement scales were used in the survey, nominal and ordinal. The nominal measurement scale was used to measure the demographic variables, while the ordinal scale was used in the form of a five-point Likert scale. The following ratings were used for the ASI, DREEM, and AMLESL: 4=strongly agree; 3=agree with reservations; 2=use only if you can not make up your mind one way or the other; 1=disagree with reservations; and 0=strongly disagree. While the scale used for motivation for entering medical school was: 4=very important; 3=some important; 2=about average; 1=little important; and 0=not important at all.

Translation of the survey:

A decision was reached to translate the English version of the survey into Arabic. The main purpose for such a translation was to enhance the students' speed in filling out the questionnaire and to avoid any misunderstanding of English words among the respondents. Accordingly, the researcher translated not only the two questionnaires but also both inventories, the DREEM and the ASI. Although both the DREEM and the ASI have been translated into languages other than English, the translation of these two instruments into Arabic is the first of its kind.

Translation occurred through the following process. At the beginning a preliminary translation of the survey was prepared by the researcher (first draft). The first draft was reviewed by a native Arabic speaker who holds a PhD in medicine and

works in the department of physiology at the University of Dundee. Some suggestions were proposed and incorporated into the second draft. The second draft was then given to another Arabic native speaker who holds a PhD in English. Minor suggestions were proposed of which some were incorporated in the final draft (a copy of the Arabic version is provided in Appendix 6.4).

6.7: THE SUBJECTS

The target population consisted of both male and female medical students in the Gulf countries' medical schools. Before discussing the target population, it is worth mentioning that the researcher kept in mind two criteria for selection of the medical schools for this study. These are the type of curriculum (i.e. traditional v. innovative) and the type of gender-involvement (single-sex v. co-education).

6.7.1: THE SELECTED GULF COUNTRIES IN THE STUDY

The Gulf countries consist of six states. All of these countries have their own medical schools, except the state of Qatar. This study was conducted in three of the Gulf countries: Saudi Arabia, the United Arab Emirates, and Bahrain. They were selected for the following reasons:

(1) Saudi Arabia was selected because of its relatively long history of traditional medical education compared with the rest of Gulf states. For example, the first medical school opened in Saudi Arabia in 1957.

(2) Bahrain was selected because the students in its medical school could be considered representative of all medical students in the Gulf region. This is due to the fact that Bahrain has the Arabian Gulf University, in which every Gulf country has a fixed percentage of its own students admitted.

(3) The United Arab Emirates (UAE) was selected because its medical school has a relatively short experience of a problem-based curriculum compared with that of Bahrain. In addition, the UAE has adopted a single-sex education.

(4) The education at all levels in Saudi Arabia and the UAE is single-sex while that of Bahrain is co-educational. This will provide a basis for comparison of the effect of gender on students' approaches to study and their perceptions regarding their learning environment in single-sex and co-education medical schools.

(5) Medical schools in Saudi Arabia have a long history of a traditional curriculum while that of Bahrain and the UAE are considered innovative. This will provide a basis for comparison of the effect of traditional and innovative curriculum on students' approaches to study and their perceptions toward their learning environment.

6.7.2: THE SAMPLE OF MEDICAL UNIVERSITIES WITHIN THE SELECTED COUNTRIES

(a) Saudi Arabia Universities:

There are seven universities in Saudi Arabia, of which four have a faculty of medicine. These are: (1) King Saud University; which was founded in 1957 in the capital, Riyadh. (2) King Abdul Aziz University; which was established in 1967 in the Western province of Saudi Arabia, Jeddah. (3) King Faisal University; which was established in 1975 in the Eastern province of the country, Dammam. (4) Umm Al-Qura University, which was founded in 1981 in the holy city of Makah. All public education, including the above universities are funded by the government, which provides education at all levels for all citizens and residents free of charge. King Faisal University was selected for this study, as it is more accessible for the researcher to conduct the study there.

(b) University at Bahrain:

The only university which provides Medicine in Bahrain is the Arabian Gulf University (AGU) which was formally founded in 1984-1985. It is considered a joint academic venture, shared by all the Gulf states (Bahrain, Saudi Arabia, Kuwait, Qatar, United Arab Emirates, and Oman). The financing of this university is the responsibility of all Gulf States. A fixed percentage of students from each state has the chance to be admitted into this university. The AGU College of Medicine and Medical Science is innovative in its medical education in the Gulf region. Since the AGU is the only medical university in Bahrain, it was selected for this study.

(c) The United Arab Emirates University (UAEU):

The Faculty of Medicine and Health Science in the UAEU was founded in 1986. The medical education curriculum in the early years was considered a traditional one. However, in 1994-1995, an innovative problem-based curriculum was introduced. Since the UAE has only one medical school, it was selected for this study.

6.7.3: THE TARGET POPULATION OF MEDICAL STUDENTS WITHIN THE SELECTED GCC MEDICAL SCHOOL

The target population for this study will involve all students in both the second and fourth years. This selection, in terms of years, is based on the objectives of the study. One of the key objectives is to explore the medical students' strategies for studying English as a second language and its relation to their overall medical academic achievements. Most medical schools in the Gulf region introduce an extensive English course for their students within the first two years of their medical programme. Therefore, second year medical students were selected since by the end of that year they could be expected to have finished their pre-medical courses where an extensive English course has taken place. Another key objective of the study is to

explore the perceptions of students towards their clinical environment. Accordingly, fourth year medical students were selected, since by that year they would have been exposed to such a clinical environment. A summary of the sample frames included in this study is shown in the following table (Table 6.2).

TABLE 6.2: SUMMARY OF TARGET POPULATION THAT WILL BE USED IN THE STUDY

Country	Type of Curriculum	Gender	Type of Gender-involvement	Years of Study	Instruments
KSA	Traditional	Male Female	Single-sex	2nd 4th	ASI DREEM AMLESL
UAE	Innovative	Male Female	Single-sex	2nd 4th	ASI DREEM AMLESL
BH	Innovative	Male Female	Co-education	2nd 4th	ASI DREEM AMLESL

6.8: STATEMENTS OF THE HYPOTHESES

Twenty-four theoretical/statistical hypotheses were developed and grouped into four studies. This grouping was done mainly to facilitate the presentation of statistical analyses and subsequent discussion. The hypotheses were grouped under the following headings: the effect of curriculum on learning environment and learning approaches; the effect of year of study; the English language learning strategies and attitude towards learning English; and the gender differences.

Study I: The Effect of Curriculum on Learning Environment and Learning Approaches

H1a: There is no significant difference in the perception of learning between students at traditional universities and those at innovative universities.

H1b: There is no significant difference in the perception of teachers between students at traditional universities and those at innovative universities.

H1c: There is no significant difference in the academic self-perception between students at traditional universities and those at innovative universities.

H1d: There is no significant difference in the perception of atmosphere between students at traditional universities and those at innovative universities

H1e: There is no significant difference in the social self-perceptions between students at traditional universities and those at innovative universities.

H2: There is no significant difference in student approaches to study (measured by the ASI) at traditional universities and those at innovative universities

H3: There is no significant positive correlation between the medical learning environment (measured by the DREEM) and students' approaches to study (measured by the ASI) for medical students at traditional and innovative universities.

H4: There is no significant correlation between students' approaches to study (measured by the ASI) and medical academic achievement (measured by the GPA) for medical students at traditional and innovative universities

Study II: The Effect of Year of Study

H1: There is no significant difference in the medical learning environment (measured by the DREEM) as experienced by students in the second and fourth year.

H2: There is no significant difference in student approaches to study (measured by ASI) between students in the second and fourth year

H3: There is no significant difference in student motivation to study medicine between students in the second and fourth year.

H4: There is no significant correlation between the motives for entering medical university and students' approaches to study for second and fourth year medical students.

Study III: The Effect of English Language Strategy

H1: There is no significant correlation between English language proficiency grades (measured by the GPA) and the overall academic medical course grade (achievement) (measured by the GPA) for medical students in the GCC

H2: There is no significant difference in the learning strategies for English as a second language used by students in KFU, AGU, and UAE universities.

H3: There is no significant correlation between approaches to study (measured by the ASI) and the English learning strategy for medical students in KFU, AGU, and UAE universities.

H4: There is no significant correlation between English language proficiency grades (measured by the GPA) and the learning strategies for English as a second language for medical students in the KFU, AGU, and UAE universities.

H5: There is no significant difference in the perceptions of learning English as a second language among medical students in the KAS, AGU, and UAE.

H6: There is no significant correlation between English language proficiency grade (measured by the GPA) and the following:
(a) age at which students are first exposed to the formal study of English language.
(b) formal level of study when started learning English language.
(c) motivation for studying English language.
(d) orientation to learning English language.
(e) attitude towards teacher of English language course.
(f) attitude towards English course.
(g) attitude towards people speaking English language (integrativeness).
for medical students in the KFU, AGU, and UAE.

Study IV: Gender Differences

H1: There is no significant difference in the medical learning environment (measured by the DREEM) as experienced by male and female students in the KFU, AGU, UAE

H2: There is no significant difference in student approaches to study (measured by the ASI) between male and female students in the KFU, AGU, and UAE universities

H3: There is no significant difference in motivation to study medicine between males and females in the KFU, AGU, and UAE universities

H4: There is no significant differences in the English language achievement (measured by Grade Point Average) as experienced by male and female students in the KFU, AGU, and UAE universities

H5: There is no significant difference in the perception of learning English as a second language between male and female students in the KFU, AGU, and UAE universities.

H6: There is no significant difference in the learning strategies for English as a second language between male and female students in the KFU, AGU, and UAE universities.

6.9: PROCEDURES USED FOR DISTRIBUTING THE SURVEY

It was mentioned earlier in the chapter that there are several approaches to questionnaire administration. The justifications for adopting the self-administrated approach were reported. Accordingly, this section aims to describe the process of how the survey was administered at the three selected medical schools.

Before describing the process of distributing the questionnaire, there are several points worth mentioning since they had an effect on the time needed to complete the process. First, the researcher lives in the Kingdom of Saudi Arabia [KSA] where medical schools adopt single-sex education. Although each medical school has two separate student administrations, the authority lies totally in the hands of the male department. Second, in the KSA, university regulations do not permit female researchers to communicate face to face with any of the administrative members inside the university. Third, females in the KSA are not allowed to travel outside or even inside the country unless accompanied by one close male family member. Since the researcher is a female and the study covers three different countries, she had to find someone in her family to travel with her. Fourth, the King Faisal University's regulations require any researcher to obtain permission for distributing his/her questionnaire from the college administration. After obtaining such permission, a faculty member must accompany the researcher during the distribution of the questionnaire.

PILOT STUDY:

The researcher adopted the guidelines suggested by Alreck and Settle (1985) and Borg and Gall (1989) for testing the clarity of the questionnaire. One of their recommendations was to pilot the questionnaire.

The researcher started communicating by phone with the dean's office at the Medical school in King Fisal University on the 17th March, 1998. After explaining the purpose of the study, the dean's secretary requested a copy of the questionnaire for examination by the dean in order to get permission to distribute. One week later, the researcher phoned the dean's secretary in which he indicated that the dean had agreed

to cooperate in distributing the questionnaires. The dean's secretary requested sixty copies be left with him. On the first of April, only fifteen questionnaires were collected. The collected questionnaires were filled out by male students who were classified as follows: two from the first year, five from the second year, two from the third year, four from the fourth year, and two from the fifth year.

The results of the pilot study suggested that the questionnaire was clear and that there was no need to make any changes. Accordingly, three hundred copies of the questionnaire were printed for the main study.

THE MAIN STUDY:

I. ARABIAN GULF UNIVERSITY

The researcher visited the Arabian Gulf University (AGU) four times during the period between April 26 and May 30, 1998. During the first visit (26 April, 1998), the researcher met the head of the students affairs department[4]. After explaining both the scope and the purpose of the study, the head of the department agreed to co-operate in distributing the questionnaire and asked for 123[5] copies. The department of student's affairs agreed to administer these questionnaires.

In order to speed up the process, the researcher met with one of the faculty members who works as a lecturer at the linguistics department in the Medical College during the second visit to the college (28 April, 1998). Based on that meeting, the lecturer agreed to distribute the questionnaire to his students in the second year and promised to do his best to target the fourth year students either during their free study times and/or directly after one of their lectures.

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[4] This meeting was based on earlier communication with the Deans office both by phone and fax. The Dean directed the subject of distributing the questionnaire to the head of student affairs.

[5] This number represents the total number of students in both the second and the fourth years (61 and 62 respectively).

During the third visit, (25 May, 1998) the researcher collected fifty-four questionnaires. These questionnaires were classified as follows: 11 questionnaires (6 female and 5 male) were filled out by second year students during their free study times (distributed by the linguistics lecturer). In addition, special arrangements were made for the researcher to meet with the fourth year students directly after one of their lectures. During this meeting 43 questionnaires (31 female and 12 male) were completed.

During the last visit (30 May, 1998), special arrangements had been made to meet with the second year students after one of their lectures. During this meeting thirty-six questionnaires were distributed, 30 female and six male. The following table (Table 6.3) shows the number of responses based on both years of study and sex.

TABLE 6.3: TOTAL NUMBER OF STUDENTS AND NUMBER OF COLLECTED QUESTIONNAIRES

Year of study	Sex	Total number of students	Number of collected questionnaires	Response rate
Second	Male	17	11	**77%**
Second	Female	44	36	
Total		**61**	**47**	
Fourth	Male	19	12	**69%**
Fourth	Female	43	31	
Total		**62**	**43**	

II. UNITED ARAB EMIRATES

The author visited the United Arab University in the period between the ninth and tenth of May 1998[6]. During this visit, the researcher had the chance to meet with the key figures at the faculty of medicine. During this visit special arrangements were made to meet with both second and fourth year, male and female students separately after one

[6] This visit was arranged earlier through phone and fax communication between the author and the dean's office of Faculty of Medicine & Health Sciences.

of their lectures. The collected number of questionnaires during these meetings is presented in the following table (Table 6.4).

TABLE 6.4: TOTAL NUMBER OF STUDENTS AND NUMBER OF COLLECTED QUESTIONNAIRES

Year of study	Sex	Total number of students	Number of collected questionnaires	Response rate
Second	Male	18	10	**61%**
Second	Female	33	21	
Total		**51**	**31**	
Fourth	Male	10	10	**70%**
Fourth	Female	27	16	
Total		**37**	**26**	

III. KING FISAL UNIVERSITY

Based on phone and fax communication with faculty members at the College of Medicine, the researcher was granted permission to distribute the questionnaires. After one of the lectures at the Medical school-female section, 37 out of 51 second year students filled out the questionnaires. Special arrangements were then made on the 19th of May at the King Fahad Teaching Hospital to meet both male and female fourth year students separately. During that meeting 31 out of 45 male, fourth year students completed the questionnaire. In addition, 35 out of 43 female fourth year students filled out the questionnaire. For the second year male students, one of the faculty staff helped in distributing the questionnaire (Table 6.5).

TABLE 6.5: TOTAL NUMBER OF STUDENTS AND NUMBER OF COLLECTED QUESTIONNAIRES FOR KING FISAL UNIVERSITY

Year of study	Sex	Total number of students	Number of collected questionnaires	Response rate
Second	Male	55	23	***57%***
Second	Female	51	37	
Total		**106**	**60**	
Fourth	Male	45	31	***75%***
Fourth	Female	43	35	
Total		**88**	**66**	

CHAPTER SEVEN

DEMOGRAPHIC DATA

7.1: INTRODUCTION

Chapter six discussed the development and implementation of the core technique used to gather the main data required for this study. This chapter presents an introduction to the data analysis which will be the subject of chapters 8, 9, 10, and 11. It contains the main objectives of the data analysis chapters; a general description of the phases of the data analysis; the demographic data; and the reliability of the instruments used.

7.2: OBJECTIVES OF THE DATA ANALYSIS CHAPTERS

Chapters 8, 9, 10 & 11 intend to fulfil two main objectives. Firstly, to describe the students' characteristics in terms of their learning approaches, their perceptions of the learning environment, their attitudes and learning strategies for studying English as a second language, and their motivation for entering medical school. The aim of presenting the data in descriptive form is to find out if there are any trends that could be deduced from the students' perceptions. Secondly, to test hypotheses to find out if the students' perceptions at the three Gulf medical schools differ on the variables being investigated.

7.3: THE DATA ANALYSIS

The data analysis used in this study consists of two types: descriptive and inferential statistics.

7.3.1: DESCRIPTIVE STATISTICS

Such statistics provide a description of the data (Weiss, 1995). In this study means, standard deviations, frequencies and percentages will be obtained. In addition

cross tabulations will be performed when required. Such statistics will be performed by using the SPSS version 7.5.

7.3.2: INFERENTIAL STATISTICS

This type of statistic is normally used to investigate whether there are differences, or similarities between different variables. In addition, it is used to reach conclusions about a population based on the sample data (Biles, 1995). One aspect of inferential statistics deals with the testing of hypotheses or the study of relationships (Weiss, 1995).

Generally speaking, inferential statistics can be performed through two forms: parametric and non-parametric statistics. To use the parametric tests, data should satisfy the following three assumptions: independent random samples are taken from each population; the populations are normal; and the population variances are all equal (Biles, 1995; Norusis, 1997). However, non-parametric tests do not require a normal distribution because they are based on counts or ranks instead of the actual data values.

Despite the fact that the populations in this study are independent, the normality test was performed using Minitab 12.1. The Anderson-Darling test for normality revealed that the data were not normally distributed (see Appendix 7.1). Accordingly, non-parametric tests were used in this study.

The non-parametric statistical techniques used are: (1) Mann-Whitney Test (used to find out if there are significant differences between two independent samples' means and/or to conduct a pair-wise comparison among groups to locate which groups differ from which), (2) Kruskal-Walis Test (utilised to examine whether there are significant differences between three means), (3) Correlational analysis (used to

determine whether there is a relationship between two variables and whether the relationship is strong or weak (Huck and Cormier, 1996)). According to Bryman and Cramer (1994), the types of correlation used in any study depend on the type of data (e.g., interval, ordinal). Since the data used in the study are ordinal data (sometimes called ranked data), rank correlations will be performed. Two main procedures are normally used Spearman's rho (ρ) and Kendall's tau (τ). Bryman and Cramer (1994) suggest using Spearman's method due to its popularity among researchers, because it makes fewer assumptions about variables.

7.4: DEMOGRAPHIC DATA

There were nine demographic variables collected: age, sex, age when first started learning English, year of study at medical school, level of study when started learning English, grade point average (GPA) for English at the end of pre-medical year, grade point average (GPA) for medical courses (at present time), nationality, and country where students obtained their high school diploma. As reported earlier in Chapter 6 the main aims in considering demographic variables are: (1) to classify students' perceptions and (2) to investigate the significant differences in their perceptions concerning the issues being investigated. Therefore, the effect of these demographic variables will be explored briefly in the present chapter and in more detail in the next three chapters.

7.4.1: AGE

This variable will be used to describe the age of population of the study. Table 7.1 shows the distribution of the students' ages.

TABLE 7.1: FREQUENCY DISTRIBUTION OF STUDENTS BY AGE			
Age	KFU (n=126)	AGU (n=90)	UAE (n=57)
	Frequency (%)	Frequency (%)	Frequency (%)
19	8 (6.3)	18 (20.0)	1 (1.8)
20	32 (25.4)	22 (24.4)	20 (35.1)
21	35 (27.8)	28 (31.1)	9 (15.8)
22	25 (19.8)	15 (16.7)	10 (17.5)
23	13 (10.3)	6 (6.7)	9 (15.8)
24	7 (5.6)	1 (1.1)	5 (8.8)
25	4 (3.2)		2 (3.5)
26	2 (1.6)		1 (1.8)
Mean	21.40 years	20.70 years	21.60 years

7.4.2: GENDER

Characteristics of students' learning (chapter 2) and their perceptions towards their learning environment (chapter 3) as well as their attitudes towards learning English as a second language (chapter 4) might differ based on their gender. Accordingly, this factor has been included to find out if there are differences between students' views based on their gender. The distribution of the students in the study is shown in Table 7.2.

TABLE 7.2: FREQUENCY DISTRIBUTION OF STUDENTS BY GENDER			
Gender	KFU (n=126)	AGU (n=90)	UAE (n=57)
	Frequency (%)	Frequency (%)	Frequency (%)
Male	54 (42.9)	23 (25.6)	20 (35.1)
Female	72 (57.1)	67 (74.4)	37 (64.9)

Gulf countries are considered male dominated societies. This is due to the fact that the majority of occupational positions are filled by males. However, two professions which are more acceptable in the Gulf culture for females are teaching and medicine. This may partially explain the higher percentage of females entering medical schools than males.

7.4.3: AGE WHEN STUDENT WAS FIRST EXPOSED TO LEARNING ENGLISH

It was indicated in Chapter 4 that students' learning of a foreign/second language is better if the language is introduced earlier in their lives rather than later. Accordingly, this factor has been included to find out if it correlates with their GPA on English courses. Table 7.3 shows the distribution of the students based on such factors.

TABLE 7.3: FREQUENCY DISTRIBUTION OF STUDENTS BY AGE AT WHICH THEY WERE FIRST EXPOSED TO LEARNING ENGLISH

Age	KFU (n=126)	AGU (n=90)	UAE (n=57)
	Frequency (%)	Frequency (%)	Frequency (%)
1-3	9 (7.2)	6 (6.7)	1 (1.8)
4-6	20 (15.8)	14 (15.6)	6 (10.6)
7-9	8 (6.4)	33 (36.7)	29 (50.9)
10-12	62 (49.2)	34 (37.8)	20 (35.1)
13-15	27 (21.4)	2 (2.2)	1 (1.8)
16-18		1 (1.1)	

Almost 60% of the respondents at both AGU and UAE were exposed to the English language between the ages of 1-9 years, while 70% of students at KFU were exposed to English language between the age of 10-15. This may have had an effect on their acquisition of the English language, which could effect their level of achievement in medical school. This relationship will be examined later.

7.4.4: YEAR OF STUDY AT MEDICAL SCHOOL

The characteristics of students' learning differ as students proceed in their studies (Chapter 2). Accordingly, this factor has been included to find out if the students' approaches to learning altered between the end of second and fourth year. Perceptions of their learning environment may also differ according to their year of study. Table 7.4 shows the distribution of students based on their year of study.

TABLE 7.4: FREQUENCY DISTRIBUTION OF STUDENTS BY YEAR OF STUDY AT MEDICAL SCHOOL			
Year of Study	KFU (n=126)	AGU (n=90)	UAE (n=57)
	Frequency (%)	Frequency (%)	Frequency (%)
Second	60 (47.6)	47 (52.2)	31 (54.4)
Fourth	66 (52.4)	43 (47.8)	26 (45.6)

7.4.5: LEVEL OF FORMAL EDUCATION WHEN STUDENTS STARTED LEARNING ENGLISH

This factor has been included as a secondary question to determine the age at which students were exposed to learning English by formal education. Table 7.5 shows the distribution of students by this factor.

TABLE 7.5: FREQUENCY DISTRIBUTION OF STUDENTS BY LEVEL OF FORMAL STUDY OF ENGLISH AS A SECOND LANGUAGE			
Level of Education	KFU (n=126)	AGU (n=90)	UAE (n=57)
	Frequency (%)	Frequency (%)	Frequency (%)
Elementary	39 (31.0)	70 (77.8)	53 (93.0)
Intermediate	87 (69.0)	18 (20.0)	2 (3.5)
Secondary			
University		2 (2.2)	2 (3.5)

Most students at AGU (78%) and UAE (93%) had started their formal learning of English as a second language at elementary level. While 69% of students at KFU started at intermediate level. A cross tabulation procedure has been conducted (see Appendix 7.2) on student GPA's in their English Language courses and the level of formal education when students started learning English. The result indicates that the majority (60.3%) of the students at KFU with a GPA of 'A' had been exposed to English language in formal education at the intermediate level. Most students (70.5%) who achieved a GPA of 'B' had been exposed to such study at intermediate level. For AGU, 80.3% of students who had a GPA of 'A' level in their English language course had studied English at elementary level. In the UAE 90% of those with a GPA of 'A' had studied English since elementary level.

7.4.6: GPA FOR ENGLISH AT THE END OF THE PRE-MEDICAL YEAR

As reported earlier in Chapter 4, students' English proficiency as indicated by their Grade Point Average (GPA) in their courses of English as a second language is affected by many variables. Accordingly, this factor has been included to examine the relationship between their GPA in English and the other variables. Table 7.6 shows the distribution of students based on this factor. The majority of students at AGU (68%) had a grade 'A', only 17.5% of students at UAE received an 'A'. Forty six percent of students at KFU had a grade 'A'.

TABLE 7.6: FREQUENCY DISTRIBUTION OF STUDENTS BY GPA IN ENGLISH AS A SECOND LANGUAGE COURSES IN THE PRE-MEDICAL YEARS

GPA	KFU (n=126)	AGU (n=90)	UAE (n=57)
	Frequency (%)	Frequency (%)	Frequency (%)
A (>90)	58 (46.0)	61 (67.8)	10 (17.5)
B (81-90)	44 (34.9)	24 (26.7)	34 (59.6)
C (71-80)	11 (8.7)	3 (3.3)	12 (21.1)
D (61-70)	12 (9.5)	2 (2.2)	1 (1.8)
E (50-60)	1 (.8)		
Others			

A cross tabulation procedure was performed (see Appendix 7.3) on student GPA's in their English Language courses and the age at which they were first exposed to learning English. The result indicates that the majority (64%) of the students at AGU with a GPA of 'A' had been exposed to English between the ages of 7-12. Most of the students at UAE (70%) who achieved 'A's in their GPA had been exposed to English at the age of 7-9. Most of the students at UAE (96%) who had achieved a grade 'B' in their GPA had been exposed to English at the age of 7-12 years. The majority (62.1%) of the students at KFU with a GPA of 'A' had been exposed to English language between the ages of 10-15. Seventy percent of students at KFU who achieved 'B' in their GPA had been exposed to English at the age of 10-15.

7.4.7: GPA FOR MEDICAL COURSES AT THE PRESENT TIME

This factor has been included to investigate the possible relationship between students' GPA in English as a second language and their GPA in medical courses. Table 7.7 shows the distribution of students based on this factor.

TABLE 7.7: FREQUENCY DISTRIBUTION OF STUDENTS BY GPA OF MEDICAL COURSES

GPA	KFU (n=)	AGU (n=90)	UAE (n=57)
	Frequency (%)	Frequency (%)	Frequency (%)
A (>90)	26 (20.6)	14 (15.6)	2 (3.5)
B (81-90)	31 (24.6)	41 (45.6)	38 (66.7)
C (71-80)	42 (33.3)	25 (27.8)	17 (29.8)
D (61-70)	23 (18.3)	9 (10.0)	
E (50-60)	3 (2.4)	1 (1.1)	
Others	1 (.8)		

A cross tabulation procedure was conducted (see Appendix 7.4) for students' GPA in English language and their GPA in the medical courses. The results indicated that 80% of UAE students who had a grade 'A' level in their GPA in English language, achieved level 'B' or very good in their medical courses. Almost half (48%) of the AGU students who had a grade 'A' at language courses, had a grade 'B' or very good in their medical courses. For KFU, forty three percent of students who had a grade 'A' level in their GPA in English language, achieved level 'A' in their medical courses. In general, students at the three universities who had good grades in their English courses also had good grades in their medical courses.

7.4.8: NATIONALITY

Some schools in the Gulf countries accept only their own citizens, for example UAE. However, other schools like AGU recruit their students from different Gulf countries. Therefore, the AGU can be considered a multinational University, because

it represents educational co-operation between all the Gulf countries (as discussed in Chapter 5). Table 7.8 shows the distribution of students based on their nationality.

TABLE 7.8: FREQUENCY DISTRIBUTION OF STUDENTS BY THEIR NATIONALITY

Nationality	KFU (n=126)	AGU (n=90)	UAE (n=57)
	Frequency (%)	Frequency (%)	Frequency (%)
Kuwait		11 (12.2)	
Saudi Arabia	114 (90.5)	10 (11.1)	
Bahrain	7 (5.6)	34 (37.8)	
Qatar	5 (4.0)	15 (16.7)	
UAE		9 (10.0)	57 (100)
Oman		8 (8.9)	
Others		3 (3.3)	

7.4.9: COUNTRY WHERE STUDENTS OBTAINED THEIR HIGH SCHOOL DIPLOMAS

The main purpose of including this question was to allow for more exploration of students' backgrounds. Table 7.9 shows the student distribution based on the countries where they obtained their high school diploma.

TABLE 7.9: FREQUENCY DISTRIBUTION OF STUDENTS BY COUNTRY WHERE STUDENT OBTAINED THEIR HIGH SCHOOL DIPLOMAS

Country	KFU (n=)	AGU (n=90)	UAE (n=57)
	Frequency (%)	Frequency (%)	Frequency (%)
Kuwait	1 (.8)	15 (16.7)	1 (1.80
Saudi Arabia	114 (90.5)	9 (10.0)	
Bahrain	6 (4.8)	35 (38.9)	
Qatar	5 (4.0)	15 (16.7)	3 (5.3)
UAE		8 (8.9)	53 (93.0)
Oman		8 (8.9)	
Others			

A cross tabulation procedure was conducted (see Appendix 7.5) for students' nationality and the countries where they obtained their high school diplomas. The results indicated that at KFU, almost all (99.1%) Saudi students had their high school diploma from somewhere in Saudi Arabia. While 86% of Bahraini students and all

students from Qatar studying at this KFU had their diploma from their native countries. For UAE, all students had their diploma from UAE. This result may imply that the population of medical students studying within the GCC universities and who hold one of the GCC nationalities were exposed to the national curriculum during their secondary education level at their GCC countries of origins.

7.5: RELIABILITY OF THE INSTRUMENTS USED

Reliability refers to the consistency of instruments. In the context of this study consistency means, "to what extent do the individual items that go together to make up a test or inventory consistently measure the same underlying characteristic?" (Huck and Cormier, 1996). One major technique to measure the internal consistency of instruments is Cronbach's Coefficient alpha. It is normally used with ordinal data such as the Likert type questionnaire (Huck and Cromier, 1996). Since all instruments used in this study are of the Likert type, the alpha coefficients of reliability will be used. Richardson (1988) suggested the following guidelines to assess the internal consistency.

Table 7.10: Richardson' Guidelines to assess the internal consistency	
0.7 to 1.0	High to Very High
0.4 to 0.7	Average to High
0.2 to 0.4	Present but Low
0.0 to 0.2	Negligible or Low

7.5.1: RELIABILITY OF THE SHORT VERSION OF LANCASTER APPROACHES TO STUDY INVENTORY (ASI)

The following table shows the reliability of scales on the ASI.

Table 7.11: Coefficient Alpha (Cronbach) for Reliability of Scales of the ASI			
Scales	KFU (n=126)	AGU (n=90)	UAE (n=57)
Achieving Orientation	.385	.193	.436
Reproducing Orientation	.206	.263	.199
Meaning Orientation	.564	.519	.672
Comprehension Learning	.415	.251	.390
Operation Learning	.232	.432	.500
Versatile Approach	.757	.731	.777
Learning Pathologies	.445	.404	.508
Overall items (30)	.716	.670	.737
Total Scale (8)	.793	.770	.778

The table shows that for UAE the reliability was greater for all scales except for the reproducing orientation and comprehension learning scales when compared with both AGU and KFU. Coefficients for the versatile approach for all universities were high to very high. Coefficients for the whole inventory (30 items) were high to very high for UAE and KFU. Coefficients for meaning orientation and learning pathologies were average to high for the three universities. For both AGU and UAE the coefficients for operation learning scales were average to high.

7.5.2: RELIABILITY OF THE DUNDEE READY EDUCATION ENVIRONMENT MEASURE (DREEM)

For the three universities the coefficients for the whole inventory and 'students perceptions of atmosphere' scales were high to very high. For UAE and AGU the coefficient for 'students' perceptions of teachers' scales were high to very high. While the coefficients for the remaining three scales were average to high. For UAE coefficients for 'students' perception of learning' were high to very high. Coefficients for 'students' academic self-perception' and 'social self-perceptions' for all universities were average to high. The following table shows the reliability of subscales on the DREEM.

TABLE 7.12: COEFFICIENT ALPHA (CRONBACH) FOR RELIABILITY OF SUBSCALES OF DREEM			
Subscales	KFU (n=126)	AGU (n=90)	UAE (n=57)
Students' Perception of Learning	.619	.589	.750
Students' Perception of Teachers	.630	.768	.753
Students' Academic self-perception	.640	.543	.615
Students' Perception of atmosphere	.720	.733	.739
Students' social self-perceptions	.543	.587	.562
Overall DREEM (50 items)	.887	.895	.915

7.5.3: RELIABILITY OF THE DEVELOPED QUESTIONNAIRE (AMLESL)

The following table shows the reliability of scales on the AMLESL.

TABLE 7.13: COEFFICIENT ALPHA (CRONBACH) FOR RELIABILITY OF SCALES OF AMLESL			
Scales	KFU (n=126)	AGU (n=90)	UAE (n=57)
Metacognitive Strategies	.776	.812	.871
Cognitive Strategies	.698	.675	.688
Social Strategies	.750	.633	.713
Motivation toward Studying English as a Second Language	.496	.366	.630
Attitude towards people speaking English (Integrativeness)	.592	.577	.601
Instrumental Orientation	.668	.459	.573
Integrative Orientation	.686	.619	.704
Perception toward Learning Environment	.615	.622	.830
Perception toward English Courses	.138	.353	.635
Perception toward Teachers of English Language Course	.665	.704	.803

Reliability coefficients for metacognitive strategies for the three universities were high to very high. For both UAE and AGU the coefficients for the 'perceptions toward teachers of English courses' were high to very high. For both UAE and KFU the coefficients for social strategies were high to very high. For UAE the coefficients for the 'perception towards learning environment', and 'integrative orientation' were high to very high. Coefficients for cognitive, integrativeness, and instrumental orientation for the three universities were average to high.

7.6: SUMMARY

The population of this study is second and fourth year medical students studying at King Faisal University, Arabian Gulf University, and University of United Arab Emirates. The statistical results revealed that all these students are of GCC nationalities. Most of them obtained their high school diploma within the GCC countries. Therefore, it can be inferred that they were exposed to the national curriculum of their countries, which adopts the educational strategies of 6:3:3 as level of education. English language studies in such a national curriculum are introduced at intermediate level, i.e., when students are aged 12-15 in the case of Saudi Arabia; in Bahrain and UAE it is introduced earlier, at elementary level, i.e., when students are aged 7-11. Students who had good grades in English language courses by the end of second year at their universities also had good grades in medical courses.

The results revealed that the reliability for the overall DREEM inventory for the three universities was high to very high. The reliability for the overall ASI inventory for both KFU and UAE universities was high to very high while for AGU it was average to high. The reliability for learning strategies for studying English as a second language for the three universities was high to very high; and for attitude towards learning English it was average to high.

CHAPTER EIGHT

STUDY I

EFFECT OF CURRICULUM ON LEARNING ENVIRONMENT AND APPROACHES TO STUDY

8.1: INTRODUCTION

This chapter investigates the effects of differing curricula (traditional vs. problem-based learning, or innovative curriculum[1]) on educational climate. It focuses on students' perceptions of their climate; students' approaches to study; the relationships between students' perceptions of their medical learning environment and their approaches to study; and the relationships between the approaches to study and medical academic achievement.

8.2: COMPARISON OF STUDENTS' PERCEPTIONS OF THEIR LEARNING ENVIRONMENT

In order to indicate the trend of the students' views on their learning environment at the three schools, the responses 'strongly agree' and 'agree' were combined as "agree". Similarly, the responses 'strongly disagree' and 'disagree' were combined as "disagree".

8.2.1: STUDENTS' PERCEPTION OF LEARNING

Table 8.1 shows students' views on their learning. It reveals that students studying under the innovative curriculum described their learning as stimulating, encouraging them to participate and be active learners, helping them to develop their competence and confidence, and the teaching as also being more student-centred than at those establishments using the traditional curriculum.

In order to examine whether there are significant differences between the students' perceptions on subscale 1 of the DREEM, based on the curriculum, i.e. innovative versus traditional, the following hypothesis was tested:

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[1] The comparison will be conducted between the three universities, with each university as one group.

H1a: There is no significant difference in the perception of learning between students at traditional universities and those at innovative universities.

TABLE 8.1: PERCENTAGE OF STUDENTS' PERCEPTIONS OF LEARNING (0+1=STRONGLY DISAGREE+DISAGREE=DISAGREE, 2=UNSURE, 3+4= AGREE+STRONGLY AGREE=AGREE)

Subscale 1		KFU Traditional			AGU Innovative 1			UAE Innovative 2		
Item	Statement	A (%)	unsure (%)	DA (%)	A (%)	unsure (%)	DA (%)	A (%)	unsure (%)	DA (%)
1	I am encouraged to participate in class	52.4	5.6	42.1	78.9	2.2	18.9	70.2	7.0	22.8
7	The teaching is often stimulating	68.3	8.7	23.0	85.6	6.7	7.8	82.5	7.0	10.5
13	The teaching is student centred	43.7	5.6	50.8	87.8	1.1	11.1	73.7	7.0	19.3
16	The teaching helps to develop my competence	54.0	4.8	41.3	80.0	2.2	17.8	61.4	5.3	33.3
20	The teaching is well focused	77.0	2.4	20.6	68.9	5.6	25.6	82.5	3.5	14.0
22	The teaching helps to develop my confidence	54.8	6.3	38.9	80.0	6.7	13.3	63.2	3.5	33.3
24	The teaching time is put to good use	57.9	3.2	38.9	58.9	1.1	40.0	70.2	3.5	26.3
25 (R)	The teaching over-emphasises factual learning	70.6	4.0	25.4	77.8	6.7	15.6	94.7	0.0	5.3
38	I am clear about the learning objectives of the course	65.9	4.8	29.4	66.7	7.8	25.6	78.9	3.5	17.5
44	The teaching encourages me to be an active learner	55.6	4.8	39.7	78.9	4.4	16.7	66.7	8.8	24.6
47	Long term learning is emphasised over short term learning	57.1	16.7	26.2	72.2	15.6	12.2	68.4	17.5	14.0
48 (R)	The teaching is too teacher-centred	57.1	7.1	35.7	14.4	8.9	76.7	42.1	7.0	50.9

R=reverse score

The Kruskal-Wallis test revealed significant differences between the students at the three universities on the overall subscale 1 "students' perception of learning". Significant differences existed on most of the individual items: 1, 7, 13, 16, 22, 44, 47, and 48 (R) (Table 8.2). Students at innovative university 1 [AGU] showed higher agreement than both students at innovative university 2 [UAE] and the traditional [KFU] medical university on these items (except item 48 R). Students at innovative

universities 1 and 2 were definitely more satisfied with their learning than those studying at the traditional curriculum university.

TABLE 8.2: STUDENTS' PERCEPTIONS ON SUBSCALE 1 OF THE DREEM (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item	Kruskal-Wallis					P-Value
	University	Mean	Std. Deviation	Mean Rank	Chi-Square	
1	KFU (N = 126)	2.0873	1.4312	117.14	21.361	0.000
	AGU (N = 90)	2.9222	1.2014	165.08		
	UAE (N = 57)	2.5614	1.0525	136.56		
7	KFU (N = 126)	2.7063	1.1735	123.55	8.387	0.015
	AGU (N = 90)	3.1667	0.9026	152.44		
	UAE (N = 57)	3.0351	0.9630	142.35		
13	KFU (N = 126)	1.9127	1.3973	103.81	57.241	0.000
	AGU (N = 90)	3.2889	1.0520	182.87		
	UAE (N = 57)	2.6842	1.0028	137.96		
16	KFU (N = 126)	2.1270	1.3970	120.43	26.169	0.000
	AGU (N = 90)	2.9667	1.1655	170.07		
	UAE (N = 57)	2.2632	1.0778	121.41		
20	KFU (N = 126)	2.8889	1.1470	145.98	3.893	0.136
	AGU (N = 90)	2.6111	1.2057	125.98		
	UAE (N = 57)	2.8596	0.8750	134.56		
22	KFU (N = 126)	2.1587	1.3530	117.25	30.393	0.000
	AGU (N = 90)	3.0667	1.1298	172.59		
	UAE (N = 57)	2.3509	1.1571	124.46		
24	KFU (N = 126)	2.3254	1.4132	136.12	0.364	0.834
	AGU (N = 90)	2.2889	1.4934	134.89		
	UAE (N = 57)	2.5439	1.1031	142.27		
25 (**R**)	KFU (N = 126)	1.2778	1.2240	144.29	2.332	0.312
	AGU (N = 90)	1.0333	1.0857	130.17		
	UAE (N = 57)	0.8947	0.6460	131.66		
38	KFU (N = 126)	2.5000	1.3008	134.44	1.062	0.588
	AGU (N = 90)	2.6000	1.3966	143.49		
	UAE (N = 57)	2.6491	0.8127	132.39		
44	KFU (N = 126)	2.2143	1.3949	123.00	18.001	0.000
	AGU (N = 90)	2.9333	1.1097	164.32		
	UAE (N = 57)	2.4035	1.0152	124.80		
47	KFU (N = 126)	2.4365	1.2868	123.68	12.314	0.002
	AGU (N = 90)	3.0111	1.0652	159.64		
	UAE (N = 57)	2.6491	0.9727	130.70		
48 (**R**)	KFU (N = 126)	1.6429	1.3825	105.96	54.299	0.000
	AGU (N = 90)	3.0556	1.2026	183.69		
	UAE (N = 57)	2.1579	1.1617	131.89		
Overall Subscale 1 (/48)	KFU (N = 126)	26.2778	6.9933	105.37	48.163	0.000
	AGU (N = 90)	32.9444	6.0119	180.90		
	UAE (N = 57)	29.0526	6.1859	137.60		

Based on the above results, the null hypothesis can be rejected. Thus, there is a variation in students' perceptions at the KFU, AGU, and UAE regarding their satisfaction about their learning.

In order to investigate in more depth which group of students differs from which, Pair-Wise comparisons were conducted. Three comparisons were conducted for two universities at a time.

The first comparison was made between students at the traditional university [KFU] and those at innovative university 1 [AGU]. The Mann-Whitney test revealed significant differences on the overall subscale 1. Differences existed in the individual items: 1, 7, 13, 16, 22, 44, 47, and 48 (R) (Table 8.3).

TABLE 8.3: STUDENTS' PERCEPTIONS OF SUBSCALE 1 OF THE DREEM AT KFU &AGU
(0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
1	KFU (N = 126)	93.35	0.000
	AGU (N = 90)	129.71	
7	KFU (N = 126)	99.05	0.005
	AGU (N = 90)	121.73	
13	KFU (N = 126)	83.91	0.000
	AGU (N = 90)	142.92	
16	KFU (N = 126)	92.80	0.000
	AGU (N = 90)	130.48	
22	KFU (N = 126)	90.71	0.000
	AGU (N = 90)	133.41	
44	KFU (N = 126)	95.52	0.000
	AGU (N = 90)	126.67	
47	KFU (N = 126)	96.98	0.001
	AGU (N = 90)	124.62	
48 (**R**)	KFU (N = 126)	84.00	0.000
	AGU (N = 90)	142.79	
Overall subscale 1: Students' perception of learning	KFU (N = 126)	84.25	0.000
	AGU (N = 90)	142.44	

The above table reveals that students at AGU accorded higher positive scores for all the above significant items (except item 48 R) compared with those at KFU.

This implies that students using innovative 1 curriculum perceive their learning more positively and are more highly satisfied than students at the traditional curriculum university [KFU].

The second comparison was conducted between students using the traditional curriculum [KFU] and those using the innovative 2 curriculum [UAE]. The Mann-Whitney test revealed significant differences on the overall subscale 1 "students' perceptions of learning". Differences occurred on two individual items (items 13 and 48 (R)) (Table 8.4).

TABLE 8.4: STUDENTS' PERCEPTIONS OF SUBSCALE 1 OF THE DREEM AT KFU & UAE (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
1	KFU (N = 126)	87.29	0.061
	UAE (N = 57)	102.41	
7	KFU (N = 126)	88.00	0.108
	UAE (N = 57)	100.83	
13	KFU (N = 126)	83.39	0.001
	UAE (N = 57)	111.03	
16	KFU (N = 126)	91.13	0.726
	UAE (N = 57)	93.93	
22	KFU (N = 126)	90.04	0.433
	UAE (N = 57)	96.32	
44	KFU (N = 126)	90.98	0.684
	UAE (N = 57)	94.25	
47	KFU (N = 126)	90.19	0.474
	UAE (N = 57)	95.99	
48 (**R**)	KFU (N = 126)	85.46	0.010
	UAE (N = 57)	106.46	
Overall subscale 1: Students' perception of learning	KFU (N = 126)	84.62	0.005
	UAE (N = 57)	108.32	

For item 13 "the teaching is student-centred", students at UAE accorded a higher positive score compared with those at KFU. However, for item 48 (R) "the teaching is too teacher-centred", students at UAE showed less agreement on this item compared with those at KFU.

The third comparison was conducted between students at innovative university 1 [AGU] and those at innovative university 2 [UAE]. The Mann-Whitney test revealed a significant difference on the overall subscale 1. Differences existed in the following individual items: 1, 13, 16, 22, 44, 47, and 48 (R) (Table 8.5).

TABLE 8.5: STUDENTS' PERCEPTIONS OF SUBSCALE 1 OF THE DREEM AT AGU & UAE (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
1	AGU (N = 90)	80.87	0.008
	UAE (N = 57)	63.15	
7	AGU (N = 90)	76.21	0.390
	UAE (N = 57)	70.52	
13	AGU (N = 90)	85.44	0.000
	UAE (N = 57)	55.93	
16	AGU (N = 90)	85.09	0.000
	UAE (N = 57)	56.48	
22	AGU (N = 90)	84.68	0.000
	UAE (N = 57)	57.14	
44	AGU (N = 90)	83.15	0.000
	UAE (N = 57)	59.55	
47	AGU (N = 90)	80.52	0.014
	UAE (N = 57)	63.71	
48 (**R**)	AGU (N = 90)	96.39	0.000
	UAE (N = 57)	54.43	
Overall subscale 1 Students' perception of learning	AGU (N = 90)	83.96	0.000
	UAE (N = 57)	58.28	

The above table reveals that students at AGU accorded higher positive scores for all these items (except item 48 R) compared with those at UAE. This implies that those students at AGU had more positive perceptions about their learning compared with students at UAE.

8.2.2: DISCUSSION

Tables 8.1 and 8.2 show that students at both traditional and innovative universities reported high agreement (mean >2) with most of the statements of

subscale 1. However, Table 8.3 and 8.4 indicate significant differences between students using the traditional and those using the innovative curriculum. Such differences indicate that students using innovative 1 and 2 curricula are more satisfied with their learning than are those using the traditional curriculum. They perceive their teaching as student-centred and stimulating, encouraging them to participate in class, to be active learners, and to develop their competence and confidence. These results are in line with the literature, e.g., Barrows (1985, 1986); Ryan (1993); Boud and Feletti (1997), which describe the main features of problem-based learning as being student-centred, encouraging students to be active learners, and developing their critical thinking skills. It is therefore important to encourage involvement in the learning process and to focus on student-centred learning as this will promote active learning.

On the other hand, the significantly lower positive score on this subscale for students studying at the traditional curriculum [KFU] compared with those at innovative medical universities reflects their dissatisfaction with their learning. The main characteristics of such a traditional environment are: the emphasis on teacher-centred instruction; the inflexibility of the curriculum with no electives; students having little contact with patients in their initial training; and the heavy reliance on lectures as the main method of instruction (Interview with a faculty member at the KFU, 1998).

Such features create a stressful environment for students, since the absence of elective courses allows no opportunity for students to explore their interest in learning. The international trends in medical education have encouraged medical schools to design their curricula in a way that reflects the health needs of the local community,

instead of focusing on traditional academic disciplines or hospital-based specialists (Lempp et al., 1999).

In accordance with such international trends, the General Medical Council's (UK) document Tomorrow's Doctors (1993) proposed the development of a core curriculum, which students study for about 2/3 of their study time, and elective courses, from which students can select their learning experiences for the remaining 1/3 of their study time. In the present study, it would appear that the traditional medical schools in the Kingdom of Saudi Arabia have still not responded to such trends.

The main advantages from introducing elective courses within a core curriculum are to help students to pursue their interests and strength in medical science, provide opportunities for them to develop transferable skills, and give scope for creativity and flexibility in deciding on course content and design (Lempp et al., 1999; MacNaughton, 1997). This may be the reason for the lower satisfaction rating of students using the traditional [KFU] curriculum with their learning.

The paucity of contact with patients in the initial training at the traditional curriculum university, KFU, separates theoretical knowledge/basic science from practical knowledge/clinical science, taking away the relevance of what students have learned and providing no integration of such knowledge. Reliance on one method of instruction, e.g. lectures, may not sustain students' motivation. As indicated by McLeish (1968), the average student's attention span is 15-20 minutes. Therefore, the series of lectures in the traditional curriculum of the KFU may make for a less than stimulating environment.

Furthermore, the nature of such a traditional curriculum, i.e. heavily teacher-centred, didactic teaching style, with fragmented and non-integrated subjects, leaves little room for students to ask questions or participate in the class. This in turn encourages students to be passive rather than active learners. Thus, the characteristics of the traditional curriculum may be the reason why students at KFU show less satisfaction with their learning compared with those at the innovative curriculum universities. In order to enhance students' satisfaction with their learning, some changes should take place, e.g. a change to a more collegial style of teaching, the introduction of elective courses as a part of the core curriculum. This should increase motivation and maximise learning.

Table 8.5 indicates that students' perceptions under the innovative curriculum 1 differed significantly from those using the innovative curriculum 2 on seven items (1, 13, 16, 22, 44, 47, and 48 R). It is worth noting that students at both AGU and UAE expressed their high agreement with these six statements (mean >2) and their disagreement on the reverse item 48 (mean >2). However, students at UAE showed less satisfaction than did their counterparts at AGU. Such differences could be related to the different level of maintaining commitment to the main principles of the problem-based curriculum. These findings support the study of Abdulrazzaq and Qayed (1991) who claimed that the problem-based curriculum at UAE deviated significantly from the original principles and philosophies designed by the faculty committee of the medical school. The use of problem-based teaching was declining with a move towards a more didactic style. This may be the reason why in the present study students at UAE agreed that the teaching was too teacher-centred. However, medical students at this university preferred teacher-structured learning experiences

which emphasised teacher-centred rather than student-centred teaching (Paul et al., 1994).

Das et al. (1996) claimed that the characteristics of ideal teachers, as perceived by UAE medical students, are those that encourage students to be active learners. Such characteristics involve the following: creating an atmosphere for discussion, having respect for students' opinions, showing willingness to help students, interacting well with students, and demonstrating knowledge of subject matter. The absence of such characteristics may explain why in the present study students at UAE showed less agreement with the statement that the teaching encourages them to participate in class, develop their competence and confidence, and encourages them to be active learners. This result supports the claim of Paul et al. (1994) that medical schools in Arab countries face an unusual educational challenge, because of educational and cultural differences between predominantly expatriate teachers and local students. It is recommended that faculty members be employed who themselves have an enthusiasm for problem-based learning.

The general trends (Table 8.1) revealed the following. Firstly, students at both UAE (33%) and KFU (nearly 40%) felt that the teaching does not develop their competence or confidence. Therefore, it is recommended that teachers provide students with educational opportunities that help students developing their competence and confidence.

Secondly, students at both AGU (40%) and KFU (39%) felt that the teaching time was not put to good use. It is advisable for higher educational authorities to look at such a problem and find some way to improve the teaching. Training on teaching-

time management may help students get the maximum advantage from the teaching. In order to achieve the curriculum objectives, time should be utilised fully.

Students at AGU, which is a co-educational university showed greater satisfaction with their learning aspects than those at KFU and UAE, which still operate a sexually segregated system. As indicated earlier, in chapter five, Gulf countries are young states, which have in the past recruited foreign staff of both sexes into their medical universities, and still do so. At KFU and UAE, although the education policy is a single-sex system, male staff are allowed to teach female students, while female staff teach only female students. Therefore, the lower scores on students' perceptions of their learning aspects may reflect the view that students at single-sex universities experience, to some degree, a barrier when attempting to communicate directly with their teachers. This may not necessarily prevent them from having access to their teachers, especially if they are male, but it certainly limits their opportunity to do so. Students at the co-educational university, on the other hand, may consult their teachers whenever they feel they need. Therefore, teachers should be made more aware of the importance of providing opportunity for their students to interact with them.

The above discussion shows to what extent curriculum type can influence perceptions of learning environment. In addition, it highlights the main characteristics prevailing at both innovative and traditional curriculum universities. In general, the innovative curriculum seems to provide a better learning environment. Moreover, it furnishes some of the recommendations which could enhance the learning environment in the Gulf region. However, the relatively liberal culture of Bahrain might affect the degree of satisfaction with the learning environment in AGU.

8.2.3: STUDENTS' PERCEPTION OF TEACHERS

Table 8.6 shows students' views of teachers. Students using innovative curricula have a more positive perception of teachers compared with those at the traditional curriculum university.

TABLE 8.6: PERCENTAGE OF STUDENTS' PERCEPTION OF TEACHERS (0+1=STRONGLY DISAGREE+DISAGREE=DISAGREE, 2=UNSURE, 3+4= AGREE+STRONGLY AGREE=AGREE)

Subscale 2		KFU Traditional			AGU Innovative1			UAE Innovative2		
Item	Statement	A (%)	unsure (%)	DA (%)	A (%)	unsure (%)	DA (%)	A (%)	unsure (%)	DA (%)
2	The teachers are knowledgeable	72.2	4.8	23.0	72.2	7.8	20.0	82.5	5.3	12.3
6	The teachers are patient with patients	54.0	18.3	27.8	62.2	20.0	17.8	66.7	22.8	10.5
8 (**R**)	The teachers ridicule the students	58.7	7.1	34.1	37.8	11.1	51.1	14.0	5.3	80.7
9 (**R**)	The teachers are authoritarian	52.4	4.0	43.7	31.1	10.0	58.9	24.6	5.3	70.2
18	The teachers have good communications skills with patients	59.5	23.8	16.7	71.1	13.3	15.6	66.7	22.8	10.5
29	The teachers are good at providing feedback to students	53.2	4.0	42.9	71.1	10.0	18.9	64.9	14.0	21.1
32	The teachers provide constructive criticism here	56.3	5.6	38.1	55.6	8.9	35.6	70.2	12.3	17.5
37	The teachers give clear examples	69.0	4.8	26.2	80.0	4.4	15.6	87.7	1.8	10.5
39 (**R**)	The teachers get angry in class	53.2	4.0	42.9	32.2	7.8	60.0	22.8	1.8	75.4
40	The teachers are well prepared for their classes	71.2	1.6	27.2	82.2	3.3	14.4	86.0	1.8	12.3
50 (**R**)	The students irritate the teachers	40.5	8.7	50.8	35.6	12.2	52.2	31.6	10.5	57.9

In order to examine whether there are significant differences on subscale 2 of the DREEM, between students using an innovative curriculum compared to those using a traditional one, the following hypothesis was tested:

H1b: There is no significant difference in the perception of teachers between students at traditional universities and those at innovative universities.

The Kruskal-Wallis test revealed significant differences between students at the three universities on this subscale "students' perception of teachers". Students at UAE

have a higher positive score on the overall subscale 2 compared with students at KFU and AGU.

TABLE 8.7: COMPARISON OF STUDENTS' PERCEPTIONS ON SUBSCALE 2 OF THE DREEM (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item	Kruskal-Wallis					P-Value
	University	Mean	Std. Deviation	Mean Rank	Chi-Square	
2	KFU (N = 126)	2.6825	1.1842	136.11	0.147	0.929
	AGU (N = 90)	2.7444	1.1472	139.36		
	UAE (N = 57)	2.7895	0.9011	135.25		
6	KFU (N = 126)	2.3968	1.2269	131.86	1.095	0.579
	AGU (N = 90)	2.5556	1.1129	141.44		
	UAE (N = 57)	2.6140	0.8184	141.35		
8 (**R**)	KFU (N = 126)	1.6349	1.2624	110.80	42.977	0.000
	AGU (N = 90)	2.1556	1.3975	139.74		
	UAE (N = 57)	3.0526	1.0075	190.59		
9 (**R**)	KFU (N = 126)	1.8492	1.3975	119.81	14.942	0.001
	AGU (N = 90)	2.3000	1.3529	143.14		
	UAE (N = 57)	2.6842	1.1826	165.32		
18	KFU (N = 126)	2.6270	1.1224	133.90	2.188	0.335
	AGU (N = 90)	2.7778	1.0993	146.23		
	UAE (N = 57)	2.6316	0.8373	129.26		
29	KFU (N = 126)	2.1587	1.2612	124.63	7.037	0.030
	AGU (N = 90)	2.6111	1.0673	150.77		
	UAE (N = 57)	2.5088	1.0199	142.61		
32	KFU (N = 126)	2.1032	1.3256	126.44	5.516	0.063
	AGU (N = 90)	2.3667	1.2220	141.74		
	UAE (N = 57)	2.6140	0.8814	152.86		
37	KFU (N = 126)	2.6032	1.1667	125.83	5.765	0.056
	AGU (N = 90)	2.9333	1.0789	148.63		
	UAE (N = 57)	2.9649	0.8010	143.32		
39 (**R**)	KFU (N = 126)	1.8254	1.3150	111.56	28.003	0.000
	AGU (N = 90)	2.5222	1.3427	152.35		
	UAE (N = 57)	2.8421	1.1147	168.99		
40	KFU (N = 126)	2.6032	1.2204	125.68	9.023	0.011
	AGU (N = 90)	3.0222	1.1115	154.90		
	UAE (N = 57)	2.8596	0.7892	131.18		
50 (**R**)	KFU (N = 126)	2.1190	1.2368	128.02	3.536	0.171
	AGU (N = 90)	2.3444	1.2556	142.24		
	UAE (N = 57)	2.4561	1.1813	148.56		
Overall subscale 2 (/44)	KFU (N = 126)	24.603	6.3234	108.42	32.292	0.000
	AGU (N = 90)	28.333	7.2778	151.84		
	UAE (N = 57)	30.018	5.7212	173.87		

The significant differences existed in five individual items: 8 (R), 9 (R), 29, 39 (R), and 40 (Table 8.7). These findings are evidence for rejecting the null hypothesis. Thus, there is significant difference in the "perception of teachers" between students at innovative and traditional curriculum universities. Students at KFU showed significantly higher agreement on items 8 (R), 9 (R), and 39 (R) than the other groups. While students at AGU showed significantly higher agreement on items 29 and 40 than students at UAE and KFU.

In order to investigate in more depth which group of students differs from which, Pair-Wise comparisons were conducted. Three comparisons were conducted for two universities at a time.

The first comparison was made between students at KFU and those at AGU. The Mann-Whitney test revealed significant differences on the overall subscale 2. Differences exist on the following items: 8 (R), 9 (R), 29, 39 (R), and 40 (Table 8.8).

TABLE 8.8: COMPARISON BETWEEN STUDENTS AT KFU & AGU ON SUBSCALE 2 OF THE DREEM (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
8 (R)	KFU (N = 126)	99.04	0.006
	AGU (N = 90)	121.74	
9 (R)	KFU (N = 126)	100.81	0.027
	AGU (N = 90)	119.26	
29	KFU (N = 126)	100.10	0.013
	AGU (N = 90)	120.27	
39 (R)	KFU (N = 126)	95.25	0.000
	AGU (N = 90)	127.05	
40	KFU (N = 126)	99.19	0.005
	AGU (N = 90)	121.53	
Overall subscale 2 Students' perception of teachers	KFU (N = 126)	94.13	0.000
	AGU (N = 90)	128.62	

Students at AGU showed significantly higher disagreement on items 8 (R), 9 (R), and 39 (R) but higher agreement on items 29 and 40 compared with students at KFU. These results indicate that students at AGU were expressing their satisfaction with their teachers for not ridiculing them, not being authoritarian, not getting angry in class, but being good at providing feedback, and well prepared for their classes.

The second comparison was conducted between students at KFU and those at UAE. The Mann-Whitney test revealed significant differences on the overall subscale 2. The differences were in the following items: 8 (R), 9 (R), and 39 (R) (Table 8.9). Students at KFU indicated higher agreement with these reverse score items compared with those at UAE.

TABLE 8.9: COMPARISON BETWEEN STUDENTS AT KFU & UAE ON SUBSCALE 2 OF THE DREEM (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
8 (R)	KFU (N = 126)	72.26	0.000
	UAE (N = 57)	129.01	
9 (R)	KFU (N = 126)	82.49	0.000
	UAE (N = 57)	113.02	
29	KFU (N = 126)	88.03	0.109
	UAE (N = 57)	100.77	
39 (R)	KFU (N = 126)	79.81	0.000
	UAE (N = 57)	118.94	
40	KFU (N = 126)	90.50	0.525
	UAE (N = 57)	95.32	
Overall subscale 2: Students' perception of teachers	KFU (N = 126)	78.05	0.000
	UAE (N = 57)	122.84	

The third comparison was conducted between students at AGU and those at UAE. The Mann-Whitney test revealed no significant difference on the overall subscale 2. However, there were significant differences in individual items: 8 (R) and 40 (Table 8.10).

Students at AGU showed higher agreement with item 8 (R) and 40 compared with those at UAE, indicating that they believe that their teachers are better prepared for their classes but to some extent ridicule the students more.

TABLE 8.10: COMPARISON BETWEEN STUDENTS AT AGU & UAE ON SUBSCALE 2 OF THE DREEM (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
8 (R)	AGU (N = 90)	63.50	0.000
	UAE (N = 57)	90.58	
9 (R)	AGU (N = 90)	69.38	0.083
	UAE (N = 57)	81.30	
29	AGU (N = 90)	76.01	0.428
	UAE (N = 57)	70.83	
39 (R)	AGU (N = 90)	70.80	0.231
	UAE (N = 57)	79.05	
40	AGU (N = 90)	79.47	0.029
	UAE (N = 57)	65.36	
Overall subscale 2 Students' perception of teachers	AGU (N = 90)	69.59	0.114
	UAE (N = 57)	80.96	

8.2.4: DISCUSSION

Table 8.6, 8.7, 8.8, and 8.9 indicate that students at traditional and innovative universities reported high agreement (mean >2) on the view that their teachers are well prepared for their classes and good at providing feedback. However, students at innovative curriculum universities 1 and 2 were highly satisfied with their teachers for providing feedback and being well prepared for their classes compared with those at the traditional curriculum university. In addition, they felt their teachers were more personable and approachable than those at traditional curriculum universities. Ramsden (1992; 1997) argued that in a learning environment where the teachers show enthusiasm, are stimulating, and communicate a sense of their own interest, their students' sense of interest and engagement/involvement with a subject will increase. This may explain why students at the innovative universities were more highly

satisfied with their teachers. In addition, at problem-based curriculum universities, where a class consists of a small group of students, the interaction between students and their teacher is relatively greater than that at traditional curriculum universities. This could lead students to experience different aspects of their teachers' personalities, e.g. the collegial and instructor aspects.

At traditional curriculum universities the main role of the teacher in a class is to present a lecture to a large group of students. Therefore, student-teacher interaction is relatively limited. This allows little chance for students to get to know their teachers personally. In such a situation teachers' personal characteristics could be perceived negatively by their students. This finding agrees with Gott (1983) who found that teachers were generally criticised by the learners. It also supports the finding of Levy and his colleagues (Levy et al., 1973) that students in a traditional curriculum university tend to describe their teachers as authoritarian. Moreover, it supports the claim of Stewart et al. (1997) that the existence of a large number of students within a class may block the interactions between students and teachers, which in turn contributes to stress among medical students.

In addition, from a cultural point of view, it is always the case in a large power distance society (to use Hofstede's term), as in the Gulf region, that students expect the teacher to initiate the discussion, and they normally participate in a discussion only when invited to. Moreover, an intellectual disagreement through an interaction with the teacher is perceived as personal disloyalty, which students always try to avoid (Hofstede, 1986). Thus, it may be the learning context and/or the cultural specificity that explains the way students feel about their teachers.

Table 8.10 indicates that although students at AGU thought their teachers were better prepared for their classes, they felt their teachers were less friendly compared with those at UAE. The findings of this study are in accordance with those of Harth et al. (1992) that medical students tend to perceive their learning environment more positively if they interact with their teachers in a non-authoritarian climate, where the 'collegial style' is preferred/adopted rather than the 'authoritarian style' of teaching.

The general trends (Table 8.6) reveal the following. At least one third of students at AGU and at least 40% of those at KFU felt that teachers were authoritarian, ridiculed them, got angry in class, and did not provide constructive criticisms. One third of the students at UAE also felt that students irritated the teachers. Such perceptions may highlight to some extent the poor quality of personal relationships between students and their teachers in the three Gulf universities. Therefore, some measure must be developed to enhance such personal relationships. In addition, university teachers should be aware of the influence of their personal traits on students' learning. Moreover, the educational authorities should provide training/workshops to enhance teachers' capabilities of delivering good teaching. They also should encourage teachers to attend training programmes for 'effective teaching' in order to promote a positive educational environment.

In summary, the above discussion indicated that the major features of the two types of curriculum (traditional and innovative) used in the Gulf region have an effect on how students perceived their teachers. Personal behaviours of teachers at both innovative universities seemed to be more appreciated. In addition, culture aspects dominating in the Gulf countries are considered as an important factor which shape the relationship between students and teachers. The findings provide an answer to how

students feel about their teachers. In addition, it provides some suggestions for improving student-teacher relationships, which could enhance the learning environment.

8.2.5: STUDENTS' ACADEMIC SELF-PERCEPTIONS:

Table 8.11 shows students' academic self-perceptions. It indicates that students at both traditional and innovative curriculum universities share, to a large extent, similar views regarding their satisfaction with their academic life in general. However, all of them complained of their inability to memorize all they need. In order to examine whether there are significant differences between the students' perceptions on subscale 3 of the DREEM, the following hypothesis was tested:

H1c: There is no significant difference in the academic self-perception between students at traditional universities and those at innovative universities.

TABLE 8.11: PERCENTAGE OF STUDENTS' ACADEMIC SELF-PERCEPTIONS (0+1=STRONGLY DISAGREE+DISAGREE=DISAGREE, 2=UNSURE, 3+4= AGREE+STRONGLY AGREE=AGREE)

Subscale 3		KFU (N=126) Traditional			AGU (N=90) Innovative1			UAE (N=57) Innovative2		
Item	Statement	A (%)	unsure (%)	DA (%)	A (%)	unsure (%)	DA (%)	A (%)	unsure (%)	DA (%)
5	Learning strategies which worked for me before continue to work for me now	44.4	2.4	53.2	55.6	3.3	41.1	50.9	5.3	43.9
10	I am confident about my passing this year	61.9	9.5	28.6	61.1	10.0	28.9	70.2	10.5	19.3
21	I feel I am being well prepared for my profession	62.7	7.9	29.4	67.8	14.4	17.8	56.1	28.1	15.8
26	Last year's work was a good preparation for this year's work	62.7	4.0	33.3	71.1	8.9	20.0	84.2	3.5	12.3
27	I am able to memorize all I need	31.0	5.6	63.5	41.1	5.6	53.3	28.1	3.5	68.4
31	I have learned a lot about empathy in my profession	69.8	7.9	22.2	83.3	4.4	12.2	78.9	10.5	10.5
41	My problem solving skills are being well developed here	73.0	7.1	19.8	86.7	0.0	13.3	78.9	5.3	15.8
45	Much of what I have to learn seems relevant to a career in healthcare	82.5	3.2	14.3	84.4	3.3	12.2	98.2	0.0	1.8

The Kruskal-Wallis test revealed no significant differences between the students of the three universities on the overall subscale 3, "students' academic self-perceptions". The null hypothesis was confirmed (Table 8.12). Thus, there is a general agreement in the academic self-perceptions of students at innovative and traditional curriculum universities.

However, there is a significant difference in one individual item: 41. Students at AGU reported higher agreement on this item than students at KFU and UAE. This indicates that students at AGU felt their problem solving skills were being better developed compared to the two other universities.

TABLE 8.12: COMPARISON OF STUDENTS' PERCEPTIONS ON SUBSCALE 3 OF THE DREEM (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item	Kruskal-Wallis					P-value
	University	Mean	Std. Deviation	Mean Rank	Chi-Square	
5	KFU (N = 126)	1.7698	1.4264	129.58	3.254	0.197
	AGU (N = 90)	2.1222	1.4751	148.34		
	UAE (N = 57)	1.9123	1.2856	135.49		
10	KFU (N = 126)	2.5000	1.2050	133.89	0.544	0.762
	AGU (N = 90)	2.5111	1.3512	137.76		
	UAE (N = 57)	2.6842	1.0378	142.67		
21	KFU (N = 126)	2.4365	1.1764	130.87	4.805	0.090
	AGU (N = 90)	2.7444	1.1174	151.08		
	UAE (N = 57)	2.4912	0.9282	128.32		
26	KFU (N = 126)	2.3968	1.3745	125.34	5.961	0.051
	AGU (N = 90)	2.8222	1.1763	149.29		
	UAE (N = 57)	2.8596	0.8750	143.37		
27	KFU (N = 126)	1.4841	1.2821	129.83	3.669	0.160
	AGU (N = 90)	1.7889	1.2586	149.21		
	UAE (N = 57)	1.4912	1.1200	133.58		
31	KFU (N = 126)	2.8333	1.2050	126.79	4.704	0.095
	AGU (N = 90)	3.1667	1.0836	148.24		
	UAE (N = 57)	3.1228	0.9833	141.82		
41	KFU (N = 126)	2.6905	1.1061	125.88	13.535	0.001
	AGU (N = 90)	3.0889	1.1081	159.88		
	UAE (N = 57)	2.7719	0.8868	125.46		
45	KFU (N = 126)	3.0714	1.0212	129.72	2.417	0.299
	AGU (N = 90)	3.2111	0.9886	142.27		
	UAE (N = 57)	3.3860	0.5902	144.77		
Overall subscale 3 academic self-perception (/32)	KFU (N = 126)	19.1825	5.2435	120.40	11.735	0.300
	AGU (N = 90)	21.4556	4.7028	157.22		
	UAE (N = 57)	20.7193	4.0872	141.76		

In order to investigate in more depth which group of students differs from which, Pair-Wise comparisons were conducted. Three comparisons were conducted for two universities at a time.

The first comparison was made between students at KFU and those at AGU. The Mann-Whitney test revealed significant differences on the overall subscale 3 and on item 41 (Table 8.13).

TABLE 8.13: COMPARISON BETWEEN STUDENTS AT KFU & AGU ON SUBSCALE 3 OF THE DREEM (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
41	KFU (N = 126)	97.54	0.001
	AGU (N = 90)	123.85	
Overall subscale 3 Students' academic self-perception	KFU (N = 126)	96.42	0.001
	AGU (N = 90)	125.41	

The second comparison was conducted between students at KFU and those at UAE. The Mann-Whitney test revealed no significant differences on either the overall subscale 3 or item 41 (Table 8.14).

TABLE 8.14: COMPARISON BETWEEN STUDENTS AT KFU & UAE ON SUBSCALE 3 OF THE DREEM (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
41	KFU (N = 126)	91.84	.947
	UAE (N = 57)	92.35	
Overall subscale 3 Students' academic self-perception	KFU (N = 126)	87.48	0.085
	UAE (N = 57)	101.99	

The third comparison was conducted between students at AGU and those at UAE. The Mann-Whitney test revealed no significant difference on the overall subscale 3. However, there was a significant difference on the individual item: 41 (Table 8.15).

TABLE 8.15: COMPARISON BETWEEN STUDENTS AT AGU & UAE ON SUBSCALE 3 OF THE DREEM (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)			
Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
41	AGU (N = 90)	81.53	.003
	UAE (N = 57)	62.11	
Overall subscale 3: Students' academic self-perception	AGU (N = 90)	77.31	0.235
	UAE (N = 57)	68.77	

8.2.6: DISCUSSION

Tables 8.11, 8.12, and 8.13 show that students at the traditional [KFU], innovative 1 [AGU], and innovative 2 [UAE] curriculum medical schools share similar agreement on their academic self-perceptions. They felt confident about passing their exams, well prepared for their profession, well taught in the area of empathy. They agreed that what they learnt was relevant to their career. However, they complained of not being able to memorize all they needed.

One possible explanation for the above complaint is the nature of medical faculties, where too much content is included in the curriculum. Excessive workload has a negative impact on students' learning. Ramsden (1992) argued that to enhance learning, students should be encouraged to view the subject as an integrated whole by means of careful sequencing rather than the accumulation of isolated facts. Designing courses containing huge quantities of information leaves little space for thinking about and integrating the content (Ramsden, 1992). It is recommended that curriculum planners at the three universities re-evaluate the content of the curriculum. A reduction in the amount of factual information in the core curriculum will allow for integration and mastering of such information rather than mere memorisation.

Students at AGU felt their problem solving skills were being better developed than those at the traditional curriculum university. This could be explained by the

nature of the problem-based learning which places more emphasis on the development of problem-solving skills (Arabian Gulf University, 1998b). This result is supported by the literature (Schmidt, 1983; Barrows, 1985; 1986; Albanese and Mitchell, 1993; Birgegard and Lindquist, 1998) which indicates that the main objective of a problem-based curriculum is to help students develop their learning skills, e.g. problem solving.

Comparison between students at innovative university 1 and innovative university 2, (Table 8.15), reveals that students at the former showed more satisfaction with their academic development in terms of their problem-solving skills being better developed. One explanation may be related to the differences in the actual application of the principle and the philosophy of implementing problem-based learning at these two innovative medical schools.

In addition, at least 44% of students using the innovative curricula felt that previous learning strategies did not work for them now. The authorities at the three universities should introduce special courses within the curriculum to help students learn how to learn, especially during the early years of their study.

In sum, both curriculum environments provide quite good satisfaction in terms of student academic development. This provides a partial answer to the research question regarding the characteristics of the learning environment at Gulf medical schools. In addition, a recommendation was provided concerning reduction in the amount of workload required by the students since they showed difficulty in comprehending all they need.

8.2.7: STUDENTS' PERCEPTION OF ATMOSPHERE

Table 8.16 shows students' perceptions of atmosphere. Students at innovative curriculum universities showed higher agreement on most of the items of this subscale than students using the traditional curriculum.

TABLE 8.16: PERCENTAGE OF STUDENTS' PERCEPTION OF ATMOSPHERE
(0+1=STRONGLY DISAGREE+DISAGREE=DISAGREE, 2=UNSURE, 3+4= AGREE+STRONGLY AGREE=AGREE)

Subscale 4		KFU (N=126) Traditional			AGU (N=90) Innovative1			UAE (N=57) Innovative2		
Item	Statement	A (%)	unsure (%)	DA (%)	A (%)	unsure (%)	DA (%)	A (%)	unsure (%)	DA (%)
11	The atmosphere is relaxed during the ward teaching	52.4	23.0	24.6	61.1	21.1	17.8	49.1	38.6	12.3
12	This school is well timetabled	43.7	1.6	54.8	46.7	5.6	47.8	86.0	1.8	12.3
17 (**R**)	Cheating is a problem in this school	31.0	5.6	63.5	38.9	12.2	48.9	28.1	10.5	61.4
23	The atmosphere is relaxed during lectures	46.8	4.0	49.2	74.4	3.3	22.2	77.2	3.5	19.3
30	There are opportunities for me to develop interpersonal skills	54.0	8.7	37.3	60.0	7.8	32.2	64.9	10.5	24.6
33	I feel comfortable in class socially	63.5	4.0	32.5	56.7	11.1	32.2	75.4	5.3	19.3
34	The atmosphere is relaxed during seminars/tutorials	57.9	4.0	38.1	71.1	6.7	22.2	77.2	5.3	17.5
35 (**R**)	I find the experience disappointing	28.6	4.8	66.7	23.3	3.3	73.3	12.3	3.5	84.2
36	I am able to concentrate well	58.7	5.6	35.7	82.2	5.6	12.2	77.2	3.5	19.3
42	The enjoyment outweighs the stress of this course	50.0	2.4	47.6	65.6	4.4	30.0	47.4	5.3	47.4
43	The atmosphere motivates me as a learner	47.6	2.4	50.0	61.1	3.3	35.6	68.4	3.5	28.1
49	I feel able to ask the questions I want	55.6	2.4	42.1	65.6	1.1	33.3	73.7	1.8	24.6

In order to examine whether there are significant differences between the students' perceptions on subscale 4 of the DREEM, the following hypothesis was tested:

H1d: There is no significant difference in the perception of atmosphere between students at traditional universities and those at innovative universities.

The Kruskal-Wallis test revealed significant differences between the students at the three universities on the overall subscale 4. These results are evidence for rejecting the null hypothesis.

TABLE 8.17: COMPARISON OF STUDENTS' PERCEPTIONS ON SUBSCALE 4 OF THE DREEM (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item	Kruskal-Wallis					P-Value
	University	Mean	Std. Deviation	Mean Rank	Chi-Square	
11	KFU (N = 126)	2.4206	1.1686	132.06	2.494	0.267
	AGU (N = 90)	2.6222	1.2047	147.38		
	UAE (N = 57)	2.4737	0.9084	131.52		
12	KFU (N = 126)	1.8333	1.4629	125.37	21.684	0.000
	AGU (N = 90)	1.8889	1.5024	126.86		
	UAE (N = 57)	2.9298	0.9610	178.71		
17 (**R**)	KFU (N = 126)	2.5873	1.3698	146.70	8.092	0.017
	AGU (N = 90)	2.0889	1.4351	118.24		
	UAE (N = 57)	2.5789	1.3222	145.18		
23	KFU (N = 126)	1.9048	1.2095	112.68	26.807	0.000
	AGU (N = 90)	2.6778	1.1498	161.18		
	UAE (N = 57)	2.5965	0.9975	152.58		
30	KFU (N = 126)	2.1190	1.3303	126.95	4.445	0.108
	AGU (N = 90)	2.3778	1.3288	143.07		
	UAE (N = 57)	2.5439	1.0702	149.63		
33	KFU (N = 126)	2.4921	1.3251	137.88	1.156	0.561
	AGU (N = 90)	2.3667	1.3938	130.99		
	UAE (N = 57)	2.6842	1.1364	144.55		
34	KFU (N = 126)	2.1825	1.3410	122.71	8.897	0.012
	AGU (N = 90)	2.6556	1.1914	150.02		
	UAE (N = 57)	2.7018	0.9442	148.04		
35 (**R**)	KFU (N = 126)	2.6349	1.3243	121.79	10.768	0.005
	AGU (N = 90)	2.9333	1.3966	145.21		
	UAE (N = 57)	3.2456	1.0570	157.68		
36	KFU (N = 126)	2.2778	1.2626	122.23	11.522	0.003
	AGU (N = 90)	2.8556	0.9429	155.50		
	UAE (N = 57)	2.6316	1.0287	140.45		
42	KFU (N = 126)	2.0238	1.4613	129.33	7.619	0.022
	AGU (N = 90)	2.5111	1.3345	154.98		
	UAE (N = 57)	1.9825	1.2886	125.55		
43	KFU (N = 126)	1.9444	1.3932	124.37	6.694	0.035
	AGU (N = 90)	2.3778	1.3456	148.92		
	UAE (N = 57)	2.4035	1.0667	146.10		
49	KFU (N = 126)	2.0952	1.4335	122.28	9.374	0.009
	AGU (N = 90)	2.5889	1.3648	152.61		
	UAE (N = 57)	2.5965	1.0327	144.89		
Overall subscale 4 students' perception of atmosphere	KFU (N = 126)	26.5159	7.9727	114.83	19.563	0.000
	AGU (N = 90)	29.9444	7.9144	150.61		
	UAE (N = 57)	31.3684	6.5619	164.51		

Thus, there is variation in the perceptions of the atmosphere between students studying at an innovative and a traditional medical university. Significant differences exist on nine items: 12, 17 (R), 23, 34, 35 (R), 36, 42, 43, and 49 (Table 8.17). Students at AGU showed higher agreement with all above items, except for items 12, and 35. For item 12 students at UAE showed more agreement than any other groups, while students at KFU indicated more agreement with item 35 (R).

In order to investigate in more depth which group differs from which, Pair-Wise comparisons were conducted. Three comparisons were conducted for two universities at a time. The first comparison was made between students at the traditional university [KFU] and those at innovative university 1 [AGU]. The Mann-Whitney test revealed significant differences on the overall subscale 4.

TABLE 8.18: COMPARISON BETWEEN STUDENTS AT KFU & AGU ON SUBSCALE 4 OF THE DREEM (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
12	KFU (N = 126)	108.13	0.916
	AGU (N = 90)	109.01	
17 (R)	KFU (N = 126)	117.85	0.007
	AGU (N = 90)	95.41	
23	KFU (N = 126)	92.92	0.000
	AGU (N = 90)	130.32	
34	KFU (N = 126)	99.69	0.009
	AGU (N = 90)	120.83	
35 (R)	KFU (N = 126)	101.04	0.029
	AGU (N = 90)	118.95	
36	KFU (N = 126)	97.65	0.001
	AGU (N = 90)	123.69	
42	KFU (N = 126)	100.31	0.018
	AGU (N = 90)	119.97	
43	KFU (N = 126)	100.68	0.023
	AGU (N = 90)	119.44	
49	KFU (N = 126)	98.78	0.005
	AGU (N = 90)	122.11	
Overall subscale 4 Students' perception of atmosphere	KFU (N = 126)	96.97	0.001
	AGU (N = 90)	124.64	

Significant differences were found on eight individual items: 17 (R), 23, 34, 35 (R), 36, 42, 43, and 49 (Table 8.18). Students at AGU showed higher agreement with all items, except for item 35 (R). For item 35 (R) students at KFU reported more agreement than students at AGU.

The second comparison was conducted between students at the traditional university [KFU] and innovative university 2 [UAE]. The Mann-Whitney test revealed significant differences on the overall subscale 4. Significant differences were found on the following items: 12, 23, 34, 35 (R), and 49 (Table 8.19). Students at UAE showed more agreement with all these items, except item 35 (R). Students at KFU showed more agreement on item 35 (R).

TABLE 8.19: COMPARISON BETWEEN STUDENTS AT KFU & UAE ON SUBSCALE 4 OF THE DREEM (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
12	KFU (N = 126)	90.74	0.000
	UAE (N = 57)	116.89	
17 (R)	KFU (N = 126)	92.35	0.889
	UAE (N = 57)	91.22	
23	KFU (N = 126)	83.27	0.000
	UAE (N = 57)	111.31	
34	KFU (N = 126)	86.52	0.024
	UAE (N = 57)	104.12	
35 (R)	KFU (N = 126)	84.25	0.002
	UAE (N = 57)	109.13	
36	KFU (N = 126)	88.08	0.106
	UAE (N = 57)	100.67	
42	KFU (N = 126)	92.52	0.836
	UAE (N = 57)	90.84	
43	KFU (N = 126)	87.19	0.053
	UAE (N = 57)	102.64	
49	KFU (N = 126)	87.00	0.043
	UAE (N = 57)	103.05	
Subscale 4 Students' perception of atmosphere	KFU (N = 126)	81.36	0.000
	UAE (N = 57)	115.52	

The third comparison was conducted between students at innovative university 1 [AGU] and those at innovative university 2 [UAE]. The Mann-Whitney test revealed no significant difference on subscale 4. However, there were significant differences on individual items: 12, 17 (R), and 42 (Table 8.20). Students at AGU reported more agreement on item 17 (R) and 42, but less agreement on item 12 compared with their counterparts at UAE.

TABLE 8.20: COMPARISON BETWEEN STUDENTS AT AGU & UAE ON SUBSCALE 4 OF THE DREEM (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
12	AGU (N = 90)	63.35	0.000
	UAE (N = 57)	90.82	
17 (**R**)	AGU (N = 90)	68.33	0.037
	UAE (N = 57)	82.96	
23	AGU (N = 90)	76.36	0.338
	UAE (N = 57)	70.27	
34	AGU (N = 90)	74.69	0.786
	UAE (N = 57)	72.91	
35 (**R**)	AGU (N = 90)	71.76	0.379
	UAE (N = 57)	77.54	
36	AGU (N = 90)	77.31	0.165
	UAE (N = 57)	68.78	
42	AGU (N = 90)	80.52	0.015
	UAE (N = 57)	63.71	
43	AGU (N = 90)	74.98	0.707
	UAE (N = 57)	72.46	
49	AGU (N = 90)	76.00	0.447
	UAE (N = 57)	70.84	
Subscale 4 Students' perception of atmosphere	AGU (N = 90)	71.47	0.365
	UAE (N = 57)	77.99	

8.2.8: DISCUSSION

Table 8.16 suggests that students at innovative 1 and 2 universities perceived the atmosphere as conducive to learning. Table 8.17, 8.18 and 8.19 indicates these students described the atmosphere as more relaxed during lectures, seminars/tutorials,

and providing them with the opportunity to ask the questions they needed compared with those at a traditional curriculum university. In addition, students at AGU showed more satisfaction with the atmosphere in terms of motivating the learner, giving them more enjoyment, and encouraging them to concentrate well, than those at KFU. On the other hand, students at UAE felt their courses were better timetabled (mean >2) compared with those at the traditional curriculum university.

These results indicate that students at innovative universities 1 and 2 view the atmosphere more positively, and show more satisfaction than students at the traditional curriculum university. One explanation may be that the characteristics of problem-based learning, where students are divided into a small group with a tutor, may stimulate students to initiate discussion with each other and exchange information, and provide them with the opportunity to ask questions and concentrate well.

In addition, as mentioned earlier in chapter 5, Gulf countries are collectivist societies. One feature of such a society is that students prefer to talk in small groups and avoid discussion within a large group of people (Hofstede, 1986). This may be why students at the innovative curriculum medical schools perceive the atmosphere as being more conducive to learning. These results support the findings of Neame (1982); Hughes et al. (1997); Bhattacharya (1998); and Antepohl and Herzig (1999) which pointed out that in problem-based curricula, students generally tend to show higher satisfaction with the atmosphere than students experiencing traditional curricula.

Table 8.20 indicated no significant difference on the overall subscale 4 between students at innovative universities 1 and 2. Students at both innovative universities appear to share similar views on most items. However, a closer look at

individual statements of subscale 4 reveals that students at UAE felt that their university was better timetabled (mean >2). Students using the innovative curriculum indicated high agreement on the view that cheating is a problem in their schools. However, students at AGU expressed more concern with the problem of cheating compared with those at UAE. Students at AGU also felt that the enjoyment outweighed the stress of their courses (mean >2) more so than those at UAE, who expressed their disagreement with this statement (mean <2).

Students at KFU and AGU do share some common views. Firstly, at least one third of students at AGU and at least half of those at KFU indicated the following:

(1) Poor timetabling. Such a complaint may influence their commitment to study. Thus, it is crucial for educational policy makers to ensure that universities are well timetabled.

(2) The problem of cheating. Such feelings could lead students to ask why they should put effort into their studies while other students progress easily in their study through cheating. This could de-motivate them and affect their learning.

(3) Poorly motivated climate. One of the main objectives of designing a problem-based learning is to encourage students to be active rather than passive learners. Therefore, it is essential to create a positive environment that fosters active learning.

Secondly, at least one third of the student respondents at AGU and KFU indicated the following:

(1) No opportunities to develop interpersonal skills. Students in higher education, as claimed by Ramsden (1992), do not only need factual information but also technical skills and techniques for solving particular problems. Emphasis should be

put on developing learning and interpersonal skills so that students are able to apply what they are taught to a different problem.

(2) Social discomfort. It is important to provide students with a good social environment.

(3) A non-questioning climate. Teachers should provide opportunities for and encourage students to ask questions in order to enhance their learning.

Thirdly, at least one third of students at the three universities felt that the enjoyment does not outweigh the stress. This may reflect the nature of medical study, in which medical students are vulnerable to stress. It is essential to provide students with university counselling and to provide them with strategies for coping with stress.

In summary, the results confirm the major positive features of the problem-based learning environment in terms of the learning atmosphere at both universities utilizing this type of curriculum. They also highlight the main features of the traditional atmosphere. This provides a partial answer to the questions concerning the learning environment characteristics of the innovative and traditional curricula. Moreover, some recommendations provided, which could be linked to the expected contribution of the present study.

8.2.9: STUDENTS' SOCIAL SELF-PERCEPTIONS

Table 8.21 shows students' social self-perceptions.

TABLE 8.21: PERCENTAGE OF STUDENTS' SOCIAL SELF-PERCEPTIONS
(0+1=STRONGLY DISAGREE+DISAGREE=DISAGREE, 2=UNSURE, 3+4= AGREE+STRONGLY AGREE=AGREE)

Subscale 5		KFU (N=126) (Traditional)			AGU (N=90) (Innovative1)			UAE (N=57) (Innovative2)		
Item	Statement	A (%)	unsure (%)	DA (%)	A (%)	unsure (%)	DA (%)	A (%)	unsure (%)	DA (%)
3	There is a good support system for students who get stressed	19.0	7.9	73.0	17.8	12.2	70.0	15.8	8.8	75.4
4 (**R**)	I am too tired to enjoy this course	61.1	.8	38.1	46.7	3.3	50.0	71.9	3.5	24.6
14	I am rarely bored on this course	33.3	3.2	63.5	28.9	6.7	64.4	33.3	0.0	66.7
15	I have good friends in this school	81.7	1.6	16.7	75.6	2.2	22.2	86.0	0.0	14.0
19	My social life is good	74.6	.8	24.6	74.4	0.0	25.6	80.7	0.0	19.3
28	I seldom feel lonely	63.5	4.8	31.7	46.7	5.6	47.8	49.1	5.3	45.6
46	My accommodation is pleasant	23.0	44.4	32.5	50.0	28.9	21.1	50.9	14.0	35.1

It seems that students at traditional and innovative curriculum universities generally share similar views regarding their satisfaction with the social life at their universities. However, they expressed their concern regarding the absence of a good support system for stressed students. In order to examine whether there are significant differences between the students' perceptions on subscales 5 of the DREEM, the following hypothesis was tested:

H1e: There is no significant difference in the social self-perceptions between students at traditional universities and those at innovative universities.

The Kruskal-Wallis test revealed no significant differences between the students at the three universities on the overall subscale 5. These findings confirmed the null hypothesis. However, there were significant differences on three individual items: item 4 (R), 28, and 46 (Table 8.22).

Students at innovative university 1 [AGU] showed more agreement on item 46 but less agreement on item 4 (R) than the other groups. For item 28, students at the traditional university [KFU] accorded a higher score for this item than students at innovative university 2 [UAE] and innovative university 1 [AGU].

TABLE 8.22: COMPARISON OF STUDENTS' PERCEPTION ON SUBSCALE 5 OF THE DREEM (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item	Kruskal-Wallis					P-Value
	University	Mean	Std. Deviation	Mean Rank	Chi-Square	
3	KFU (N = 126)	0.9841	1.2328	134.87	0.359	0.836
	AGU (N = 90)	1.0778	1.2828	140.77		
	UAE (N = 57)	0.9474	1.1405	135.76		
4 (**R**)	KFU (N = 126)	1.6349	1.4120	133.28	7.183	0.028
	AGU (N = 90)	2.0222	1.4686	153.02		
	UAE (N = 57)	1.3509	1.3160	119.92		
14	KFU (N = 126)	1.5159	1.3841	135.08	0.466	0.792
	AGU (N = 90)	1.4889	1.3003	135.88		
	UAE (N = 57)	1.5614	1.1652	143.01		
15	KFU (N = 126)	3.1270	1.2393	141.95	1.449	0.484
	AGU (N = 90)	2.9222	1.3343	129.91		
	UAE (N = 57)	3.1404	1.1408	137.25		
19	KFU (N = 126)	2.7143	1.2703	138.76	0.153	0.927
	AGU (N = 90)	2.6667	1.3069	136.13		
	UAE (N = 57)	2.7544	1.0902	134.49		
28	KFU (N = 126)	2.4444	1.4174	149.75	6.607	0.037
	AGU (N = 90)	2.0222	1.4140	127.33		
	UAE (N = 57)	2.0000	1.3093	124.10		
46	KFU (N = 126)	1.8175	1.0837	119.40	13.041	0.001
	AGU (N = 90)	2.3556	1.2659	156.18		
	UAE (N = 57)	2.1930	1.2598	145.63		
Overall subscale 5 Students' social self-perception (/28)	KFU (N = 126)	14.2381	4.6911	135.71	0.504	0.777
	AGU (N = 90)	14.5556	5.0327	141.54		
	UAE (N = 57)	13.9474	4.4337	132.68		

In order to investigate in more depth which group of students differ from which, pair-wise comparisons were conducted. Three comparisons were conducted for two universities at a time.

The first comparison was made between students at KFU and those at AGU. The Mann-Whitney test revealed no significant differences on the overall subscale 5.

However, there were significant differences on items 28 and 46 (Table 8.23). The score for students at KFU was positively higher for item 28 but negatively lower for item 46 than those at UAE.

TABLE 8.23: COMPARISON BETWEEN STUDENTS AT KFU & AGU ON SUBSCALE 5 OF THE DREEM (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
4 (**R**)	KFU (N = 126)	102.00	0.061
	AGU (N = 90)	117.60	
28	KFU (N = 126)	115.72	0.038
	AGU (N = 90)	98.39	
46	KFU (N = 126)	96.23	0.000
	AGU (N = 90)	125.68	
Overall subscale 5 Students' social self-perception	KFU (N = 126)	106.75	0.625
	AGU (N = 90)	110.96	

The second comparison was conducted between KFU and the innovative university UAE. The Mann-Whitney test revealed no significant difference on the overall subscale 5. However, there were significant differences on items 28 and 46 (Table 8.24). The score for students at KFU was higher for item 28 but lower for item 46 than those at UAE. This result is similar to the first comparison result.

TABLE 8.24: COMPARISON BETWEEN STUDENTS AT KFU & UAE ON SUBSCALE 5 OF THE DREEM (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
4 (**R**)	KFU (N = 126)	94.78	0.269
	UAE (N = 57)	85.85	
28	KFU (N = 126)	97.52	0.029
	UAE (N = 57)	79.79	
46	KFU (N = 126)	86.67	0.036
	UAE (N = 57)	103.78	
Overall subscale 5 Students' social self-perception	KFU (N = 126)	92.46	0.860
	UAE (N = 57)	90.97	

The third comparison was conducted between students at innovative university 1 [AGU] and those at innovative university 2 [UAE]. The Mann-Whitney test revealed

no significant difference on the overall subscale 5. However, there was a significant difference on item 4 (R) (Table 8.25). Students at UAE showed more agreement with this item compared with those at AGU.

TABLE 8.25: COMPARISON BETWEEN STUDENTS AT AGU & UAE ON SUBSCALE 5 OF THE DREEM (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
4 (**R**)	AGU (N = 90)	80.92	0.010
	UAE (N = 57)	63.07	
28	AGU (N = 90)	74.44	0.870
	UAE (N = 57)	73.31	
46	AGU (N = 90)	75.99	0.462
	UAE (N = 57)	70.85	
Overall subscale 5 Students' social self-perception	AGU (N = 90)	76.08	0.455
	UAE (N = 57)	70.71	

8.2.10: DISCUSSION

Tables 8.21 and 8.22 indicated that students in all three medical schools shared similarities regarding their overall social self-perceptions. They expressed their concern regarding the absence of a good support system for stressed students. Walberg and Greenberg (1997) found that students' learning is enhanced when they experience classes that are challenging, satisfying, and friendly. Therefore, it is important that the three universities provide an effective support system for stressed students.

Tables 8.23 and 8.24 showed that students using the innovative curricula felt happier with their accommodation compared with those at the traditional university. On the other hand, students at the traditional curriculum medical school indicated they were less likely to feel lonely than those at innovative universities. One explanation is that the AGU university is considered to be a collective effort organization within the

Gulf region. It is an innovative university, funded by six Gulf governments in addition to students' fees, i.e. governmental and private. In this respect it is expected to provide better facilities, e.g. by providing computers and Internet access to their students, than a traditional medical university, and better accommodation in terms of catering, building, transportation, etc.

On the other hand, the great satisfaction of students at UAE with their accommodation (mean >2) compared with those at KFU may be explained by economic factors. In the United Arab Emirates, the UAE University is the only government funded university that offers a bachelor degree in Medicine. UAE is a wealthy country. Thus, the fund for such a university is potentially larger than for KFU, which shares government funds with seven other universities throughout Saudi Arabia. One aspect of university expenditure is its accommodation. This may be the explanation for students at UAE feeling more comfortable with their accommodation compared with their counterparts at the traditional university [KFU]. Thus, it is important to improve the quality of students' accommodation as this would enhance students learning.

All students at traditional and innovative universities indicated high agreement on the statement that they seldom feel lonely (mean >2). However, students at both AGU and UAE expressed more concerns at feeling lonely compared with those at KFU. One explanation for such a feeling amongst students at AGU could be that this university is located in Bahrain. Most students come from different Gulf countries. The students at AGU came from Kuwait (12.2%), Saudi Arabia (11.1%), Qatar (16.7%), UAE (10%), Oman (8.9%), and 3.3% from countries other than the Gulf

region (see Chapter 7). Thus, being away from home may lead to students feeling lonely.

On the other hand, all students in this study at UAE university are UAE citizens. Females comprise 65% of UAE students in this study. Female students who use university accommodation are not allowed to leave unless they have permission from their family, which is usually during the weekend. Thus, the fact of being away from home in a neighbouring country, as is the case with students at AGU, or being isolated from family in university accommodation for the whole week, as is the case with female students at UAE, may be the reason for feeling lonely. It is important that the social events at both universities be scheduled appropriately, taking this factor into account.

Table 8.25 showed that students at UAE reported more concern about being too tired to enjoy their course compared with those at AGU. Kleehammer et al. (1990) claimed that students' anxiety is increased in the clinical years by their perceptions of a non-supportive faculty. Thus, anxiety and home sickness may be one of the explanations why students at UAE feel too tired to enjoy their course, although they have a relaxed atmosphere that is conducive to their learning (see section 8.2.1), and a supportive faculty (see section 8.2.3).

Table 8.26[2] summarises the findings of the previous sections. The mean scores indicate that the students at KFU felt there was room for improvement in approximately half of the learning dimensions being measured by the DREEM at their university. Such improvements could move the curriculum from being too teacher-

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[2] The basis for this continuum scale is as follows: 'poor' ranged from '0-25%' of the maximum score, 'not good' ranged from '26-50%', 'good' ranged from '51-75%', and 'excellent' is >75%. In order to indicate the trend of students' views on their climate, the terms 'good' and 'excellent' were combined as 'good'. Similarly, the terms 'poor' and 'not good' were combined as 'not good'.

centred towards being more student-centred. Students at the innovative curriculum universities felt at least one third of the learning aspects being measured by the DREEM could be improved, e.g. reducing the emphasis on factual learning.

The mean scores of subscale 2 indicate that the students at KFU believe that there is room for improvement in approximately half of the aspects concerning their teachers, e.g. increasing teachers' awareness of the effect of their personal characteristics on students' attitudes toward learning. On the other hand, students using the innovative curricula believed that at least one third of the aspects regarding their teachers could be improved, e.g. encouraging teachers to be well prepared for their classes.

The mean scores on students' academic self-perceptions revealed that the students at KFU and innovative curriculum universities believed that there was room for improvement in at least one third of the academic aspects being measured. Such improvements could be through helping students identify their learning strategies, encouraging them to adopt a deeper approach to study, reducing the content, and encouraging students to develop problem solving skills.

The mean scores on students' perceptions of their atmosphere revealed that the students at KFU believe that there is room to enhance at least half of the dimensions related to the educational atmosphere being measured, such as encouraging students to be more involved in the learning process, helping them to be active rather than passive learners, adopting different methods of teaching, reducing the didactic style of teaching, emphasising small group teaching rather than large classes. Whereas at

innovative curriculum universities, students felt that at least one third of the aspects need to be improved, e.g. identifying the factors that lead students to be stressed.

TABLE 8.26: SUMMARY OF THE MEAN SCORES OF THE FIVE SUBSCALES OF THE DREEM

UNIVERSITY	Poor	Not Good	Good	Excellent	Mean	Mean/Max.
	SUBSCALE I Students' perception of learning (No. of items 12, Max. Score 48)					
	<13	13-24	25-36	>36		
KFU (N=126)	3.2%	34.9%	57.9%	4.0%	26.28	54.75
AGU (N=90)	0.0%	8.9%	57.8%	33.3%	32.94	68.63
UAE (N=57)	0.0%	22.9%	71.9%	5.3%	29.05	60.52
	SUBSCALE II Students' perception of teachers (No. of items 11, Max. Score 44)					
	<12	12-22	23-33	>33		
KFU (N=126)	8%	35.7%	55.6%	7.9%	24.60	55.91
AGU (N=90)	2.2%	17.8%	56.7%	23.3%	28.33	64.39
UAE (N=57)	0.0%	10.5%	54.4%	35.1%	30.02	68.23
	SUBSCALE III Students' academic self-perceptions (No. of items 8, Max. Score 32)					
	<9	9-16	17-24	>24		
KFU (N=126)	1.6%	25.4%	60.3%	12.7%	19.18	59.94
AGU (N=90)	1.1%	11.1%	63.3%	24.4%	21.46	67.06
UAE (N=57)	0.0%	8.8%	68.4%	22.8%	20.72	64.75
	SUBSCALE IV Students' perception of atmosphere (No. of items 12, Max. Score 48)					
	<13	13-24	25-36	>36		
KFU (N=126)	5.6%	27.8%	56.3%	10.3%	26.52	55.25
AGU (N=90)	2.2%	23.3%	50.0%	24.4%	29.94	62.38
UAE (N=57)	0.0%	17.5%	57.9%	24.6%	31.37	65.35
	SUBSCALE V Students' social self-perceptions (No. of items 7, Max. Score 28)					
	<8	8-14	15-21	>21		
KFU (N=126)	8.7%	40.5%	45.2%	5.6%	14.24	50.86
AGU (N=90)	7.8%	41.1%	45.6%	5.6%	14.56	52.00
UAE (N=57)	8.8%	42.1%	47.4%	1.8%	13.95	49.82

The mean scores on students' social self- perceptions revealed that the students at KFU and innovative curriculum universities believed that there was room for improvement in at least half of the aspects being measured by the DREEM. Such

aspects include providing a good support system for stressed students, improving the accommodation (for students at KFU), stimulating students, and involving them in social activities.

Table 8.27 suggests students at the innovative curriculum universities AGU and UAE perceive their learning environment as being more satisfactory compared with those at the traditional curriculum university, KFU. It also suggests there is more room for improvement at KFU than at both of the innovative universities.

UNIVERSITY	TABLE 8.27: OVERALL-DREEM DUNDEE READY EDUCATION ENVIRONMENT MEASURE (NO. OF ITEMS 50, MAX. SCORE 200)							
	Very poor educational climate <51	Not at all good 51-100	Neither good nor bad 101-125	Quite good 126-150	Very good 150-175	Excellent >175	Mean	Mean/ Max.
KFU (N=126)	0.0%	31.7%	38.1%	27.0%	2.8%	0.8%	110.8	55.41
AGU (N=90)	1.1%	12.2%	32.2%	35.6%	17.8%	1.1%	127.2	65.62
UAE (N=57)	0.0%	17.5%	28.1%	47.4%	7.0%	0.0%	125.1	62.56

In sum, despite the type of curriculum, social environment at the three universities is perceived to be quite pleasant. However, one major concern would appear to be the need for a social support system. This segment provides a partial answer to one of the research questions related to one of the facets of the learning environment.

8.3: COMPARISION OF STUDENTS' APPROACHES TO STUDY IN THREE SCHOOLS

To test whether there are significant differences between students' perceptions of their learning approach to study based on their curriculum, the Kruskal-Wallis test was conducted to test the following hypothesis.

H2: There is no significant difference in student approaches to study (measured by the ASI) at traditional universities and those at innovative universities.

The Kruskal-Wallis test revealed significant differences between students at traditional and innovative curriculum universities on five scales: *achieving, meaning, operation, versatility,* and *prediction* (Table 8.28). The null hypothesis was rejected.

Table 8.28: Comparision of Students' Approaches to study in three schools (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item (/maximum score)	Kruskal-Wallis					P-Value
	University	Mean	Std. Deviation	Mean Rank	Chi-Square	
Achieving (/24)	KFU (N = 126)	15.7540	3.7920	119.82	11.634	0.003
	AGU (N = 90)	17.3778	3.0633	155.26		
	UAE N = 57)	17.0526	3.0904	146.15		
Reproducing (/24)	KFU (N = 126)	15.8651	3.3307	129.33	3.367	0.186
	AGU (N = 90)	16.3222	3.5087	138.08		
	UAE N = 57)	17.0000	2.8094	152.25		
Meaning (/24)	KFU (N = 126)	15.7222	4.0844	120.98	10.397	0.006
	AGU (N = 90)	17.4889	3.7394	155.08		
	UAE N = 57)	16.7193	3.7309	143.85		
Comprehension Learning (/24)	KFU (N = 126)	16.1667	3.3293	145.22	2.630	0.268
	AGU (N = 90)	15.7333	3.1078	131.28		
	UAE N = 57)	15.8421	2.8144	127.86		
Operation Learning (/24)	KFU (N = 126)	13.5873	3.4135	118.22	13.433	0.001
	AGU (N = 90)	15.3778	3.6275	154.73		
	UAE N = 57)	14.9649	3.3645	150.52		
Versatile Approach (/48)	KFU (N = 126)	33.1508	7.2200	117.53	14.351	0.001
	AGU (N = 90)	36.5000	6.4044	155.26		
	UAE N = 57)	35.8596	5.8720	151.20		
Pathologies Learning (/48)	KFU (N = 126)	28.1905	5.6238	135.36	0.152	0.927
	AGU (N = 90)	28.4222	5.6489	137.23		
	UAE N = 57)	28.6667	5.2554	140.25		
Prediction For success (/120)	KFU (N = 126)	66.0000	9.3494	115.59	18.947	0.000
	AGU (N = 90)	70.3000	6.6188	162.11		
	UAE N = 57)	68.5439	7.1740	144.68		

Students at innovative university 1 [AGU] accorded higher positive scores in all the above scales compared with those at the traditional university [KFU] and innovative university 2 [UAE]. This suggests that AGU students have the tendency to use the above learning approaches more than any other group.

To investigate in more depth which group differs from which, three comparison tests were conducted. The first comparison test was conducted between students at the traditional and the innovative 1 schools. The Mann-Whitney test revealed significant differences in *achieving, meaning, operation, versatility,* and *prediction for success* (Table 8.29). The scores for students at AGU were higher for all the above scales of the ASI as compared with KFU students.

Table 8.29: comparison between students at KFU & AGU on approaches to study (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
Achieving	KFU (N = 126)	96.85	0.001
	AGU (N = 90)	124.81	
Meaning	KFU (N = 126)	97.13	0.002
	AGU (N = 90)	124.42	
Operation learning	KFU (N = 126)	96.62	0.001
	AGU (N = 90)	125.13	
Versatile approach	KFU (N = 126)	96.29	0.001
	AGU (N = 90)	125.60	
Prediction for success	KFU (N = 126)	93.28	0.000
	AGU (N = 90)	129.81	

The second comparison was conducted between students at KFU and those at UAE.

TABLE 8.30: COMPARISON BETWEEN STUDENTS AT KFU & UAE ON APPROACHES TO STUDY (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
Achieving	KFU (N = 126)	86.47	0.035
	UAE (N = 57)	104.23	
Meaning	KFU (N = 126)	87.35	0.077
	UAE (N = 57)	102.27	
Operation learning	KFU (N = 126)	85.10	0.009
	UAE (N = 57)	107.25	
Versatile approach	KFU (N = 126)	84.75	0.006
	UAE (N = 57)	108.04	
Prediction for success	KFU (N = 126)	85.81	0.019
	UAE (N = 57)	105.69	

The Mann-Whitney test revealed significant differences in *achieving, operation, versatility,* and *prediction for success* (Table 8.30). Students at UAE had higher positive scores for all scales compared with those at KFU.

The third comparison was made between students at AGU and those at UAE. The Mann-Whitney test revealed agreement between the respondents' perceptions with respect to the use of all learning approaches listed in Table 8.31.

TABLE 8.31: COMPARISON BETWEEN STUDENTS AT AGU & UAE ON APPROACHES TO STUDY (0=STRONGLY DISAGREE, 4=STRONGLY AGREE)

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
Achieving	AGU (N = 90)	75.95	0.483
	UAE (N = 57)	70.92	
Meaning	AGU (N = 90)	76.17	0.436
	UAE (N = 57)	70.58	
Operation learning	AGU (N = 90)	75.09	0.694
	UAE (N = 57)	72.27	
Versatile approach	AGU (N = 90)	75.16	0.677
	UAE (N = 57)	72.17	
Prediction for success	AGU (N = 90)	77.81	0.173
	UAE (N = 57)	67.99	

8.3.1: DISCUSSION

Tables 8.28, 8.29, and 8.30 indicated that students using a traditional curriculum [KFU] scored less than those at both innovative universities on all scales of the ASI, except the comprehension scale. Students at AGU and UAE scored significantly higher positive than those at KFU on *achieving, meaning, operation, versatility,* and *prediction* scales. These results support the findings of Coles (1985) and Newble and Clarke (1986; 1987) who found that students attending problem-based medical school tend to have higher scores on deep approach than their counterparts in traditional medical school.

Students at innovative curriculum universities, as mentioned in section 8.2, have a more relaxed atmosphere than traditional students and the learning environment is less strict and didactic. They have a supportive faculty, who encourage them to be active learners. This suggests that students' study methods at innovative curriculum universities were well-organised. They show an awareness of the need for step-by-step, sequential and detailed approaches. They tend to vary their study method according to what they feel is required of them. In addition, students' responses on the innovative curriculum seem to suggest that they are highly confident about their future success. This is indicated by the presence of high scores for the prediction scale. It may be that stress or the 'fear of failure' does not greatly affect students at innovative curriculum universities.

The literature, e.g. Scouller and Prosser (1994), indicates that a deep approach, which emphasises meaning and understanding, and a surface approach, which emphasises reproduction and rote memorisation, are mutually exclusive. However, in this study, it appears that the students' scores at both innovative curricula schools were higher on the meaning scale, i.e. deep approach, and reproducing scales than those at the traditional curriculum school. This indicates that students using an innovative curriculum do indeed develop learning strategies, using rote learning and memorisation to deal with specific tasks in the curriculum, but realize the need for deeper understanding on other occasions. This could be explained by the effect of the language of instruction, which is English. Since this is a foreign language, students tend first to understand the new concepts and then try to memorise them. This result supports the findings of Chessell (1986), Kember and Gow (1990), and Kember

(1996) that students need both to understand and to memorise, i.e. they are not necessarily mutually exclusive but complementary.

For students at KFU, scores on the *reproducing* scale were relatively higher than their scores on *achieving, meaning,* and *operation* scales. The high positive score on the *reproducing* scale may reflect in part the effect of two main factors: the assessment methods used in such curricula, which are mainly dependent on multiple choice questions (for more detail, see Chapter 5). Devoting about 60% of the total marks for one comprehension exam at the end of an academic year, mainly in the form of multiple choice questions, may put pressure on students to cope with course requirements rather than understand the content in a more meaningful way.

This result is in line with Marton and Saljo (1976b); Newble and Jaeger (1983); Newble and Gordon (1985); Entwistle and Entwistle (1991); Ramsden (1992) who showed that students will adopt a particular approach based on what they perceive to be the major requirement for their examination. If the examination requires a recall of information, i.e. is an objective-type test such as multiple choice questions, they tend to use the reproducing (surface) approach.

The other factor embodied in the design of the traditional curriculum, is the paucity, if not absence, of elective courses combined with a heavy workload. This may contribute to the students' high score on the reproducing scale. This result is in line with Ramsden's (1992; 1997) findings, that reproducing orientations are more often found in a department with a heavy workload and lack of choice over content and method. It is also supports the claim of Fransson (1977) that students who perceived the learning environment to be threatening, e.g. during examinations, were more likely to adopt a surface approach.

Based on the above comparisons, it seems that students at innovative curriculum universities tend to show deeper approaches than those at traditional curriculum universities. This result supports the finding of Coles (1985); Barrows (1985); Newble and Clarke (1986; 1987); and Hughes et al. (1997) that a deep approach is, to a great extent, fostered by innovative curricula.

The above discussion provides an answer to the research question regarding the characteristics of learning approaches of medical students. It also suggests some recommendations to encourage students to adopt the deep approach.

8.4: RELATIONSHIPS BETWEEN SUBSCALES OF THE DREEM AND THE ASI

In order to examine the relationships between students' learning approaches and their perception of the learning environment, the following hypothesis was tested.

H3: There is no significant positive correlation between the medical learning environment (measured by the DREEM) and students' approaches to study (measured by the ASI) for medical students at traditional and innovative universities.

Correlations were computed between scores on the ASI and the DREEM using Spearman's rho test. Table 8.32 shows the correlation coefficients (r) and probabilities (P) between ASI scale scores and DREEM subscales scores.

The achieving scale was statistically and positively correlated with subscales 1, 3, and 4 for students at the three medical universities (Table 8.32). In addition, it was statistically and positively correlated with subscale 2 for students at UAE and with subscale 5 for students at both traditional [KFU] and innovative 2 [UAE] schools.

The *comprehension* scale was statistically and positively correlated with subscales 1, 4, and 5 for students' scores at KFU. While it was correlated significantly and positively to subscales 1, and 3 for those at AGU.

The *meaning, operation, versatile,* and *prediction* scales were statistically and positively correlated with all subscales of the DREEM for students at KFU and UAE, while for those at AGU these scales were statistically and positively correlated with all subscales of the DREEM, except subscale 5. The above results are evidence for confirming the null hypothesis.

TABLE 8.32: CORRELATION COEFFICIENTS OF THE DREEM WITH THE ASI SCORES

	Subscale1 r (P)	Subscale2 r (P)	Subscale3 r (P)	Subscale4 r (P)	Subscale5 r (P)
Achieving					
KFU (N=126)	.300 (.001)	.126 (.161)	.530 (.000)	.371 (.000)	.198 (.026)
AGU (N=90)	.284 (.007)	.068 (.525)	.352 (.001)	.252 (.017)	.140 (.188)
UAE (N=57)	.423 (.001)	.431 (.001)	.475 (.000)	.488 (.000)	.299 (.024)
Reproducing					
KFU (N=126)	-.071 (.433)	.019 (.832)	.078 (.386)	-.063 (.481)	-.160 (.074)
AGU (N=90)	-.038 (.722)	-.094 (.380)	-.022 (.837)	-.104 (.331)	.002 (.982)
UAE (N=57)	.063 (.643)	-.081 (.549)	.028 (.836)	-.059 (.662)	.009 (.949)
Meaning					
KFU (N=126)	.345 (.000)	.416 (.000)	.440 (.000)	.453 (.000)	.221 (.013)
AGU (N=90)	.337 (.001)	.275 (.009)	.305 (.003)	.208 (.049)	.046 (.669)
UAE (N=57)	.561 (.000)	.276 (.037)	.414 (.001)	.459 (.000)	.418 (.001)
Comprehension					
KFU (N=126)	.208 (.020)	.127 (.158)	.171 (.056)	.176 (.049)	.194 (.030)
AGU (N=90)	.318 (.002)	.151 (.155)	.228 (.030)	.145 (.172)	.050 (.641)
UAE (N=57)	.217 (.105)	-.009 (.949)	.185 (.167)	.253 (.058)	.131 (.331)
Operation					
KFU (N=126)	.308 (.000)	.330 (.000)	.358 (.000)	.349 (.000)	.252 (.004)
AGU (N=90)	.299 (.004)	.231 (.028)	.424 (.000)	.263 (.012)	.165 (.120)
UAE (N=57)	.484 (.000)	.327 (.013)	.386 (.003)	.374 (.004)	.079 (.036)
Versatile					
KFU (N=126)	.383 (.000)	.414 (.000)	.417 (.000)	.492 (.000)	.271 (.002)
AGU (N=90)	.419 (.000)	.348 (.001)	.446 (.000)	.329 (.002)	.104 (.332)
UAE (N=57)	.570 (.000)	.314 (.017)	.462 (.000)	.489 (.000)	.413 (.001)
Learning Pathology					
KFU (N=126)	.027 (.765)	.057 (.523)	.149 (.095)	-.023 (.794)	-.014 (.878)
AGU (N=90)	.092 (.390)	-.039 (.717)	.081 (.445)	-.051 (.630)	.048 (.655)
UAE (N=57)	.220 (.100)	.007 (.960)	.139 (.301)	.122 (.365)	.088 (.514)
Prediction					
KFU (N=126)	.444 (.000)	.372 (.000)	.507 (.000)	.564 (.000)	.336 (.000)
AGU (N=90)	.373 (.000)	.338 (.001)	.437 (.000)	.398 (.000)	.102 (.338)
UAE (N=57)	.534 (.000)	.477 (.000)	.492 (.000)	.538 (.000)	.424 (.001)

r=correlation coefficient, P=correlation probability.

The table also shows strong correlations ($r > .4$) between the following:

(1) the *meaning* scale and subscale 4, the *versatile* and subscale 4, the *prediction* and subscale 4, and the *achieving* and subscale 3 for students at KFU.

(2) the *operation* scale and subscale 3, the *versatile* and subscale 3, the *prediction* and subscale 3, and the *achieving* and subscale 3 for students at AGU.

(3) the *meaning* and subscale 1, the *operation* and subscale 1, the *versatile* and subscale 1, the *prediction* and subscale 4, and the *achieving* and susbscale 4 for students at UAE.

8.4.1: DISCUSSION

Table 8.32 suggests the following: firstly, students at the three universities who scored higher on subscale 3 (students' academic self-perception) were more likely to have higher scores on the *achieving, meaning, operation, versatile,* and *prediction* scales. Secondly, students at the three universities who scored higher on subscale 1 (students' perception of learning) were more likely to have higher scores on the *versatile* and *prediction* scales. Thirdly, students at KFU and UAE who scored higher on subscale 4 (students' perception of atmosphere) were more likely to have higher scores on the *achieving, meaning, versatile,* and *prediction* scales. Fourthly, students at KFU and UAE who scored higher on subscale 2 (students perceptions of teachers) were more likely to have higher scores on the *prediction for success* scale. Finally, students at UAE who scored higher on subscale 5 (students' social self-perceptions) were more likely to have higher scores on the *versatile* and *prediction* scales.

These results could be explained as follows. Firstly, the results of students' perceptions at both traditional and innovative curriculum universities about their learning showed that they were clear about the learning objectives of the course. The teaching is well focused, however it overemphasises factual learning. Secondly,

teachers were perceived as being knowledgeable, patient with patients, having good communication skills with patients, and providing students with constructive criticism. Thirdly, students perceived the atmosphere as being relaxed during the ward teaching, providing them with the opportunity to develop their interpersonal skills, and make them feel comfortable in class socially. Finally, students felt that much of what they had learnt was relevant to their career and their problem-solving skills were well developed.

Entwistle and Ramsden (1983), Entwistle and Tait (1990), and Ramsden (1997) claimed that the teaching methods, the degree of enthusiasm, clear goals and objectives, providing good feedback to students, commitment of the teacher and the structure, pace and level at which information is presented, all have an influence on approaches to learning. Thus, in the present study, the results of students' perceptions at the traditional and innovative curriculum universities of their learning, teachers, atmosphere, and academic development could lead them into a *meaning, versatile,* and *operation* approach. In addition, their prediction of success tends to be high.

According to the findings of the Loup et al. (1993) and Kember et al. (1996), the learning environment related positively to meaning orientation and negatively to reproducing orientation. However, in this study, the five subscales of the DREEM showed more significant and positive relationships with the meaning orientation scales for all the three universities (except subscale 5 for AGU). On the other hand, all five subscales of the DREEM showed a non-significant relationship with reproducing orientation. Thus, the findings in the present study are consistent with the Loup et al. (1993) and Kember et al. (1996) studies, concerning the relationship between educational environment and meaning orientation.

The strongest correlations between the *meaning*, *versatile*, and *prediction* scales and subscale 4, and the *achieving* and subscale 3 for students at the traditional curriculum university indicated that students' perceptions of their atmosphere and their academic development were indeed influenced by their approaches to learning. Students in the present study who perceive the atmosphere as being conducive to their learning, and have positive perceptions of their academic experiences were more likely to use *meaning, versatile,* and *achieving* approaches. In addition, their prediction of success tends to be high.

One possible explanation for such results may be embodied in the characteristics of the traditional curriculum. For example, students studying medicine (at least in the Gulf region) are usually those who achieve higher grades in their Secondary School Certificate. In the traditional environment, particularly in the KSA, the classes are considered to be large (at least from a Western prospective) with more than 30 students in a class. This could lead to a high concentration of competent students. Thus, this may be the reason why in the present study, students using the traditional curriculum related their use of the *achieving* approach to their academic self-perception.

Moreover, students at such a traditional curriculum university as reported in section 8.2, feel that the atmosphere is relaxed during ward teaching, seminars and tutorials, providing them with the opportunity to develop their interpersonal skills, and feel comfortable in class socially. Such a positive perception of the atmosphere could lead them into *meaning* and *versatile* approaches. In this situation, students tend to use a *versatile* approach, where they vary their study methods according to the demands of the task, have the intention of understanding the subject in a meaningful way, and

have an interest in studying medicine *per se*. In addition, such a positive perception may lead them to have a high prediction score for their success.

The strongest correlations between the *operation, versatile, achieving,* and *prediction* scales and the subscale 3, "students' academic self-perception" for students at AGU indicated that students' perception of their academic development influences their approaches to study. Students with more positive perceptions of their academic development were more likely to use the *operation, versatile,* and *achieving* approaches. In addition, their prediction of success tends to be high. Students at AGU (refer to section 8.2) indicated that they are confident about passing the exam, feel well prepared for their profession, learn a lot about empathy, their problem solving skills are well developed, and feel much of what they have learnt is relevant to their career. In such circumstances, students tend to use a step-by-step, sequential and detailed approach, vary their study methods, have a strong achievement motivation to do very well in order to achieve a high grade than their classmates do. In addition, their prediction of success tends to be high.

The strongest correlation between the *meaning, operation*, and *versatile* and subscale 1 "students' perception of learning", and the *achieving*, and *prediction* and subscale 4 "students' perception of atmosphere" at UAE indicated that students' perception of their learning and atmosphere influences their approaches to study. Students who show more satisfaction with their learning and atmosphere tend to use *meaning*, *operation*, *versatile,* and *achieving* approaches. In addition, their prediction of success was high.

Students at UAE experience a high level of satisfaction with their learning in terms of: class participation, stimulating teaching, confidence, competence

development and active learning. In such an encouraging environment, students tend to use a deeper approach where they understand the subject, using a step-by-step, sequential and detailed approach, varying their study method according to the demands of the learning task. Moreover, students use an *achieving* approach because they experience a high-competence environment where students devote a considerable effort to doing very well in order to achieve better results. In addition, they tend to have a high prediction score for their success.

The above results imply the existence of a positive relationship between students' learning approaches and their perceptions of the learning environment. In addition, they support the findings of Entwistle and Ramsden (1983); Entwistle (1987); Entwistle and Tait (1990); Trigwell and Prosser (1991); and Ramsden (1997) who claimed that the characteristics of learning environment have an important influence on the approaches students adopt for their study.

8.6: THE RELATIONSHIP BETWEEN THE ASI AND MEDICAL ACADEMIC ACHIEVEMENT

H4: There is no significant correlation between students' approaches to study (measured by the ASI) and medical academic achievement (measured by the GPA) for medical students at traditional and innovative universities.

Correlations were computed between scores on the ASI and the academic achievement using Spearman's rho test. Table 8.33 shows the correlation coefficients (r) and probabilities (P) between ASI scale scores with academic achievement scores.

TABLE 8.33: CORRELATION BETWEEN THE ASI AND MEDICAL ACADEMIC ACHEIVMENT			
Scales	KFU r (P)	AGU r (P)	UAE r (P)
Achieving	-.033 (.714)	.180 (.090)	-.019 (.887)
Reproducing	-.153 (.087)	-.058 (.589)	-.242 (.070)
Meaning	-.013 (.889)	.023 (.829)	-.040 (.766)
Comprehension learning	-.030 (.736)	.102 (.339)	-.089 (.510)
Operation learning	-.116 (.198)	.134 (.208)	-.253 (.058)
Versatile approach	-.053 (.553)	.121 (.255)	-.023 (.865)
Learning Pathologies	-.114 (.203)	.034 (.753)	-.273 (.040)
Prediction for success	.071 (.430)	.140 (.189)	.010 (.944)

r= coefficient correlation, P= correlation probability

8.6.1: DISCUSSION

Table 8.33 shows there are no significant relationships between the learning approaches and medical academic achievement for students at traditional university [KFU] and innovative university 1 [AGU]. Thus, the null hypothesis was confirmed for students at these two universities.

For students at UAE, there is a small significant negative relationship between learning pathologies and academic achievement. This result suggests that students who have a higher GPA are more likely to score lower on learning pathologies. The findings of the non-significant relationships between the learning approaches and academic achievement could suggest that learning approaches of Gulf medical students are not necessarily a useful determinant of their performance in medical schools. Thus, it may be that other factors contributed more to students' performance than learning approach. This result does not support the Entwistle model on the segment concerning the relationship between learning approaches and outcome. However,

these results support the findings of Clark (1986), Leiden et al. (1990), Fogarty and Taylor (1997) and Provost and Bond (1997) who found no significant relationships between students' learning approaches to study and their academic performance.

The preceding discussion provides an answer to the research question related to the relationship between learning environment and approaches to study in Gulf medical schools. Moreover, it suggests some recommendations concerning improving the learning environment in order to encourage adopting a deep approach.

8.7: CONCLUSION

It was reported in the last chapter that the students' perceptions of the different issues explored in the questionnaire would be presented under four studies. The objective of this chapter was to look at the data relating to the medical environment and approaches to study. This comparison was based on the type of curriculum adopted in each medical school, traditional vs. problem-based learning. The following conclusions have emerged from comparing the students' perceptions of these topics.

1) Major positive features of a problem-based environment were appreciated by the students. These include: student-centred, stimulating teaching, active learning, competence and confidence development, and an atmosphere conducive to learning (more relaxed atmosphere during lectures, seminars and tutorials, providing opportunities to ask questions). On the other hand, dissatisfaction with the traditional curriculum environment was clearly noted. It was teacher-centred, featuring rigid core courses, an absence of elective courses, and little contact with patients during the initial training. Thus, it is important to introduce elective courses as part of a core curriculum, expose students to patients during their initial training, shift teaching

instruction from being too teacher-centred to being more student-centred. In doing so, students are likely to appreciate the relevance of their discipline more and be active rather than passive learners. It is also important that equal opportunities be provided for students to be involved more in the learning process and that the classroom atmosphere be more relaxed and comfortable with a view to enhancing students' learning.

2) At innovative curriculum universities, some positive teacher characteristics are appreciated such as their being well-prepared for classes and providing constructive criticism. In contrast, at the traditional curriculum university there are some negative teacher behaviours, e.g. being authoritarian, ridiculing students, and displaying anger in class. Therefore, teachers should keep in mind the influence of their personal characteristics on students' learning. It is also important that teachers change their style of teaching to a more collegial style of teaching. Thereby encouraging students' attitude towards their teachers to become more positive. This in turn would have a positive effect on their learning.

3) The type of curriculum does not seem to have any implications on academic self-perception in terms of level of confidence of passing exams, learning about empathy, and feeling of relevancy of what they have been taught. However, both types of curriculum are characterised by their content overload. Thus, it is essential that the large amount of factual information be reduced so students can have time to think critically about the material being learned, and hence maximise their learning.

4) The social environment, in terms of having good friends and a good social life, is quite good at both innovative and traditional curriculum universities. However, there is an absence of a good support system for stressed students. In addition,

innovative curriculum universities have more pleasant accommodation compared with traditional institutions. Thus it is important that good accommodation facilities be provided where lacking, since this could have a positive effect on the learning.

5) It has been shown that the characteristics of the curriculum (traditional vs. problem-based learning) have an influence on students' adopting a particular approach to study. Innovative curriculum universities encourage adopting deeper approaches to study compared with traditional curriculum universities. This could reflect the effect of a relaxed and non-threatening atmosphere, the less strict and didactic method of teaching, and supportive faculties. Therefore it seems crucial to consider the role of teaching and assessment methods and the type of curriculum on students' adoption of a particular learning approach. Shifting the curriculum from being traditional to being more problem-based encourages students to adopt a deep approach, which leads them to develop critical thinking, a major goal of higher education.

6) Students' approaches to study and their perceptions of the learning environment are highly correlated. For example: (a) at the traditional curriculum university, students' high satisfaction with the atmosphere and their academic experience influences their adopting a deep approach; (b) at innovative university 1, students' high satisfaction with their academic development influences their use of the *operation, versatile,* and *achieving* approaches; (c) at innovative university 2, students' high satisfaction with their learning and atmosphere influences their approaches to study, in particular by fostering a deep approach. It is therefore important to vary the teaching methods, strengthen the rapport between teachers and students, provide constructive feedback, and build a relaxed classroom environment in

order to encourage students to adopt the desirable, deep approach to learning and inhibit the undesirable, surface one.

7) The learning approaches and medical academic achievement in terms of the Grade Point Average are not correlated for students at Gulf medical universities. It could be that other factors contributed more to the students' performance. However, it is suggested that further study in this area investigate the influence of learning approaches on a variety of students' achievement indicators to confirm either the existence or absence of such relationships.

In sum, students using the innovative curricula are more satisfied with their learning, teachers, atmosphere, and have a tendency to use a deeper approach than those at the traditional curriculum university. Students at innovative university 1 [AGU] show greater satisfaction with the educational environment than those at innovative university 2 [UAE]. Moreover, there is a strong relationship between students' perceptions of their learning environment and their approach to study.

CHAPTER NINE

STUDY II

EFFECT OF YEAR OF STUDY

9.1: INTRODUCTION

This chapter looks at the influence of year of study on: educational environment, approaches to study, and motivations for entering medical school.

9.2: INFLUENCE OF YEAR OF STUDY ON THE SUBSCALES OF THE DREEM

To explore whether there are significant differences in the learning environment of second and fourth year students, the following hypothesis was tested.

H1: There is no significant difference in the medical learning environment (measured by the DREEM) as experienced by students in the second and fourth year.

The Mann-Whitney test revealed significant differences between students in second and fourth year at KFU. The significant differences existed in their 'perception of teachers', 'academic self-perception', and 'perception of atmosphere'. Therefore, the null hypothesis for subscales 2,3, and 4 is rejected for students at KFU.

At both AGU and UAE universities, the Mann-Whitney tests revealed no significant differences between second and fourth year students in their views of their environment. These findings confirm the null hypothesis for students at AGU and UAE (Table 9.1).

TABLE 9.1: STUDENTS' PERCEPTIONS ON THE SUBSCALE OF THE DREEM (0="STRONGLY DISAGREE", 4="STRONGLY AGREE")

Subscale (/max. score)	KFU (N=126)			AGU (N=90)			UAE(N=57)		
	Mean (SD)	Mean Rank	P-value	Mean (SD)	Mean Rank	P-value	Mean (SD)	Mean rank	P-value
1 perception of learning (/48)									
2nd year	25.96 (6.42)	61	.52	34.08 (5.46)	49	.16	29.80 (5.67)	30	.53
4th year	26.56 (7.51)	65		31.69 (6.38)	41		28.15 (6.75)	28	
2. perception of teachers (/44)									
2nd year	23.15 (6.00)	55	.01	29.46 (6.43)	48	.27	29.74 (5.54)	28	.54
4th year	25.92 (6.36)	72		27.09 (7.98)	42		30.34 (6.01)	30	
3. academic self-perceptions (/32)									
2nd year	18.21 (4.71)	55	.01	21.27 (4.05)	43	.30	20.06 (4.16)	26	.20
4th year	20.06 (5.57)	71		21.65 (5.36)	49		21.50 (3.93)	32	
4. perception of atmosphere (/48)									
2nd year	25.43 (6.53)	56	.04	31.68 (6.64)	50	.08	31.16 (6.05)	27	.41
4th year	27.50 (9.02)	70		28.04 (8.79)	41		31.61 (7.23)	31	
5. social self-perceptions (/28)									
2nd year	14.58 (3.94)	65	.60	15.06 (4.55)	47	.53	13.29 (4.03)	26	.09
4th year	13.92 (5.29)	62		14.00 (5.51)	44		14.73 (4.82)	33	
Overall DREEM (/200)	107.4 (21.8)	57	.05	131.6 (20.8)	49	.22	124.1 (22.5)	27	.41
	114.0 (27.8)	69		122.5 (28.5)	42		126.3 (23.8)	31	

Table 9.2 indicates that about half of second year students and at least 70% of fourth year students at KFU rated their teachers, academic development and learning environment as 'good'[1]. Learning and social aspects were perceived as being 'good' by approximately 50% of both second and fourth year students. At AGU, at least two third of second and fourth year students indicated that their learning, teacher, academic development, and learning environment was 'good'.

[1] The basis for this continuum scale is as follows: 'poor' ranged from '0-25%' of the maximum score, 'not good' ranged from '26-50%', 'good' ranged from '51-75%', and 'excellent' is >75%. In order to indicate the trend of students' views on their climate, the terms 'good' and 'excellent' were combined as 'good'. Similarly, the terms 'poor' and 'not good' were combined as 'not good'.

TABLE 9.2: SUMMARY OF THE MEAN SCORES OF THE FIVE SUBSCALES OF THE DREEM

University		Subscale 1: Students' Perception of Learning (No. of items 12, Max. Score 48)					
		Poor <13	Not Good 13-24	Good 25-36	Excellent >36	Mean	Mean/Max.
KFU	Second	3.30	38.30	56.70	1.70	25.97	54.10%
	Fourth	3.00	31.80	59.10	6.10	26.56	55.33%
AGU	Second	0.00	4.30	57.40	38.30	34.09	71.02%
	Fourth	0.00	14.00	58.10	27.90	31.70	66.04%
UAE	Second	0.00	19.40	71.00	9.70	29.81	62.10%
	Fourth	0.00	26.90	73.10	0.00	28.15	58.65%
University		Subscale 2: Students' Perception of Teachers (No. of items 11, Max. Score 44)					
		Poor <12	Not Good 12-22	Good 23-33	Excellent >33	Mean	Mean/Max.
KFU	Second	1.70	46.70	46.70	5.00	23.15	52.61%
	Fourth	0.00	25.80	63.30	10.60	25.92	58.91%
AGU	Second	0.00	12.80	59.60	27.70	29.47	66.98%
	Fourth	4.70	23.30	53.50	18.60	27.09	61.57%
UAE	Second	0.00	12.90	51.60	35.50	29.74	67.59%
	Fourth	0.00	7.70	57.70	34.60	30.35	68.98%
University		Subscale 3: Students' Academic Self-perception (No. of items 8, Max. Score 32)					
		Poor <9	Not Good 9-16	Good 17-24	Excellent >24	Mean	Mean/Max.
KFU	Second	0.00	31.70	58.30	10.00	18.22	56.94%
	Fourth	3.00	19.70	62.10	15.20	20.06	62.69%
AGU	Second	0.00	10.60	70.20	19.10	21.28	66.50%
	Fourth	2.30	11.60	55.80	30.20	21.65	67.66%
UAE	Second	0.00	9.70	77.40	12.90	20.06	62.69%
	Fourth	0.00	7.70	57.70	34.60	21.50	67.19%
University		Subscale 4: Students' Perception of Atmosphere (No. of items 12, Max. Score 48)					
		Poor <13	Not Good 13-24	Good 25-36	Excellent >36	Mean	Mean/Max.
KFU	Second	3.30	38.30	53.30	5.00	25.43	52.98%
	Fourth	7.60	18.20	59.10	15.20	27.50	57.29%
AGU	Second	0.00	19.10	57.40	23.40	31.68	66.00%
	Fourth	4.70	27.90	41.90	25.60	28.05	58.44%
UAE	Second	0.00	16.10	71.00	12.90	31.16	64.92%
	Fourth	0.00	19.20	42.30	38.50	31.62	65.88%
University		Subscale 5: Students' Social Self-perception (No. of items 7, Max. Score 28)					
		Poor <8	Not Good 8-14	Good 15-21	Excellent >21	Mean	Mean/Max.
KFU	Second	5.00	45.00	45.00	5.00	14.58	52.07%
	Fourth	12.10	36.40	45.50	6.10	13.92	49.71%
AGU	Second	4.30	46.80	40.40	8.50	15.06	53.79%
	Fourth	11.60	34.90	51.20	2.30	14.00	50.00%
UAE	Second	9.70	54.80	32.30	3.20	12.29	43.89%
	Fourth	7.60	26.90	65.40	0.00	14.73	52.61%

The majority (>73%) of second and fourth year students at UAE perceived their learning, teachers, academic development, and atmosphere as being 'good'. One third of second and two third of fourth year students perceived their social aspect of their environment as being 'good'.

University		TABLE 9.3: OVERALL- DREEM DUNDEE READY EDUCATION ENVIRONMENT MEASURE (NO. OF ITEMS 50, MAX. SCORE 200)							
		Poor <51	Not Good 51-100	Average 101-125	Good 126-150	Very Good 150-175	Excellent >175	Mean	Mean/Max.
KFU	Second	0.00	36.70	43.30	18.30	1.70	0.00	107.35	53.68%
	Fourth	0.00	27.30	33.30	34.80	3.00	1.50	113.97	56.99%
AGU	Second	0.00	6.40	34.00	40.40	17.00	2.10	131.57	65.79%
	Fourth	2.30	18.60	30.20	30.20	18.60	0.00	122.85	61.43%
UAE	Second	0.00	19.40	32.30	45.20	3.20	0.00	124.06	62.03%
	Fourth	0.00	15.40	23.10	50.00	11.50	0.00	126.35	63.18%

Table 9.3 shows that only 20% of second year students and 40% of fourth year students at KFU perceived their environment as being 'good'. About half of second and fourth year students at AGU and UAE felt the same.

9.2.1: DISCUSSION

At KFU, second and fourth year students showed a positive attitude towards their teachers, academic development, and atmosphere (mean >22, 16, 24 respectively). Despite that, students in fourth year showed significantly higher positive scores in their perception of teachers, academic self-perception, and of atmosphere compared with students in second year. The high satisfaction of fourth year students on these subscales may be explained by the fact that in the fourth year students are exposed to a clinical discipline, where they can see the relevance and the integration of their theoretical studies. This, in turn, could enhance their satisfaction with the academic life.

In addition, fourth year students may experience a prolonged period of contact with their teachers compared with those in second year, who may be struggling to adjust to the university environment and to interact with expatriate teachers who come from different cultures and educational backgrounds. It should not be forgotten that medical students admitted to Gulf medical schools are young students (e.g. the average age for second years at KFU is 20.5 years) who have come straight from high school. The case is different in different countries around the world, e.g. in the USA students normally finish a bachelor degree in one of the science fields before joining medical schools.

The low level of satisfaction of second year KFU students may be explained by the nature of the traditional curriculum at their university with its multi-discipline courses, lacking immediate relevance, coupled with an overload of material. This in itself can lead to stress and dissatisfaction among second year students. This finding is consistent with the studies of Quirk et al. (1987), Moore-West et al. (1989), Coles (1994a; 1994b) which show that content overload and not immediately relevant material contribute to the stress and dissatisfaction of students during the pre-clinical years. However, the results of the present study contradict the findings of Huebner et al. (1981) that third and fourth year medical students are likely to report more stress and dissatisfaction with their learning environment due to content overload, inadequate feedback, and poor quality of interpersonal relationships, than those in first and second year.

Fourth year students at KFU reported negative scores on social self-perceptions (mean < 14) compared with those in second year who indicated positive score on the social aspect of their environment (mean > 14). Negative scores such as

this for fourth year students, might reflect the fact that students in fourth year normally experience a heavy academic load and long hours of clinical attachment that limit their social activities compared with those in second year. This result supports the studies of McMurray et al. (1980); Quirk et al. (1987); and Fain and Schreier (1989) who claimed that a reduction in the participation of social activities and social isolation due to the demands of academic workload contributed to students feeling of stress and dissatisfaction with their learning environment.

The relatively higher positive score of fourth year students at the traditional [KFU] university on the 'perception of learning' subscale compared with those in second year, could reflect the effect of students having closer contact with patients. This could help them to be more involved with real health problems, and consequently they will have opportunities to elaborate on their knowledge. This could encourage students to develop their confidence about their learning and future career. It is therefore essential to expose students during their early training to patients in order to enhance their interest and elaboration of what they have been taught from a theoretical onto a factual footing. It is also important to integrate the basic sciences with clinical sciences, so students can feel the relevance of their courses. This will also enhance their motivation in their subjects.

Moreover, it seems that majority of students at KFU believe that there is room for improvements in many aspects of the overall learning environment. One plausible approach for such improvement could be through moving the curriculum from being teacher-centred towards being more student-centred, and putting more emphasis on the integration of basic science with clinical science.

Second and fourth year students at both AGU and UAE shared similar positive views on all aspects of their learning environment. This may be explained by the fact that students in such problem-based universities in Bahrain and the United Arab Emirates are exposed to an integrated curriculum and clinical environment from the first year of the medical programme. With such early exposure, students may feel the relevance of their study and the integration of basic and clinical sciences, which in turn enhances the sense of satisfaction with their learning environment.

The above findings are in accordance with those of Harth et al. (1992) who found that medical students perceived their learning environment positively when they had a relaxed teaching environment, experienced enthusiasm in teaching, and where there was encouragement of students' participation, and adequate preparation.

There is a general trend for second year students at AGU to report higher positive scores on all DREEM subscales, except for academic self-perception compared with fourth years. The relatively lower positive scores on this subscale could reflect a struggle to adjust to the new academic experience of problem-based learning. Students at AGU are obliged to make a major transition from large, teacher-based classes with didactic teaching during pre-university education, to a more independent, problem-based learning in a student-centred environment when they enter medical school. Thus, it may be the adjustment to the new environment that contributes to the lower score on the 'academic self-perceptions' of second year students at AGU.

Fourth year students at AGU recorded slightly higher positive scores on academic self-perception than second year students. By fourth year, students have adapted to the university problem-based environment, and understood both the

requirements of their study, and their role in the learning process. The lower positive scores of fourth years on the remaining subscales could reflect the effect of lack of a university teaching hospital at AGU. During fourth year, students spend a considerable amount of time on clinical attachment in hospitals or in community-based work. The AGU does not have its own university teaching hospital. Clinical training of medical students is undertaken at governmental hospitals and health centres. In this situation, it is sometimes difficult to co-ordinate the schedule for such clinical practice (interview with a faculty member at AGU). It follows then that students in this situation may feel uncomfortable with their environment in this respect. Studies such as Oswald (1993) and Murray et. al. (1999) found that the training students experience during their period of clinical attachment either at a teaching hospital or in a general practice situation may affect their degree of satisfaction with their learning environment. This may be so, as some clinical skills are taught more effectively in general practice, while others are taught better in hospitals. More than two thirds of second and fourth year students indicated that their learning, teachers, academic development, and learning environment was 'good'. The social aspect of students learning environment was reported consistenly as 'good' by over half of the students. The mean scores of second and fourth year students indicated that there was a room for improvement in certain aspects of the learning environment. One important aspect involves establishing a university teaching hospital for the AGU in order to provide training opportunities for students in ward teaching.

At UAE, both second and fourth year students showed similar positive views regarding all aspects of their climate, except 'social self-perceptions'. Second year students were less enamoured with the social aspect of their environment than fourth

years. This may reflect the struggle for second years to adopt to university life. It is therefore important to establish a good support system to deal with students' social as well as academic problems.

Fourth year students were less pleased with the learning aspect of their environment than second years. Abdulrazzaq and Qayed (1991) claimed that the curriculum at the medical school of UAE has been deviating markedly from problem-based teaching toward the classical didactic teaching. This may be the reason for students' dissatisfaction with their learning and their expectations from such a curriculum.

The majority of second and fourth year students viewed their learning, teachers, and academic development in a positive light. However, the findings showed that there was a room for improvement in many aspects of the overall climate. Medical schools need to put more emphasis on those factors that foster problem-based learning. For example, it is recommended that training workshops be provided for teachers on how to instruct/teach on problem-based courses.

The DREEM did not detect differences between second and fourth year students at innovative universities. It may be that the learning context in the innovative curriculum is no different for students in second or fourth year and that the teaching method, assessment and examination methods for second and fourth year are similar.

The above discussion presents an answer to the research question regarding the influence of level of study on perceptions of learning environment. In addition, it provides some suggestions for improving the climate of medical schools in the Gulf region.

9.3: INFLUENCE OF YEAR OF STUDY ON STUDENTS' APPROACHES TO STUDY

To test whether there are significant differences in student approaches to study between second and fourth years, the following hypothesis was tested.

H2: There is no significant difference in student approaches to study (measured by the ASI) between students in the second and fourth year.

The Mann-Whitney tests revealed no significant differences in the learning approaches used by second and fourth year students in KFU, AGU, and UAE. These results confirm the null hypothesis for students at the three universities (Table 9.4).

TABLE 9.4: STUDENTS' APPROACHES TO STUDY (O= "STRONGLY DISAGREE", 4= "STRONGLY AGREE")

Scale	KFU (N=126)			AGU (N= 90)			UAE (N= 57)		
	Mean (SD)	MR	P-value	Mean (SD)	MR	P-value	Mean (SD)	MR	P-value
Achieving (/24)									
2nd year	15.2 (3.45)	58	.090	17.8 (2.87)	49	.17	17.1 (3.12)	29	.84
4th year	16.3 (4.02)	69		16.9 (3.21)	42		17.0 (3.11)	29	
Reproducing (/24)									
2nd year									
4th year	15.4 (3.53)	59	.15	16.9 (2.64)	48	.30	17.3 (2.35)	31	.35
	16.3 (3.09)	68		15.8 (4.22)	43		16.6 (3.28)	27	
Meaning (/24)									
2nd year	15.1 (3.64)	58	.08	18.0 (3.66)	49	.20	17.1 (3.93)	32	.17
4th year	16.3 (4.39)	69		16.9 (3.76)	42		16.2 (3.49)	26	
Comprehension learning (/24)									
2nd year	16.5 (2.70)	66	.50	16.1 (2.95)	49	.23	15.7 (3.11)	27	.32
4th year	15.9 (3.80)	61		15.4 (3.25)	42		16.0 (2.45)	31	
Operation learning (/24)									
2nd year	13.5 (3.39)	63	.81	15.6 (3.25)	48	.34	15.4 (3.22)	31	.23
4th year	13.7 (3.45)	64		15.1 (4.01)	43		14.4 (3.51)	26	
Versatile approach (/48)									
2nd year	32.3 (6.10)	60	.26	37.4 (6.00)	49	.24	35.9 (6.50)	30	.63
4th year	33.8 (8.08)	67		35.5 (6.74)	42		35.7 (5.13)	28	
Learning pathology(/48)									
2nd year	27.9 (6.07)	62	.57	29.1 (5.24)	49	.16	29.5 (4.50)	32	.11
4th year	28.4 (5.22)	65		27.6 (6.01)	41		27.6 (5.95)	25	
Prediction for success (/120)									
2nd year	65.2 (6.77)	61	.54	70.6 (6.23)	47	.62	68.4 (7.64)	29	.64
4th year	66.7 (9.55)	65		69.9 (7.06)	44		68.8 (6.71)	29	

9.3.1: DISCUSSION

A general consensus exists in higher education that the encouragement of a deep approach is more desirable than a surface approach (Newble and Entwistle, 1986; Ramsden, 1992). That is, emphasizing the understanding of a concept is more desirable than the reproduction of facts. The results of the present study indicate there are no statistically significant differences in approaches to learning between second and fourth year medical students at KFU, AGU, and UAE. Use of the same learning approaches by second and fourth year students could be explained by the fact that at both levels faculty members are using similar teaching methods.

The above findings are consistent with the findings of Clarke (1986), Pinto and Geiger (1991), Paul et al. (1994), and Hilliard (1995) that there is no significant change with seniority in students' approaches, learning styles, and learning preferences[2].

There was a general trend for fourth year students at KFU to show relatively higher positive scores on all scales of the ASI, except for comprehension, compared with second years. The fourth year students in such a traditional curriculum university showed high positive scores on *meaning* orientation, *operation* and *versatile* scales, which indicate that they have deeper approaches than second year students. One possible explanation for such a result is the effect of their learning context. As noted in section 9.2, fourth year students were more satisfied with their learning environment, e.g. their academic development, and their teachers than second year students. Showing students the vocational relevance of the subject matter is likely to encourage the use of a deep approach (Newble and Entwistle, 1986). It may that the

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[2] Learning preference is the choice of one learning situation/condition over another (Paul et al.,1994).

relevance of the pre-clinical theoretical disciplines becomes more obvious during the clinical fourth year of training, thus explaining the higher scores by fourth years at KFU. It would seem beneficial to explain to students the relevance of their courses, e.g. the integration of basic and clinical courses.

Fourth year students also had higher positive scores on *reproducing* orientation than those in second year at KFU. This may be explained by the heavy demand of course work during the clinical year, i.e. fourth year. The general trends suggest that as students move to a clinical setting in a traditional curriculum, they tend to have higher positive scores in most of their approaches to study. The results of KFU students' scores, though not significant, is in line with Coles' (1985) study, which claims that students' approaches to study do change with seniority. Such changes have been shown by Newble and Gordon (1985) to be towards a deeper approach. The above result of KFU students, then, is consistent with Newble and Gordon (1985) that as students proceed towards clinical studies, they tend to change to a deeper approach.

Moreover, the above results show that the scores on the reproducing scale also tend to increase with seniority. This result may be explained by the presence of a *narrow approach*, i.e. the need for both memorising and understanding, that has been assumed to exist in Asian students (Kember and Gow, 1990; Kember, 1996).

The finding of a higher positive score on the *reproducing* approach for second year students at KFU may reflect the effect of their previous learning experiences in secondary schools. Ramsden (1992) claimed that the students' experience of a school environment that encouraged surface approaches leads to the persistence of such approaches in the first and following years of their university study. As indicated earlier, in a collective society (Hofstede, 1986) such as in Saudi Arabia, the

educational system, at least at pre-university level, emphasizes a teacher-centred, didactic style of teaching and learning, and rote memorization. Thus, it may be the habitual tendency to use a surface approach to study that explains why in the present study second year students scored higher on *reproducing* approach. Therefore, it is advisable to emphasis the role of students in the learning process. Moving towards assessment types that encourage a high level of mental manipulation is also recommended. This would foster a deep approach rather than reproducing approach.

At AGU, there is a general trend for second year students to show higher positive scores on all scales of the ASI compared to fourth years. Similarly, there is a general trend for second year students at UAE University to show higher positive scores on all scales of ASI, except for the *comprehension* and *prediction of success* scales. The trend is for most scales to decline as AGU and UAE students proceed from second to fourth year, with a tendency to show lower positive scores on *deep* approach as well as *reproducing* approach as they move toward more clinical years. The results of students' scores at AGU and UAE are in conflict with the findings of Newble and Gordon (1985), Paul et. al. (1994), and Jayawickramarajah and Coles (1991) which show a more desirable approach to learning developing with progression through school.

The presence of high positive scores, though not significant, on the *reproducing* scale for second year students at both AGU and UAE compared with their counterparts in fourth year may be due to the large factual information content in the second year curriculum. These findings are consistent with Chessell (1986) that medical students in their second year were more liable to score higher on the *reproducing* scale because of the large factual information element in the medical

field. Ramsden (1992) noted that department demands for a heavy workload encourage students to adopt a surface approach. Thus, it may be the effect of content overload that explains why in the present study students at second year at AGU and UAE had a higher positive score on the *reproducing* approach. A reduction in factual knowledge in the curriculum content would allow students the opportunity to better understand their subject.

It seems that comparable studies (e.g. Newble and Gordon, 1985; Tooth et al., 1989) did not show consistent differences. Newble and Gordon (1985) found that students in the senior years of medical school had higher *meaning* orientation or deep learning approaches. Tooth et al. (1989) found that throughout medical study students showed declining deep and strategic (achieving) approaches and increasing surface (rote-learning) approaches. So, one could argue that there is no clear-cut conclusion regarding the influence of seniority on adopting a particular approach to study.

It was reported in chapter 8 that there are significant differences between students in different learning contexts, specifically under the traditional and innovative curricula. This indicates a variation in students' learning approaches in different contexts. However, the finding of the present chapter shows no marked significant differences in students' approaches to study as they progress in their studies. This could suggest that students demonstrate a consistency in their learning approaches at different levels of their studies. Thus, the issue of variability and consistency in learning style may need further investigation.

The above discussion provides an answer to the research question concerning the characteristics of learning approaches of second and fourth year medical students

in the Gulf region. It is also furnishes some recommendations to foster the adoption of the deep approach to study.

9.4: INFLUENCE OF YEAR OF STUDY ON STUDENTS' MOTIVES FOR ATTENDING MEDICAL SCHOOLS

To find out whether there are significant differences between second and fourth year students in their motives for attending medical school, the following hypothesis was tested.

H3: There is no significant difference in motivation to study medicine between students in second and fourth year.

The Mann-Whitney test (Table 9.5) revealed significant differences between second and fourth year on two motives: the desire to be with friends and the influence of family career tradition for students at KFU.

Second year students at KFU accorded higher positive scores on the importance of these two motives. No significant differences were found between second and fourth year students on their motives for attending medical school at both AGU and UAE.

TABLE 9.5: STUDENTS' MOTIVES FOR ATTENDING MEDICAL SCHOOLS (0= "Not Important At All", 4= "Very Important")

Statement	KFU (N=126)			AGU (N=90)			UAE (N=57)		
	Mean (SD)	MR	P	Mean (SD)	MR	P	Mean (SD)	MR	P
1. The desire of my family members for me to pursue a career in medicine									
2nd year	2.48 (1.29)	64	.86	2.91 (1.29)	48	.27	2.35 (1.47)	32	.16
4th year	2.42 (1.37)	63		2.65 (1.37)	42		1.81 (1.52)	26	
2. My desire to be with my friend in the same college									
2nd year	1.43 (1.45)	72	.01	.553 (1.03)	46	.69	.677 (.908)	31	.15
4th year	.742 (1.29)	56		.419 (.879)	45		.385 (.803)	26	
3. To follow my family career tradition which is medicine									
2nd year	1.22 (1.37)	72	.01	.681 (1.23)	46	.75	.710 (1.18)	32	.10
4th year	.606 (1.13)	56		.465 (.908)	45		.346 (.977)	26	
4. To fulfil my internal desire to help sick people									
2nd year	3.18 (.833)	58	.08	3.53 (.803)	45	.88	3.61 (.843)	30	.50
4th year	3.39 (.892)	68		3.49 (.935)	46		3.50 (.860)	28	
5. The high expected income for doctors motivated me to pursue medicine									
2nd year	2.15 (1.03)	66	.50	1.72 (1.26)	46	.89	1.65 (1.08)	28	.67
4th year	1.97 (1.25)	61		1.67 (1.10)	45		1.77 (1.14)	30	
6. Studying medicine will provide me with high social prestige									
2nd year	2.52 (.947)	59	.19	2.51 (1.42)	46	.78	2.55 (1.50)	27	.40
4th year	2.68 (1.24)	67		2.62 (.976)	45		3.00 (.979)	31	
7. To cover the shortage in national/local physicians									
2nd year	2.38 (1.16)	63	.98	2.11 (1.43)	45	.90	3.10 (1.04)	29	.93
4th year	2.33 (1.39)	64		2.14 (1.33)	46		3.08 (1.05)	29	
8. A personal desire to pursue a career that is intellectually challenging									
2nd year	2.57 (1.21)	61	.53	3.23 (.982)	50	.07	2.77 (1.17)	26	.14
4th year	2.65 (1.31)	65		2.84 (1.13)	41		3.15 (1.12)	32	
9. A past chronic family illness motivated me to study medicine									
2nd year	1.82 (1.44)	68	.15	1.36 (1.43)	47	.66	1.14 (1.14)	32	.09
4th year	1.44 (1.54)	59		1.26 (1.49)	44		.962 (1.34)	25	

MR= Mean Rank, P= P-value

9.4.1: DISCUSSION

Before discussing the above results, it should be pointed out that in the above table, the second, fourth, and eighth motives could be described as intrinsic motives. As reported earlier in chapter four, intrinsic motives seem to be of greater importance than the extrinsic motives of, e.g., satisfying a family member's desires and career traditions, earning a good income, having high social prestige, covering the shortage in local physicians, or the experience of chronic illness in family members.

The significant differences between second and fourth year on the second motive "my desire to be with my friend in the same college" and the third motive "to follow my family career tradition which is medicine" for students at KFU suggest that these students enter medical university with strong intrinsic motivations. They want to pursue a career that fulfils their internal desire to help people, that is intellectually challenging, but also provides them with high social status and they see studying medicine as such a career.

They also feel the pressure of external motives such as meeting the desire of their family to study medicine and satisfying the need of their countries in terms of covering the shortage of local physicians. These two external motives may reflect the effect of some features of this society, in which family obedience and a strong sense of nationalism may have a strong influence. However, the marked significance in students' motives regarding the second motivation, "my desire to be with my friend in the same college", and third motivation, "to follow my family career tradition which is medicine", suggest that as students proceed through their course of studies the desire to be in the same college close to friends and the response to the family pressure to follow a family career tradition become less important motives. Hofstede

(1986; 1991) claimed that in a masculine society, as is the case in the Gulf region, the family role has a significant influence on individual decision. Thus, it may be cultural specificity that influences students to select one field of study over the other.

Although there is an absence of significant differences between second and fourth year students at both AGU and UAE which suggests that students' motivation for pursuing medical study remains significantly unchanged with seniority, there is a general trend discernible in students' views of their motives. Students at both AGU and UAE enter medical school with strong intrinsic motives. They have a strong desire to help sick people and to pursue a career that is intellectually challenging. However, they indicate that they want to obey their family desire to pursue a career in medicine. As students move toward seniority, though no significant differences were found, they wish to pursue a career that provides them with a high social status and help solve the shortage of local physician staff in their countries. This indicates that students' motives shift, though not significantly, from being intrinsic towards being more extrinsic. These results may be explained by the fact that as students mature, they realize their actual needs better.

Hofstede (1991) indicated that in a collective society, as is the case in the Gulf region, the main motives for getting a degree qualification are to gain good income and high social prestige. Therefore, this may be the reason in the present study for students at UAE recognizing the important of these two motives.

The results of the present study concerning students' motives at KFU, AGU and UAE are somewhat in conflict with the findings of Robbins et al. (1983) and Powell et al. (1987). Robbins et al. (1983) studied the achievement motivation in third and fourth year medical students and found they perceive their role as healers and

compassionate human beings dedicated to science and helping others more important than the role of money in their pursuit of studying medicine. Powell et al. (1987) looked at students' motivation at different stage of medical training. They found that students' interests are shifted from being concerned with prestige, money, and success during the first year towards a more vocational outlook, in which the concern is greater for the relief of suffering than prestige, money, and success, during their final year of their studies. Therefore, it is suggested that further studies in this area investigate students' motivation across different years of their studies to find out whether their motives change over time. It is important for medical students to maintain their intrinsic motives throughout their study.

The preceding discussion provides an answer to the research question regarding the extent the year of study can affect the motives for pursuing medicine for students in the Gulf region.

9.5: CORRELATION BETWEEN STUDENTS' MOTIVATION AND THE ASI

In order to examine the relationships between students' motivation and their approaches to study, the following hypothesis was tested.

H4: There is no significant correlation between the motives for entering medical university and approaches to study for second and fourth year medical students.

Correlations were computed between scores on the ASI and the motivation using Spearman's rho test. Table 9.6 shows the correlation coefficients (r) between ASI scale scores and motivation scores.

Table 9.6 shows that the extrinsic motivation was statistically negatively correlated with the *versatile* scale for second year students at KFU. For fourth year students, the intrinsic motivation was significantly positively correlated with the *meaning*, *prediction for success*, and *versatile* approaches, while extrinsic motivation was significantly positively correlated with the *comprehension* and *learning pathology* scales.

The table also shows that the intrinsic motivation was strongly correlated with the *meaning*, while extrinsic motivation was strongly correlated with the *learning pathology* scale. These results are evidence for confirming the null hypothesis for second year students at KFU university for the *versatile* scale. In addition, the above results confirm the null hypothesis for fourth year students at KFU university for the *meaning, prediction for success, versatile, comprehension,* and *learning pathologies* scales.

At AGU University, the extrinsic motivation was strongly positively correlated with the *operation* and *learning pathologies* scales for second year students only. This result confirms the null hypothesis for second year students at AGU university for the *operation* and *learning pathologies* scales.

At UAE University, the intrinsic motivation was significantly positively correlated with the *achieving* scale for second year students. For fourth year students, the intrinsic motivation was strongly positively correlated with the *learning pathologies* scale, while extrinsic motivation was significantly positively correlated with the *meaning* scale.

TABLE 9.6: CORRELATION COEFFICIENTS OF STUDENTS' MOTIVATION WITH THE ASI SCORES

scales	KFU		AGU		UAE	
Achieving	Intrinsic r (p)	Extrinsic r (p)	Intrinsic r (p)	Extrinsic r (p)	Intrinsic r (p)	Extrinsic r (p)
2nd	.070 (.593)	.070 (.594)	.185 (.214)	.285 (.052)	.374 (.038)	.220 (.234)
4th	.175 (.159)	.022 (.864)	.247 (.111)	.087 (.579)	-.034 (.871)	.151 (.461)
Reproducing						
2nd	-.096 (.466)	-.200 (.126)	.061 (.685)	.266 (.070)	-.075 (.687)	.009 (.963)
4th	-.175 (.160)	-.060 (.635)	-.067 (.669)	.078 (.617)	.359 (.072)	.282 (.162)
Meaning						
2nd	.059 (.657)	-.184 (.159)	.050 (.739)	.054 (.719)	.043 (.819)	-.112 (.548)
4th	.344 (.005)	.053 (.674)	.172 (.270)	-.129 (.410)	.235 (.247)	.530 (.005)
Comprehension						
2nd	.183 (.162)	.050 (.702)	.079 (.596)	.190 (.202)	.130 (.487)	-.179 (.335)
4th	.239 (.053)	.281 (.022)	.211 (.175)	-.261 (.091)	.309 (.124)	-.086 (.677)
Operation						
2nd	.011 (.934)	.123 (.348)	.232 (.117)	.432 (.002)	.332 (.068)	.141 (.448)
4th	.241 (.051)	.077 (.540)	.288 (.061)	-.077 (.622)	.309 (.125)	.086 (.674)
Versatile approach						
2nd	-.59 (.656)	-.255 (.049)	.159 (.284)	-.042 (.780)	.314 (.085)	.064 (.731)
4th	.272 (.027)	.014 (.911)	.247 (.110)	-.246 (.112)	.162 (.429)	.322 (.109)
Learning pathologies						
2nd	.131 (.317)	.099 (.451)	.119 (.425)	.584 (.000)	.015 (.935)	-.152 (.415)
4th	.045 (.722)	.300 (.014)	.121 (.441)	.112 (.475)	.409 (.011)	.227 (.266)
Prediction						
2nd	.036 (.784)	-.096 (.466)	.101 (.498)	-.206 (.166)	.316 (.083)	.170 (.361)
4th	.281 (.022)	-.025 (.845)	.296 (.054)	-.155 (.320)	-.109 (.596)	.134 (.515)

9.5.1: DISCUSSION

At KFU, second year students who had a higher score on extrinsic motivation were more likely to score less on the *versatile* scale. Fourth year students who scored higher on intrinsic motivation tended to have a high score on the *meaning* orientation. Their motives are to pursue a challenging career and to help sick people. Such intrinsic motives influence the use of the *meaning* orientation. In doing so, they tend to rely on a deep approach, seeking the meaning of the subject matter, and are motivated by an interest in topics and courses. This result is consistent with the

findings of Entwistle (1996) that students with academic intrinsic orientation, the pursuit of a subject for its own sake, tended to have a *meaning* orientation.

In addition, fourth year students who scored higher on intrinsic motivation tended to have higher score on *prediction for success*. This result supports the claim of Entwistle (1997) that both the *deep* and *strategic (versatile)* approaches are associated with 'hope for success'.

Extrinsic motivation was found to be correlated significantly and positively with *learning pathologies* for second year students at AGU and fourth years at KFU. This indicates that students who have strong extrinsic motives, e.g. family pressures, will tend to have more *learning pathologies*, i.e. *reproducing, improvidence,* and *globetrotting*. In doing so, they tend to use a superficial approach to study, fail to see the overall picture, and tend to prefer clear guidelines for the syllabus and what is required for assessments. In addition, they tend to jump to conclusions prematurely and to generalise without adequate evidence. These results confirm the finding of Beaty et al. (1997) that students with academic extrinsic orientation tended to be *syllabus bound*.

Intrinsic motivation was found to be significantly and positively correlated with the *achieving* approach for second year students at UAE. Students enter the university with strong intrinsic motives, e.g. helping sick people, and pursue a career that is a challenge. They rely on *achieving* orientation, where they tend to work hard, and are well-organized in their study methods, and have high hopes of success.

In contrast with the above results, fourth year students at UAE who have a higher score on intrinsic motivation tend to have higher scores on *learning pathologies*, while those who have higher scores on extrinsic motivation tend to have

higher scores on *meaning*. This may be explained by the features of their curriculum, in which there is an emphasis on problem-based learning. In such a curriculum students are exposed to real health problems, in which they are required to collect relevant information, e.g. the cause, symptoms, and management. In such a situation, students seek information from different sources such as libraries, health personnel and teachers. In doing so, they tend to use a fast track approach to solving the academic task and they see relying on *reproducing* orientation, an emphasis on facts and details in their study, and seeking generalization as the shortest route. Therefore, it is important to provide students with training workshops on how to search for relevant information, e.g. by using the Internet. In doing so, students' curiosity and interest in their subject will be fostered.

On the other hand, fourth year students with extrinsic motivation tend to use a *deep* approach. One possible explanation for such a result is the importance of responding to extrinsic motives, e.g. the family tradition of doctors, which leads them to work hard and use a deep approach.

This could imply that extrinsic motivation influences students at UAE to adopt a deep approach. This result represent a diversion from what is known in the literature (Franson, 1977; Biggs, 1988) that a *deep* approach is influenced by intrinsic motivation while a *reproducing* approach is influenced by extrinsic (instrumental) motivation. In sum, the above discussion shows that cultural aspects in the Gulf region, e.g. the role of family and fiends, play a major role in shaping the motivation (extrinsic and intrinsic) for students to pursue their study and that such aspects consequently influence their learning approaches to study.

9.6: CONCLUSIONS

There are several important conclusions that can be drawn from the findings.

1) There was no marked change in students' approaches to study for all three universities. This raises the issue of the possibility of consistency of learning styles regardless of the effect of the year of study. On other words, it could be an inherited feature of the students. Another plausible conclusion is that teaching methods and/or assessment types are similar for second and fourth years.

2) The data shows that there were variations in students' perceptions of learning environment between second and fourth year students at KFU. Fourth year students indicated more satisfaction with their environment, namely with their teachers, academic self-perception, and atmosphere than second year students. The experience of a prolonged period of student-teacher contact, the exposure to ward teaching, and the interaction with patients contributed to the high satisfaction of fourth year students with their learning environment. Early exposure to working with patients is recommended to enhance students' satisfaction with their environment.

3) Curriculum content overload and non-integrated material with lack of relevance to the subject matter more likely contributed to the low satisfaction of second year students using the traditional curriculum. A curriculum review and the integration of disciplines is recommended.

4) The data shows that there are consistencies in the perceptions of second and fourth year students at both innovative universities regarding their learning environment. Establishing a good support system for stressed students, having a teaching hospital attached to medical schools, reducing the amount of factual

knowledge, and ensuring the application of a problem-based curriculum would be positive steps in enhancing the educational climate.

5) The results reflect the high sensitivity of the DREEM to detecting changes in the learning environment, particularly in the traditional context. However, the similar views between second and fourth year students using innovative curricula could be attributed to the similar learning context, in terms of teaching methods and assessment types used for second and fourth years.

6) It appears that there are consistencies in the perceptions of both second and fourth year students across the three universities regarding their motives for studying medicine. The desire to help sick people and to pursue a career that is intellectually challenging with a high social status came foremost. The role of family tradition and friends are of less importance across the three universities. The influences of these two motives declined as students proceeded through their studies at KFU. Thus, students' intrinsic motivation appears to be consistent regardless of seniority. Therefore, students should be made more aware of the importance of intrinsic motivation for maintaining long-term learning towards pursuing medicine.

Finally, motivations for pursuing medicine and the approach to study are highly correlated. However, there were no general conclusions on which specific type of motivation, intrinsic or extrinsic, will influence a particular learning approach. It is important that students be made more aware of the role of a deep approach in enhancing the learning and the role of both intrinsic and extrinsic motivations in adopting such an approach.

CHAPTER TEN

STUDY III

ENGLISH LANGUAGE STRATEGIES AND ATTITUDES TOWARDS LEARNING ENGLISH

10.1: INTRODUCTION

This chapter investigates the relationships between English language proficiency and overall academic medical course grade (achievement); students' learning strategies used to study English as a second language; the relationships between students' approaches to study and their learning strategies used to study English as a second language; the relationship between students' language learning strategies and English language proficiency; comparisons of students' attitude toward learning English language; the relationships between English language proficiency and students' age, motivation, and attitude towards the English learning environment.

10.2: THE RELATIONSHIP BETWEEN ENGLISH LANGUAGE PROFICIENCY GRADES AND THE OVERALL ACADEMIC MEDICAL COURSE GRADE (ACHIEVEMENT)

In order to find out if there is a relationship between students' English language proficiency grades in terms of their General Grade Point Average (GPA) and their GPA for medical courses, the following hypothesis was tested.

H1: There is no significant correlation between English language proficiency grades (measured by the GPA) and the overall academic medical course grade (achievement) (measured by the GPA) for medical students in the GCC.

Correlations were computed between scores on the GPA for English language proficiency and the GPA of medical courses, using Spearman's rho test (Table 10.1). The table shows that there were positive, significant correlations between the GPA for English language and the GPA for medical courses for students at KFU and AGU

universities. These findings are evidence for rejecting the null hypothesis for students at KFU and AGU. For students at UAE, the correlation was not significant.

TABLE 10.1: CORRELATION BETWEEN GPA OF ENGLISH LANGUAGE PROFICIENCY GRADE AND GPA OF MEDICAL COURSES

	Grade Point Average (GPA) for English language		
	KFU (N=126) r (P)	AGU (N=90) r (P)	UAE (N=57) r (P)
Grade Point Average (GPA) for Medical courses	.481 (.000)	.328 (.002)	.186 (.166)

r= coefficient correlation, P= correlation probability

10.2.1: DISCUSSION

The presence of a positive, significant correlation between medical performance and English language performance for students at KFU and AGU shows the important impact of English on students' performance. Students who are good in English are more likely to do better in their courses. This finding is in agreement with what has been found in other medical schools in the Gulf countries, e.g. El-Hazmi et al. (1987), Ahmed et al. (1988), Alfayez et al. (1990), Hassan et al. (1995). It is also consistent with findings in other countries, e.g. Lipton et al. (1984), Hayes and Farnill (1993), where a positive significant correlation indicated a direct relationship between students' performance in their medical courses and their English language proficiency.

However, the non-significant correlation between English and academic achievement for students at UAE indicates that English language makes little contribution to the performance of students at this university. Thus, it may be that other factors contributed more to students' performance than English proficiency.

Educators should enhance students' satisfaction with their English learning environment, encourage engagement with the linguistic learning task, and provide opportunities for involvement in problem-based sessions where they can practise communication and interaction in the English language. This should ensure an improvement in English achievement, which in turn should lead to better academic achievement.

The above discussion presents an answer to the research question concerning the relationship between the English achievement and medical academic achievement. In addition, it furnishes some of the suggestions which could enhance the improvement in English performance of students in the Gulf region.

10.3: COMPARISON OF STUDENTS' STRATEGIES FOR LEARNING ENGLISH AS A SECOND LANGUAGE

The major purpose of the comparative study was to determine if students at KFU, AGU, and UAE have similar strategies using the classification framework developed by O'Malley and Chamot (1990). To achieve such an objective, the following hypothesis was tested.

H2: There is no significant difference in the learning strategies for English as a second language used by students in KFU, AGU, and UAE universities.

Table 10.2 shows that students at all universities reported *inferencing* and *self-monitoring* (mean >3) as the most frequent strategies used. While *selective attention* and *advance organization* were the strategies used less frequently ($1.5<$mean <2).

TABLE 10.2: STUDENTS' STRATEGIES FOR LEARNING ENGLISH
(0= "STRONGLY DISAGREE", 4= "STRONGLY AGREE")

Item	KRUSKAL-WALLIS					P-Value
	University	Mean	Std. Deviation	Mean Rank	chi-square	
Metacognitive Strategies	KFU (N=126)	2.2851	0.7011	133.25	7.140	0.028
	AGU (N=90)	2.4750	0.7319	153.53		
	UAE (N=57)	2.0921	0.7760	119.13		
Advance Organizer	KFU (N=126)	1.5952	1.1893	127.75	7.910	0.019
	AGU (N=90)	2.0370	1.1476	156.05		
	UAE (N=57)	1.5731	1.1998	127.37		
Direct Attention	KFU (N=126)	2.4444	1.4453	143.51	3.991	0.136
	AGU (N=90)	2.3778	1.3948	139.12		
	UAE (N=57)	2.0526	1.3014	119.26		
Selective Attention	KFU (N=126)	1.8413	1.4165	134.29	6.509	0.039
	AGU (N=90)	2.1667	1.4002	151.94		
	UAE (N=57)	1.5789	1.3086	119.39		
Self-Management	KFU (N=126)	2.4028	0.8402	137.37	7.624	0.022
	AGU (N=90)	2.5278	0.8574	150.92		
	UAE (N=57)	2.1360	0.7320	114.22		
Self-Monitor	KFU (N=126)	3.0198	0.8727	137.63	1.293	0.524
	AGU (N=90)	3.0444	0.9351	142.14		
	UAE (N=57)	2.8872	0.9603	127.49		
Self-Evaluation	KFU (N=126)	2.6984	1.1951	137.87	5.18	0.075
	AGU (N=90)	2.8444	1.1603	147.49		
	UAE (N=57)	2.4561	1.1192	118.53		
Cognitive Strategies	KFU (N=126)	2.4851	0.7840	125.31	13.28	0.001
	AGU (N=90)	2.8472	0.6453	161.78		
	UAE (N=57)	2.4342	0.6867	123.73		
Resourcing	KFU (N=126)	2.3810	1.4525	121.98	11.751	0.003
	AGU (N=90)	3.0222	1.2360	157.74		
	UAE (N=57)	2.7719	1.1342	137.46		
Translation	KFU (N=126)	2.3175	1.1254	140.37	1.661	0.436
	AGU (N=90)	2.3000	1.1917	139.79		
	UAE (N=57)	2.0877	1.0094	125.16		
Note-Taking	KFU (N=126)	2.4418	1.699	125.30	17.548	0.000
	AGU (N=90)	3.0259	0.8076	165.08		
	UAE (N=57)	2.3509	1.0809	118.54		
Elaboration	KFU (N=126)	2.5159	1.3250	131.96	10.159	0.006
	AGU (N=90)	2.9778	0.9941	156.19		
	UAE (N=57)	2.3509	1.2605	117.82		
Inferring	KFU (N=126)	3.0238	1.1625	136.71	0.012	0.994
	AGU (N=90)	3.1000	1.0283	137.69		
	UAE (N=57)	3.1229	0.9462	136.54		
Social Strategies	KFU (N=126)	2.4524	1.0453	133.33	0.963	0.618
	AGU (N=90)	2.6000	0.8487	143.61		
	UAE (N=57)	2.4781	0.8416	134.68		
Cooperation	KFU (N=126)	2.4325	1.2528	131.85	1.294	0.524
	AGU (N=90)	2.5944	0.9912	138.79		
	UAE (N=57)	2.6491	1.1139	145.56		
Question For Clarification	KFU (N=126)	2.4722	1.1753	137.95	2.847	0.241
	AGU (N=90)	2.6056	1.0345	144.72		
	UAE (N=57)	2.3070	0.9390	122.71		

The table also reveals that students at the three universities utilise all types of strategies (mean > 2), (except *advance organization* and *selective attention* for students at KFU and UAE). However, the degree of utilisation differed. The Kruskal-Wallis test indicated significant differences in the utilisation of two types of learning strategies for English language: Metacognitive and cognitive strategies. For the metacognitive strategy the differences exist in the following substrategies: *advance organizer, selective attention,* and *self-management.* For the cognitive strategy, the differences exist in *resourcing, note-taking,* and *elaboration.*

Students at AGU tend to use these strategies significantly more than students at KFU and UAE. These results provide evidence for rejecting the null hypothesis for *metacognitive* and *cognitive* strategies. To explore which group differs from which, three comparison tests were conducted. The first comparison was performed between students at KFU and AGU (Table 10.3).

TABLE 10.3: COMPARISON BETWEEN STUDENTS AT KFU & AGU ON STRATEGIES FOR LEARNING ENGLISH AS A SECOND LANGUAGE (0= "STRONGLY DISAGREE", 4= "STRONGLY AGREE")

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
Metacognitive Strategies	KFU (N=126)	101.79	0.062
	AGU (N=90)	117.89	
Advance Organizer	KFU (N=126)	99.12	0.009
	AGU (N=90)	121.64	
Selective Attention	KFU (N=126)	102.68	0.098
	AGU (N=90)	116.64	
Self-Management	KFU (N=126)	104.23	0.233
	AGU (N=90)	114.47	
Cognitive Strategies	KFU (N=126)	96.71	0.001
	AGU (N=90)	125.00	
Resourcing	KFU (N=126)	97.07	0.001
	AGU (N=90)	124.50	
Note-Taking	KFU (N=126)	95.63	0.000
	AGU (N=90)	126.51	
Elaboration	KFU (N=126)	100.50	0.020
	AGU (N=90)	119.70	

Although students at both AGU and KFU indicated their agreement on using all *cognitive* strategies, the Mann-Whitney test revealed significant differences in *resourcing, note-taking*, and *elaboration*. Students at AGU showed positive higher scores on these strategies, indicating that they use such strategies more than those at KFU. No significant differences in *metacognitive* strategies, (except *advance organization)*, were found. Students at KFU indicated less frequent utilisation of this strategy than students at AGU.

The second comparison test was between students at KFU and those at UAE. The Mann-Whitney test revealed similar ratings between students at both universities with regard to the use of all learning strategies for the English language listed in Table 10.4.

TABLE 10. 4: COMPARISON BETWEEN STUDENTS AT KFU & UAE ON STRATEGIES FOR LEARNING ENGLISH AS A SECOND LANGUAGE (0= "STRONGLY DISAGREE", 4= "STRONGLY AGREE")

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
Metacognitive Strategies	KFU (N=126)	94.96	0.261
	UAE (N=57)	85.46	
Advance Organizer	KFU (N=126)	92.13	0.959
	UAE (N=57)	91.70	
Selective Attention	KFU (N=126)	95.11	0.225
	UAE (N=57)	85.12	
Self-Management	KFU (N=126)	96.63	0.077
	UAE (N=57)	81.76	
Cognitive Strategies	KFU (N=126)	92.09	0.972
	UAE (N=57)	91.80	
Resourcing	KFU (N=126)	88.40	0.156
	UAE (N=57)	99.05	
Note-taking	KFU (N=126)	93.16	0.657
	UAE (N=57)	89.43	
Elaboration	KFU (N=126)	94.96	0.234
	UAE (N=57)	85.45	

Students at both KFU and UAE showed high positive scores (mean >2) on the metacognitive strategies, namely *self-management* and cognitive strategies, namely *resourcing* and *note-taking,* indicating high utilisation of these strategies. However, they showed negative scores (mean <2.0) on *advance organization* and *selective attention,* indicating less use of such strategies.

The third comparison was between AGU and UAE. The Mann-Whitney test revealed significant differences in the use of metacognitive and cognitive strategies (Table 10.5). For metacognitive strategies, the differences existed in *advance organization, selective attention*, and *self-management*. Students at AGU accorded higher positive scores than those at the UAE university.

TABLE 10. 5: COMPARISON BETWEEN STUDENTS AT AGU & UAE ON STRATEGIES FOR LEARNING ENGLISH AS A SECOND LANGUAGE (0= "STRONGLY DISAGREE", 4= "STRONGLY AGREE")

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
Metacognitive Strategies	AGU (N=90)	81.14	0.011
	UAE (N=57)	62.73	
Advance Organizer	AGU (N=90)	79.91	0.033
	UAE (N=57)	64.67	
Selective Attention	AGU (N=90)	80.80	0.013
	UAE (N=57)	63.26	
Self-Management	AGU (N=90)	81.94	0.004
	UAE (N=57)	61.46	
Cognitive Strategies	AGU (N=90)	82.28	0.003
	UAE (N=57)	60.93	
Resourcing	AGU (N=90)	78.74	0.072
	UAE (N=57)	66.51	
Note-Taking	AGU (N=90)	84.07	0.000
	UAE (N=57)	58.11	
Elaboration	AGU (N=90)	81.99	0.002
	AGU (N=90)	74.18	0.944

With regard to cognitive strategies, the differences existed only in two strategies: *note-taking* and *elaboration*. Students at AGU had higher positive scores than those at the UAE university.

10.3.1: DISCUSSION

Table 10.2 shows that students at all three universities use these three types of strategies. However, the degree of utilisation differs. Comparisons (Table 10.3, 10.4, 10.5) revealed that students at AGU tend to use both cognitive and metacognitive strategies more than any other group.

Students at AGU reported significantly more use of the *note-taking* and *elaboration* strategies than those at KFU and UAE. One possible explanation may be embodied in the teaching methods at AGU. They emphasise training students in how to use these two strategies (Arabian Gulf University, 1998a). The *note-taking* strategy facilitates internal connections (i.e. relations) among different subjects which in turn facilitates learning (Kiewra et al., 1991). In addition, the *elaboration* strategy involves students in a high level of intellectual manipulation activities, i.e. elaborating related new concepts to a wider context (O'Malley and Chamot, 1990). Those responsible for English Courses for medical students should try to optimize the use of *note-taking* and *elaboration* strategies, e.g. focus on teaching different techniques of note-taking. Encouraging teaching/training students on how to use a variety of language learning strategies is also recommended.

The significantly higher positive score for students at AGU on the *advance organiser* strategy may be explained by the availability of key course materials in a booklet form for all students in advance, actually at the introductory level of the course, so students have the opportunity to prepare themselves in advance for the class

(Arabian Gulf University, 1998a). The main advantage of the *advance organizer* strategy is to help students comprehend, remember text and activate text-relevant knowledge (Glover et al., 1990). Thus, it is recommended that the responsible authorities at KFU and UAE develop and encourage the use of the *advance organizer* strategy.

The significantly higher positive scores for students at AGU compared to those at UAE on the *selective attention* strategy, e.g. enjoying attending extra classes of English, may be explained by the fact that AGU provides extra elective classes for students who need to improve their English language skills.

On the other hand, one possible explanation for the significantly less frequent use of *selective attention,* and *advance organization* strategies, by students at KFU and UAE, is the English learning environment itself. For example, the unavailability of English elective sessions, and the obscure learning objectives of the English course (for KFU only) (King Faisal University, 1998 and United Arab Emirates University, 1998a) do not help students to prepare for their classes in advance nor for attending extra classes. It is recommended that extra elective courses be provided for students to enhance their language competency. They should be given a clear syllabus of the objectives of the English language course, emphasising the use of English for 'medicine'.

According to O'Malley and Chamot (1990) the more effective students are those who tend to use learning strategies more often and have a wider repertoire of learning strategies. Thus, students at AGU could be considered as more effective students, at least from O'Malley and Chamot's (1990) perspective, since they meet the two conditions of effective students, i.e. they utilise these strategies more often and

they have a 'wider repertoire' of learning strategies than their counterparts. This suggests that the English course during the first two years at the AGU medical programme places more emphasis on training students to use a combination of metacognitive and cognitive strategies.

The general overall trends reveal the following: firstly, the two strategies most often used by all students at the three universities are *inferencing* and *self-monitoring*, while the two strategies least used are *selective attention* and *advance organizer*. One possible explanation for the wide use of the former strategies is the fact that medical students are exposed to a large amount of new learning materials and complex medical terminology that need to be analysed and understood. These strategies involve the active manipulation or reworking of the learning materials (O'Malley et al., 1985). The finding on *self-monitoring* strategy is consistent with Skehan's view (1989) that monitoring is used more by individuals who have greater exposure to the new language. Another possible explanation for high positive scores on *inferencing* and *self-monitoring* strategies is the effect of the learning task on students' selected strategies. O'Malley et al. (1985), and O'Malley and Chamot (1990) found that the type of learning strategy adopted by students varies according to the demands of the task. For example, vocabulary tasks encourage students to adopt metacognitive strategies of *self-monitoring* and *self-evaluation* and the cognitive strategies of *resourcing* and *elaboration*. A listening task encourages metacognitive strategies of *selective attention* and *self-monitoring* and the cognitive strategies of note-taking, and *inferencing* and *elaboration* (O'Malley and Chamot, 1990). Grenfell and Harris (1998) also suggest that language learning strategies are highly context dependent. This may explain why in the present study, students at all universities reported more use of

inferencing and *self-monitoring* strategies. It is perhaps the emphasis of English courses at such universities on 'reading' tasks that could lead students to use these two strategies more often (United Arab Emirates University, 1998a; King Faisal University, 1998; Arabian Gulf University, 1998a).

Secondly, students at KFU and AGU tend to use more cognitive strategies than metacognitive and social strategies, whereas students at UAE tend to use more social strategies. This could be attributed to the emphasis the English course places on a particular linguistic task. For example, at UAE university the emphasis of the English course is on teaching communication skills, correctness/checking and oral communication. Clearly, more emphasis has been placed on teaching social strategies in terms of communication skills (United Arab Emirates University, 1998a).

Finally, analysis of cognitive strategies indicates that students at the three universities tend to use a high amount of manipulation of the information, e.g. *inferencing* and *elaboration*. This may be explained by the influence of the medical course workload that demands processing a huge amount of scientific information. Such information needs to be analysed, inferenced, elaborated, and integrated with other new knowledge in the medical field.

These results are encouraging, however students should be made more aware of the importance of using different classes of language learning strategies and more often in order to maximise the acquisition of the English language. It is also recommended that students be provided with training workshops on how to use a variety of language learning strategies.

The preceding discussion shows the range of language learning strategies used by medical students. Accordingly, this section presents an answer to the research

question regarding the strategies used for English as a second language in the Gulf region. It also provides some recommendations to encourage the use of a variety of language strategies.

10.4: RELATIONSHIP BETWEEN THE ASI AND THE ENGLISH LANGUAGE STRATEGIES

This section explores whether students' learning strategies used to study English as a second language are related to their general learning approaches. The following hypothesis was tested.

H3: There is no significant correlation between approaches to study (measured by the ASI) and the English learning strategy for medical students in KFU, AGU, and UAE universities.

A correlation was computed between scores on the ASI and the strategies for learning English as a second language, using Spearman's rho test. Table 10.6 shows a number of significant correlations between the ASI and learning strategies for English as a second language. For students at KFU, the scores on metacognitive strategies were positively and significantly correlated with the *meaning, operation, versatile,* and *prediction for success* scales. The cognitive strategies were correlated positively and significantly with the *achieving, meaning, comprehension, operation, versatile,* and *prediction for success* scales. The highest correlation was found between the cognitive and *versatile* scales. The social strategies were correlated positively and significantly with *achieving, reproducing, meaning, operation, versatile, learning pathology,* and *prediction for success* scales. The highest correlations were found between social strategies and the *versatile* scale.

TABLE 10.6: CORRELATION BETWEEN THE ASI AND LEARNING STRATEGIES FOR ENGLISH AS A SECOND LANGUAGE			
	Metacognitive r (P)	Cognitive r (P)	Social r (P)
Achieving			
KFU (N=126)	.175 (.050)	.239 (.007)	.219 (.014)
AGU (N=90)	.236 (.025)	.171(.107)	.188 (.076)
UAE (N=57)	-.023 (.868)	.059 (.663)	-.112 (.408)
Reproducing			
KFU (N=126)	-.008 (.926)	.160 (.074)	.210 (.019)
AGU (N=90)	.264 (.012)	.229 (.030)	.140 (.189)
UAE (N=57)	.222 (.097)	.159 (.237)	.305 (.021)
Meaning			
KFU (N=126)	.286 (.001)	.351 (.000)	.366 (.000)
AGU (N=90)	.389 (.000)	.383 (.000)	.248 (.019)
UAE (N=57)	.513 (.000)	.373 (.004)	.343 (.009)
Comprehension learning			
KFU (N=126)	.165 (.066)	.197 (.027)	.160 (.073)
AGU (N=90)	.520 (.000)	.263 (.012)	.286 (.006)
UAE (N=57)	.028 (.835)	-.069 (.609)	-.047 (.727)
Operation learning			
KFU (N=126)	.213 (.017)	.266 (.003)	.302 (.001)
AGU (N=90)	.404 (.000)	.256 (.015)	.134 (.207)
UAE (N=57)	.331 (.012)	.233 (.081)	.193 (.151)
Versatile approach			
KFU (N=126)	.317 (.000)	.363 (.000)	.372 (.000)
AGU (N=90)	.450 (.000)	.241 (.001)	.235 (.026)
UAE (N=57)	.412 (.001)	.271 (.041)	.209 (.119)
Learning Pathologies			
KFU (N=126)	.004 (.965)	.150 (.094)	.184 (.039)
AGU (N=90)	.439 (.000)	.264 (.012)	.181 (.089)
UAE (N=57)	.279 (.036)	.113 (.402)	.272 (.041)
Prediction for success			
KFU (N=126)	.277 (.002)	.262 (.003)	.264 (.003)
AGU (N=90)	.132 (.216)	.141 (.185)	.112 (.294)
UAE (N=57)	.177 (.187)	.200 (.136)	-.013 (.925)

r= coefficient correlation, P= correlation probability

AGU students' scores on metacognitive strategy were positively and significantly correlated with *achieving, reproducing, meaning, comprehension, operation, versatile,* and *learning pathologies* scales. The highest correlation was found between metacognitive strategy and the *comprehension learning* scale. The cognitive score was positively and significantly correlated with *reproducing, meaning, comprehension, operation, versatile,* and *learning pathologies* scales. The highest

correlations were found between cognitive strategies and *meaning*. The social strategies were positively and significantly correlated with the *meaning, comprehension,* and *versatile* scales.

For UAE, students' scores on metacognitive strategies were positively and significantly correlated with the *meaning, operation, versatile,* and *learning pathology* scales. The highest correlation was found between metacognitive strategy and *meaning*. The cognitive strategy was positively and significantly correlated with the *meaning* and *versatile* scales. The highest correlation was found between cognitive strategy and the *meaning* scale. The social strategies were positively and significantly correlated with the *reproducing, meaning,* and *learning pathology* scales.

The result shows there is a relationship between the learning approach of students and the strategies used to learn English as a second language for students at KFU, AGU, and UAE, thus rejecting the null hypothesis.

10.4.1: DISCUSSION

The above results suggest that students at KFU who often use the three types of strategies are more likely use a deep approach. Students who tend to use metacognitive strategies, e.g. monitoring their own speech through checking the accuracy of their vocabulary and pronunciation, tend to use an *operation* approach, a step-by-step and detailed approach in their study. Students who use cognitive strategies such as elaboration of new information to the old, inferring the meaning of new words based on their context in the statement, tend to use the *comprehension* approach where they can relate the new idea to a wider context. Students who tend to use social strategies such as asking for clarification, co-operating with group discussions, are more likely to score higher in *achieving* approach, where they tend to

compete with others, and to do very well in order to achieve more than other members in the group.

The results indicate that students at AGU use metacognitive strategies, e.g. *advance organizer* where they may look at the topic prior to the class, but with a superficial level of understanding. In addition, they use the surface approach, involving rote-learning and memorization for a particular learning task, such as dealing with new vocabulary. However, when faced with an unfamiliar concept, they use cognitive strategies, such as resources and translation, and a step-by step and detailed approach, to deal with the new concept. Then they integrate and elaborate a new concept or piece of information such as this to an older one. Moreover, students use social strategies, e.g. participation in class activities, involvement in group discussions, asking for clarification, but with the intention of increasing their understanding of the subject. They also vary their study method according to the learning situation.

The results suggest that students at UAE tend to use metacognitive strategies, e.g. evaluating their level of understanding, to monitor every segment of their speech. They also tend to use the *operation* approach. In such an approach, they tend to use a step-by step and detailed approach, where they break the language down into words or morphemes in order to understand it. However, they still rely on such an approach even when it may narrow their focus leading to a *learning pathology*, e.g. where they face difficulty in applying a new concept in a wider context. In addition, they use different strategies, e.g. *resourcing, translation, elaboration* and *inferencing*, according to the learning situation. Moreover, they rely on using rote-learning and memorization of, for example, a large number of items of medical terminology, but

also recognise the need for asking for clarification and participating in class discussions.

These findings indicate that students' learning approaches appear to be correlated with their strategies used to study English as a second language. For example, significant correlations among the use of the three types of strategies for learning English as a second language, and a deep approach. Thus, it is advisable for English language teachers in the Gulf region to be aware of this significant relationship if a deep approach is to be promoted in students' learning methodology.

Cook (1996) claimed that training students to use particular learning strategies could improve their language performance. Thus, it is recommended that teachers be trained in how to teach strategies (for more information on teaching methods of such strategies, see O'Malley and Chamot, 1990). It would also be advisable for English language teachers to diversify their language instructions as much as possible based on the variety of students' learning approaches. In addition, since learning style, as discussed earlier, can be changed according to the learning context demands, students should be encouraged to developed a range of styles. Students should also be exposed to the concept of 'learning style' during their initial year of study and should be given the opportunity to diagnose their own learning style, e.g. by using an inventory instrument.

Entwistle and Tait (1990) and Ramsden (1997) claimed that students' learning approaches in general are influenced by the learning context. The results discussed in this section show that the general learning approaches of medical students in the Gulf region are influenced not only by the learning environment but also by their language learning strategies. Thus, it could be argued that the language learning strategies used

to study foreign language influence the general learning approaches used to study subjects in a foreign language. Therefore, it is recommended that students be encouraged to use a variety of language learning strategies, since this has a positive influence on students adopting a deep approach.

The above discussion provides an answer to one of the research questions related to the relationship between strategies for learning English language and approaches to study.

10.5: RELATIONSHIP BETWEEN THE ENGLISH LANGUAGE PROFICIENCY GRADE AND THE STRATEGIES FOR LEARNING ENGLISH AS A SECOND LANGUAGE

This section investigates the relationship between students' English language proficiency grades in terms of their General Grade Point Average (GPA) and their strategies for learning English as a second language. Accordingly, the following hypothesis was tested.

H4: There is no significant correlation between English language proficiency grades (measured by the GPA) and the learning strategies for English as a second language for medical students in the KFU, AGU, and UAE universities.

Correlations were computed between scores on the GPA of the English language proficiency grade and the strategies for learning English as a second language, using Spearman's rho test (Table 10.7).

TABLE 10.7: CORRELATION BETWEEN GPA FOR ENGLISH LANGUAGE AND LEARNING STRATEGIES FOR ENGLISH AS A SECOND LANGUAGE			
	GPA for English language		
Learning strategies:	KFU (N=126) r (P)	AGU (N=90) r (P)	UAE (N=57) r (P)
Metacognitive strategies	-.124 (.166)	.023 (.828)	.364 (.005)
Cognitive strategies	-.132 (.142)	.064 (.549)	.412 (.001)
Social strategies	-.023 (.799)	.009 (.932)	.270 (.042)

r= coefficient correlation
P= correlation probability

The table reveals significant correlations between GPA for English language and types of strategy for learning English as a second language for students at UAE. These results are evidence for rejecting the null hypothesis for students at UAE only.

10.5.1: DISCUSSION

Table 10.7 indicates significant correlations between students' GPA for English language and the three types of learning strategy for students at UAE. Such a result supports the claim of O'Malley and Chamot (1990) that there is a relationship between students' effectiveness[1] and the use of different classes of learning strategies. The findings also confirm the claims of Purpura (1997) who concluded that training students on using a combination of learning strategies, namely, metacognitive and cognitive, will enhance their learning. It is also consistent with the findings of Hansen and Stanfield (1981), and Chapelle and Roberts (1986), who found a positive and significant correlation between English language proficiency and cognitive style, in terms of field dependence and field independence.

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[1] This acknowledges the differences in the research method used in the present study and that of O'Malley and Chamot (1990) where the description of students as being 'more' and/or 'less' effective was judged by their teachers. In other words, there was no standardised test used in their study to find out how effective students were.

It is also in accordance with the findings of Park (1997), who found a correlation between language learning strategies and English proficiency, and with Green and Oxford (1995) who found significant relationship between language learning strategies used and success in language learning.

The positive correlations between English achievement and learning strategies for students at UAE university may be explained by: firstly, the teaching methods used. Tumposky (1984) claimed that students learn a foreign language faster if they are in a class where the teaching methods match their cognitive style. Thus, this may be the reason why in the present study, students' English achievement at UAE appeared to be influenced by their strategies used. Secondly, it may be attributed to their high positive score on instrumental orientation (see section 10.6) and their high motivation to study English which was correlated highly with their achievement (see section 10.7).

The positive, significant correlation between learning strategies and English language proficiency for students at UAE reveal that a relatively higher degree of cognitive strategy is associated with a higher level of English achievement. In addition, the finding of the previous section (9.4) indicates that students at UAE university use the social strategy type more often than metacognitive and cognitive strategies. Thus, it is recommended that the authorities responsible for the English curriculum at this university pay more attention to enhancing students' utilisation of cognitive strategy in particular, since it correlated more highly with achievement than the other types.

The absence of significant correlations for students at KFU and AGU indicates that students' English achievement were not greatly influenced by the type of learning

strategies they used to study English as a second language. Such findings could be explained as follows. Firstly, there may be other factors that influence students' English achievement other than language strategies. For example the assessment methods used, e.g. multiple choice questions, that do not encourage students to use a variety of learning strategies. Therefore, it is suggested that teachers use a variety of assessment methods in order to encourage students' use of different forms of learning strategies. Secondly, it may be embodied in the research method used in the present study, i.e. the questionnaire. In other words, students may use other strategies that are not covered in such a questionnaire. Thus, it is recommended that further empirical research use qualitative research methods, such as interviews, to identify the language learning strategies students use in their study of English in the Gulf region.

This section has presented an answer to the research question concerning the relationship between English achievement and language learning strategies.

10.6: COMPARISON OF STUDENTS' ATTITUDES TOWARD LEARNING ENGLISH AS A SECOND LANGUAGE

As indicated in Chapter 4, students' achievement in a second language is influenced by their attitude towards learning such a language (Gardner and Lambert, 1972; Gardner, 1980; Gardner, 1985), e.g their motivation for studying English, orientation towards learning English, attitude towards people who speak English and perception of the English learning environment. To explore whether there are any significant differences in the above attitudinal variables between students at the three universities in Gulf countries, the following hypothesis was tested.

H5: There is no significant difference in the perceptions of learning English as a second language among medical students in the KAS, AGU, and UAE.

Table 10.8 shows that students at all three universities reported an agreement (mean >2.0) with all the items, indicating their positive attitude towards learning the English language. However, the Kruskal-Wallis test revealed significant differences in terms of their perception towards their English courses.

Students at AGU accorded significantly higher scores on their satisfaction with their English language learning environment, namely with their English courses as compared with those at KFU and UAE.

TABLE 10.8: COMPARISON OF STUDENTS' PERCEPTIONS OF LEARNING ENGLISH AS A SECOND LANGUAGE (0= "STRONGLY DISAGREE", 4= "STRONGLY AGREE")

Item	KRUSKAL-WALLIS TEST					P-Value
	University	Mean	Std. Deviation	Mean Rank	Chi-Square	
Motivation For Studying English	KFU (N=126)	2.5982	0.5934	133.00	0.609	0.737
	AGU (N=90)	2.6500	0.5512	140.08		
	UAE (N=57)	2.6491	06221	140.99		
Attitude towards people speaking English (Integrativeness)	KFU (N=126)	2.4413	0.7836	135.50	0.961	0.619
	AGU (N=90)	2.5133	0.7955	143.12		
	UAE (N=57)	2.3895	0.6250	130.66		
Instrumental Orientation	KFU (N=126)	3.0556	0.8431	134.22	0.572	0.751
	AGU (N=90)	3.1361	0.6737	136.68		
	UAE (N=57)	3.2237	0.5952	143.65		
Integrative Orientation	KFU (N=126)	2.9385	0.8762	128.37	5.700	0.058
	AGU (N=90)	3.2278	0.6742	153.08		
	UAE (N=57)	3.0482	0.6571	130.69		
Perception of English Learning Environment	KFU (N=126)	2.7188	0.7045	126.54	11.145	0.004
	AGU (N=90)	3.0095	0.6165	159.67		
	UAE (N=57)	2.6366	0.8131	124.32		
Perception of English Course	KFU (N=126)	2.9286	0.7940	129.99	15.501	0.000
	AGU (N=90)	3.2556	0.6649	161.96		
	UAE (N=57)	2.6784	0.9594	113.08		
Perception of English Teacher	KFU (N=126)	2.5615	0.8898	128.42	4.524	0.104
	AGU (N=90)	2.8250	.8656	151.13		
	UAE (N=57)	2.6053	0.8477	133.66		

In order to find out which group differs from which, three comparison tests were conducted. The first comparison was made between students at KFU and those at AGU universities. The Mann-Whitney test revealed significant differences in students' perceptions of the English learning environment, in terms of their perceptions of English language courses (Table 10.9).

TABLE 10.9: COMPARISON BETWEEN STUDENTS AT KFU & AGU ON LEARNING ENGLISH AS A SECOND LANGUAGE (0= "STRONGLY DISAGREE", 4= "STRONGLY AGREE")

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
Perception of English learning Environment	KFU (N=126)	97.50	0.002
	AGU (N=90)	123.91	
Perception of English course	KFU (N=126)	97.90	0.003
	AGU (N=90)	123.34	

Students at AGU indicated more satisfaction with their English learning environment in terms of their English courses than those at KFU.

The second comparison test was performed on students at KFU and those at UAE. The Mann-Whitney test revealed agreement between students' perceptions on their English learning environment (Table 10.10).

TABLE 10.10: COMPARISON BETWEEN STANDARDS AT KFU & UAE ON LEARNING ENGLISH AS A SECOND LANGUAGE (0= "STRONGLY DISAGREE", 4= "STRONGLY AGREE")

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
Perception of English learning Environment	KFU (N=126)	92.55	0.835
	UAE (N=57)	90.79	
Perception of English Course	KFU (N=126)	95.60	0.169
	UAE (N=57)	84.05	

The third comparison test was conducted between students at AGU and those at UAE. The Mann-Whitney test revealed significant differences in students' perception of their English learning environment, namely in their perception of their English language courses (Table 10.11).

TABLE 10.11: COMPARISON BETWEEN STUDENTS AT AGU & UAE ON LEARNING ENGLISH AS A SECOND LANGUAGE (0= "STRONGLY DISAGREE", 4= "STRONGLY AGREE")

Item	Mann-Whitney Test		P-Value
	University	Mean Rank	
Perception of English learning Environment	AGU (N=90	81.26	0.009
	UAE (N=57)	62.54	
Perception of English Course	AGU (N=90	84.12	0.000
	UAE (N=57)	58.03	

Students at AGU accorded higher scores to the perceptions of the environment in terms of courses of English language compared with those at UAE, indicating that they were more satisfied with their environment and their courses than those at UAE.

10.6.1: DISCUSSION

Students at the three universities indicated a high positive attitude towards people with English language. In addition, they have a high motivation to learn English, and they use both instrumental and integrative orientation, indicating positive perception towards learning the English language (Table 10.8).

However, the comparison among students at the three universities (Table 10.9, 10.10, 10.11) reveals that students at AGU showed significantly higher scores on the perception towards English learning environment in terms of their English courses than any other group. One possible explanation for the high satisfaction of students at AGU with their English courses may be embodied in the clarity of the English course objectives, where each student receives a booklet that reports on the key content material students will be exposed to during their course (Arabian Gulf University, 1998a). Such a booklet provides the objective of the course and the evaluation methods for the components of the course. In addition, the availability of extra English classes for those students who need them, i.e. students who need to improve their English proficiency, probably contributed to their high satisfaction.

In comparative studies, e.g. Burstall (1975), Gardner (1985), Larsen-Freeman and Long (1991), it was found that students' attitudes towards learning the English language and towards their English courses have an effect on their achievement in that language. Therefore, it is important for the Higher education authorities in these Gulf states to discover what factors in the English learning environment contribute to stress and dissatisfaction among students.

10.7: RELATIONSHIP BETWEEN THE ENGLISH LANGUAGE PROFICIENCY GRADE AND AGE, FORMAL LEVEL OF STUDY, MOTIVATION, ATTITUDE TOWARDS TEACHER, ATTITUDE TOWARDS ENGLISH COURSE, AND ATTITUDE TOWARDS PEOPLE SPEAKING ENGLISH

In order to find out if there is a relationship between GPA in English language proficiency and the age of exposure to the formal study of English language, the level of commencement, motivation, attitude towards teachers and courses, and attitude towards people using English, the following subsidiary hypothesises were tested.

H6: There is no significant correlation between English language proficiency grade (as measured by GPA) and the following:
(a) age at which students are first exposed to the formal study of English language;
(b) formal level of study when started learning English language;
(c) motivation for studying the English language;
(d) orientation to learning the English language;
(e) attitude towards teacher of English language course;
(f) attitude towards English course;
(g) attitude towards people speaking the English language (integrativeness);
for medical students in the KFU, AGU, and UAE.

The correlation was computed between students' GPA in English language proficiency and the above elements, using Spearman's rho test (Table 10.12).

TABLE 10.12: CORRELATION BETWEEN GPA FOR ENGLISH LANGUAGE AND AGE, MOTIVATION, AND PERCEPTION OF ENGLISH LANGUAGE LEARNING ENVIRONMENT

	GPA for English language		
	KFU (N=126) r (P)	AGU (N=90) r (P)	UAE (N=57) r (P)
Age when first exposed to studying English language	-.273 (.002)	-.225 (.033)	-.144 (.285)
Formal level of study when started learning English language	-.212 (.017)	-.115 (.282)	.136 (.311)
Motivation for studying English:	.087 (.332)	.171 (.108)	.489 (.000)
Integrative orientation	.060 (.504)	.038 (.722)	.208 (.121)
Instrumental orientation	.005 (.955)	-.052 (.625)	.165 (.220)
Perception of English learning environment:	.161 (.071)	.054 (.616)	.201 (.133)
Perception of English courses	.263 (.003)	.057 (.595)	.338 (.010)
Perception of teachers of English courses	.053 (.558)	.051 (.630)	.074 (.582)
Attitude toward people speaking English (Integrativeness)	.201 (.024)	-.044 (.683)	.178 (.185)

r= coefficient correlation, P= correlation probability

The table shows a negative significant correlation between students' GPA for English language and the age at which they were first exposed to the formal study of English language for KFU and AGU universities. These findings are evidence for rejecting the null hypothesis (H5a) for students at KFU and AGU.

The table reveals a significant correlation between early formal exposure to English and language proficiency for students at KFU. This result rejects the null hypothesis (H5b) for students at KFU.

The GPA scores for English language were positively and significantly related to the motivation for studying English as a second language for students at UAE. This result is evidence for rejecting the null hypothesis (H5c) for students at UAE.

The table reveals no significant correlation between students' GPA and the two orientations to studying English language at any of the three universities. These results confirm the null hypothesis (H5d) for students at KFU, AGU, and UAE.

Significant and positive correlations between the GPA and students' perception of their English courses were found for students at KFU and UAE. These results reject the null hypothesis (H5f) for students at KFU and UAE.

The score of GPA for English language was significantly and positively related to the attitude towards people speaking English (integrativeness) for students at KFU. This result rejects the null hypothesis (H5g) for students at KFU.

10.7.1: DISCUSSION

H6 a: Correlation between English language proficiency grade (as measured by GPA) and age at which students were first exposed to the formal study of English language.

The presence of a negative and significant correlation between students' achievement in English language and the age at which they were first exposed to the formal study of English language for KFU and AGU suggests that those students exposed to English language at an early age tend to achieve more (in terms of obtaining a higher GPA for learning English as a second language) than those who were exposed later in life. This result supports the claim of Krashen (1982) that "acquirers who begin natural exposure to second languages during childhood generally achieve higher second language proficiency than those beginning as adults" (p.43). Thus, it is recommended that learning the English language be introduced as part of the core curriculum at primary (elementary) level of the national curriculum for the Gulf States.

H6 b: Correlation between English language proficiency grade (as measured by GPA) and formal level of study when started learning English language.

There is a significant correlation between early formal study of English and language proficiency for students at KFU. This result indicates that students who

started learning English language at an early stage of their formal study tend to have a higher GPA in their English language proficiency than those who started later in their formal study. This results strengthens the above recommendation of introducing learning English language at an early formal level of study.

H6 c: Correlation between English language proficiency grade (as measured by GPA) and motivation for studying English language.

The existence of a positive and significant relationship between English language achievement and students' motivation to study English language for students at UAE only, supports the claim of Gardner (1980, 1982, 1985) that motivation for language learning has an effect on the proficiency in that language. However, for students at KFU and AGU it seems that their motivation to study English does not influence their achievement in English proficiency.

H6 d: Correlation between English language proficiency grade (as measured by GPA) and the orientation to learn English language.

Non-significant correlations between the achievement in language and the two orientations, namely, instrumental and integrative for students at the three universities, contradict the findings of Burstall (1975) who found that students' achievement in French was related to both types of orientation. It also contradicts the initial hypothesis of Gardner and Lambert (1972) which claims that success in foreign language learning depends largely on the adoption of an integrative orientation towards that language, since integrative orientation sustains long term motivation for studying that language.

Since motives for GCC students are accompanied by a feeling of urgency to master English in order to progress with their medical academic studies, it is recommended that the language department within the medical school place more

emphasis on an *English for specific purposes* (ESP) approach. This approach was suggested initially by Alpetkin (1981), in which language is taught according to the students' general academic fields. In GCC medical schools, emphasis should be mainly on teaching students the language of medicine rather than general English courses. By this, students' motivation could be enhanced, and the relevancy of their English courses to medicine could be felt.

H6 f: Correlation between English language proficiency grade (as measured by GPA) and attitude toward English course.

The students' perception of their English language courses at KFU, AGU, and UAE universities was generally positively correlated with their GPA scores for English language. The presence of a significant correlation for students at KFU and AGU implies that students with a more positive perception of their English course programme tend to have a higher level of achievement in English as a second language. This result supports the claim of the Larsen-Freeman and Long (1991) study, that students' perception of any aspect of second language courses has an effect on their achievement in that language. Thus, it is recommended that those responsible for the English courses for medical students be aware of the influence of students' attitude towards their courses on their achievement. Showing the relevance of the English course to the medical field, by means of adopting, e.g. the *English for specific purposes*, and making the English course a more interesting subject is also recommended.

H6 g: Correlation between English language proficiency grade (as measured by GPA) and attitude towards people speaking English language (integrativeness).

The presence of a positive and significant correlation between the English proficiency in terms of the GPA for English language, and the attitude towards people speaking English for students at KFU, supports the claims of Gardner and Lambert (1972), Gardner (1985), Gardner et al. (1985), and Gardner and MacIntyre (1991), which indicate that attitude towards people of the target language has an influence on students acquiring that language.

Table 10.8 reveals a general trend. Students at KFU and UAE had positive relationships between their GPA for English language and their positive attitude towards people speaking English. The existence of such a positive relationship may be due to social tradition in Gulf culture, for example, the unwillingness to say bad or unpleasant things about others. However, if this is correct, it is not surprising to find similar positive relationships between their GPA and their attitude towards their own teachers of English courses. It may be that students who know the language well would like to understand the target language people and their society to a great extent and would be more interested in acquiring the language to a level of fluency matching that of the mother tongue.

On the other hand, the presence of a negative, though low and non-significant, correlation between achievement and integrativeness for students at AGU supports the finding of Svanes (1988) who found a negative relationship between attitude and language proficiency. One possible explanation for such a negative, but not significant, correlation in the present study, may be due to the fact that the people of Bahrain experienced the influence of British colonists which may have affected such

relationships. Here, students who know the language very well may consequently be more familiar with the target language society and their role in such a colonial situation, and be more critical toward people using English. It seems that positive attitudes towards English speakers were largely irrelevant to AGU and UAE students learning and using English.

The above discussions show the relationships between English achievement and age, level of study, motivation, and attitude toward learning English. In addition, it provides some recommendations for enhancing the English performance for students in the Gulf region.

10.8: CONCLUSION

The conclusions which have emerged from this chapter will be presented under the following themes:

I. Factors Affecting English Language Achievement

The main factors[2] affecting English language achievement at medical school in the Gulf region include: age, formal level of learning English language, motivation for studying English, language learning strategies, and attitude towards people speaking English. Therefore, the following are recommended:

1) Introducing students to cultural studies concerning English culture in order to enhance students' positive attitude toward people speaking English, since such an attitude is more likely to influence students' achievement as claimed by Gardner (1985).

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[2] Some of these factors are found in some medical schools only.

2) Providing clear course objectives, syllabus, guidelines and extra elective English courses could contribute to more frequent utilisation of a mixture of English language learning strategies. This, in turn, could have positive implications on achievements in English learning.

3) Varying the instructional methods and placing more emphasis on teaching *English for specific purposes* (ESP) which focuses, to a greater extent, on English for medicine. This could enhance students' motivation, and make them more aware of the relevance of the English course.

4) Introducing English language as a subject within the national core curriculum at elementary level.

5) Introducing a study skill that focuses on training students in using different types of language learning strategies.

II. Relationship between English Achievement and Academic Medical Achievement

English language proficiency and the medical academic performance are highly related. It is important that educators explore and enhance the learning aspects in the English learning environment, e.g. English language courses, that have an effect on students' English achievement, which in turn affect students' academic medical achievement.

III. Language Learning Strategies and General Approaches to study

1) Medical students in the Gulf region use a range of language learning strategies. However, the degree of utilising such strategies differs. Utilising a variety of language strategies could enhance English achievement. It is important that teachers be trained to adjust their teaching strategies and assessment methods to benefit all students.

2) Language learning strategies and the general learning approaches are highly correlated. Using a combination of the three types of language strategies (metacognitive, cognitive, and social) could lead to the adoption of a deep approach. It is important to develop training workshops for teachers on teaching language strategies, and to encourage students to use such strategies in order to promote a desirable approach to study.

CHAPTER ELEVEN

STUDY IV

GENDER DIFFERENCES

11.1: INTRODUCTION

This chapter looks at the influence of gender on: educational climate as measured by the DREEM, students' approaches to study, motivation for entering medical school, English language achievement, attitude towards studying English, and strategies for learning English as a second language.

11.2: STUDENTS' PERCEPTION OF LEARNING ENVIRONMENT

To find out whether there are significant difference between males and females on the five subscales of the DREEM, the following hypothesis was tested:

H1: There is no significant difference in the medical learning environment (measured by the DREEM) as experienced by male and female students in the KFU, AGU, UAE.

Table 11.1: COMPARISON OF STUDENTS' PERCEPTIONS ON THE SUBSCALE OF THE DREEM BY THEIR GENDER (0= "STRONGLY DISAGREE", 4= "STRONGLY AGREE")

Subscales	KFU			AGU			UAE		
Subscale 1: Students' perception of learning	Mean (SD)	Mann-Whitney		Mean (SD)	Mann-Whitney		Mean (SD)	Mann-Whitney	
		MR	P		MR	P		MR	P
Male	26.9 (7.40)	66	0.45	31.4 (6.87)	40	0.25	27.2 (7.18)	26	0.25
Female	25.8 (6.68)	61		33.5 (5.64)	47		30.1 (5.41)	31	
Subscale 2: Students' perception of teachers									
Male	23.6 (6.19)	57	0.10	26.7 (7.99)	40.37	0.274	26.2 (6.89)	19.55	0.00
Female	25.4 (6.37)	68		28.9 (7.00)	47.26		32.1 (3.66)	34	
Subscale 3: Students' academic self-perceptions									
Male	20.0 (5.65)	70	0.09	20.8 (5.37)	42	0.45	19.9 (5.04)	27	0.43
Female	18.6 (4.87)	59		21.7 (4.48)	47		21.2 (3.45)	30	
Subscale 4: Students' perceptions of atmosphere									
Male	27.0 (8.42)	66	0.59	28.8 (8.79)	42.80	0.566	29.5 (7.60)	25	0.23
Female	26.1 (7.66)	61.97		30.3 (7.63)	46		32.4 (5.79)	31	
Subscale 5: Students' social self-perceptions									
Male	14.7 (4.67)	66	0.52	12.7 (4.34)	35	0.02	12.8 (4.67)	25	0.20
Female	13.9 (4.72)	62		15.2 (5.13)	49		14.6 (4.23)	31	
DREEM									
Male	112 (27.3)	65	.62	120 (28.5)	39	.167	115 (27.0)	23	.055
Female	110 (23.8)	62		130 (23.6)	48		130 (18.8)	32	

The Mann-Whitney test (Table 11.1) indicates no significant gender based differences at each university on all subscales of the DREEM, except on subscale 2 for students at UAE and subscale 5 for students at AGU. Male and female differences on individual items are shown in the tables 11.2 to 11.6.

TABLE 11.2: PERCENTAGE OF STUDENTS' PERCEPTIONS OF LEARNING (0+1=STRONGLY DISAGREE+DISAGREE=DISAGREE, 2=UNSURE, 3+4= AGREE+STRONGLY AGREE=AGREE)

Item	Subscale 1	KFU			AGU			UAE		
	Statement	A (%)	unsure (%)	DA (%)	A (%)	unsure (%)	DA (%)	A (%)	unsure (%)	DA (%)
1	I am encouraged to participate in class									
	Male	77.8	3.7	18.5	78.3	0.0	21.7	70.0	5.0	25.0
	Female	33.3	6.9	59.7	79.1	3.0	17.9	70.3	8.1	21.6
7	The teaching is often stimulating									
	Male	57.4	11.1	31.5	91.3	4.3	4.3	90.0	0.0	10.0
	Female	76.4	6.9	16.7	83.6	7.5	9.0	78.4	10.8	10.8
13	The teaching is student centred									
	Male	51.9	7.4	40.7	82.6	0.0	17.4	50.0	10.0	40.0
	Female	37.5	4.2	58.3	89.6	1.5	9.0	86.5	5.4	8.1
16	The teaching helps to develop my competence									
	Male	66.7	0.0	33.3	65.2	4.3	30.4	45.0	5.0	50.0
	Female	44.4	8.3	47.2	85.1	1.5	13.4	70.3	5.4	24.3
20	The teaching is well focused									
	Male	66.7	3.7	29.6	73.9	4.3	21.7	80.0	0.0	20.0
	Female	84.7	1.4	13.9	67.2	6.0	26.9	83.8	5.4	10.8
22	The teaching helps to develop my confidence									
	Male	51.9	5.6	42.6	73.9	8.7	17.4	55.0	0.0	45.0
	Female	56.9	6.9	36.1	82.1	6.0	11.9	67.6	5.4	27.0
24	The teaching time is put to good use									
	Male	44.4	0.0	55.6	52.2	0.0	47.8	55.0	0.0	45.0
	Female	68.1	5.6	26.4	61.2	1.5	37.3	78.4	5.4	16.2
25 (**R**)	The teaching over-emphasises factual learning									
	Male	61.1	0.0	38.9	87.0	0.0	13.0	90.0	0.0	10.0
	Female	77.8	6.9	15.3	74.6	9.0	16.4	97.3	0.0	2.7
38	I am clear about the learning objectives of the course									
	Male	68.5	3.7	27.8	60.9	13.0	26.1	75.0	0.0	25.0
	Female	63.9	5.6	30.6	68.7	6.0	25.4	81.1	5.4	13.5
44	The teaching encourages me to be an active learner									
	Male									
	Female	51.9	0.0	48.1	87.0	4.3	8.7	55.0	0.0	45.0
		58.3	8.3	33.3	76.1	4.5	19.4	73.0	13.5	13.5
47	Long term learning is emphasised over short term learning									
	Male	57.4	7.4	35.2	65.2	17.4	17.4	75.0	15.0	10.0
	Female	56.9	23.6	19.4	74.6	14.9	10.4	64.9	18.9	16.2
48 (**R**)	The teaching is too teacher-centred									
	Male	44.4	7.4	48.1	26.1	0.0	73.9	35.0	5.0	50.0
	Female	66.7	6.9	26.4	10.4	11.9	77.6	40.5	8.1	51.4

R=reverse score

Table 11.2 reveals that both males and females at AGU hold similar views regarding the above items. However, there are significant gender based differences in individual statements at KFU and UAE. For KFU, the differences exist for the following items: 1 (p=.000) , 16 (p=.027), 20 (p=.000), 24 (p=.000), 25 (p=.000), and 48 (p=.003). For UAE, the differences are found in items 13 (p=.007) and 16 (p=.034).

TABLE 11.3: PERCENTAGE OF STUDENTS' PERCEPTION OF TEACHERS

(0+1=STRONGLY DISAGREE+DISAGREE=DISAGREE, 2=UNSURE, 3+4= AGREE+STRONGLY AGREE=AGREE)

Scale 2		KFU			AGU			UAE		
Item	Statement	A (%)	unsure (%)	DA (%)	A (%)	unsure (%)	DA (%)	A (%)	unsure (%)	DA (%)
2	The teachers are knowledgeable									
	Male	68.5	0.0	31.5	69.6	4.3	26.1	60.0	10.0	30.0
	Female	75.0	8.3	16.7	73.1	9.0	17.9	94.6	2.7	2.7
6	The teachers are patient with patients									
	Male	64.8	9.3	25.9	69.6	21.7	8.7	70.0	15.0	15.0
	Female	45.8	25.0	29.2	59.7	19.4	20.9	64.9	27.0	8.1
8 (**R**)	The teachers ridicule the students									
	Male	64.8	3.7	31.5	43.5	8.7	47.8	15.0	50.0	80.0
	Female	54.2	9.7	36.1	35.8	11.9	52.2	13.5	5.4	81.1
9 (**R**)	The teachers are authoritarian									
	Male	61.1	3.7	35.2	43.5	8.7	47.8	40.0	5.0	55.0
	Female	45.8	4.2	50.0	26.9	10.4	62.7	16.2	5.4	78.4
18	The teachers have good communications skills with patients									
	Male	72.2	1.9	25.9	73.9	4.3	21.7	50.0	25.0	25.0
	Female	50.0	40.3	9.7	70.1	16.4	13.4	75.7	21.6	2.7
29	The teachers are good at providing feedback to students									
	Male	53.7	1.9	44.4	65.2	13.0	21.7	50.0	5.0	45.0
	Female	52.8	5.6	41.7	73.1	9.0	17.9	73.0	18.9	8.1
32	The teachers provide constructive criticism here									
	Male	66.7	1.9	31.5	52.2	8.7	39.1	45.0	20.0	35.0
	Female	48.6	8.3	43.1	56.7	9.0	34.3	83.8	8.1	8.1
37	The teachers give clear examples									
	Male	57.4	3.7	38.9	73.9	0.0	26.1	75.0	0.0	25.0
	Female	77.8	5.6	16.7	82.1	6.0	11.9	94.6	2.7	2.7
39 (**R**)	The teachers get angry in class									
	Male	57.4	1.9	40.7	39.1	4.3	56.5	30.0	0.0	70.0
	Female	50.0	5.6	44.4	29.9	9.0	61.2	18.9	2.7	78.4
40	The teachers are well prepared for their classes									
	Male	53.7	1.9	44.4	78.3	0.0	21.7	70.0	0.0	30.0
	Female	84.7	1.4	13.9	83.6	4.5	11.9	94.6	2.7	2.7
50 (**R**)	The students irritate the teachers									
	Male	50.0	3.7	56.3	30.4	13.0	56.5	45.0	10.0	45.0
	Female	33.3	12.5	54.2	37.3	11.9	50.7	24.3	10.8	64.9

Table 11.3 reveals that both males and females at AGU university perceived the teachers' characteristics similarly. However, there are significant gender based differences in individual items for KFU and UAE. For KFU, the differences exist in items 9 (p=.041), 37 (p=.039), and 40 (p=.001). For UAE, the differences exist for the following items: 2 (p=.000), 18 (p=.010), 29 (p=.007), 32 (p=.004), 37 (p=.001), and 40 (p=.002).

TABLE 11.4: PERCENTAGE OF STUDENTS' ACADEMIC SELF-PERCEPTIONS
(0+1=STRONGLY DISAGREE+DISAGREE=DISAGREE, 2=UNSURE, 3+4= AGREE+STRONGLY AGREE=AGREE)

Scale 3		KFU (N=126)			AGU (N=90)			UAE (N=57)		
Item	Statement	A (%)	unsure (%)	DA (%)	A (%)	unsure (%)	DA (%)	A (%)	unsure (%)	DA (%)
5	Learning strategies which worked for me before continue to work for me now									
	Male	57.4	1.9	40.7	65.2	0.0	34.8	40.0	5.0	55.0
	Female	34.7	2.8	62.5	52.2	4.5	43.3	56.8	5.4	37.8
10	I am confident about my passing this year									
	Male	68.5	3.7	27.8	73.9	0.0	26.1	80.0	0.0	20.0
	Female	56.9	13.9	29.2	56.7	13.4	29.9	64.9	16.2	18.9
21	I feel I am being well prepared for my profession									
	Male	63.0	1.9	35.2	60.9	8.7	30.4	65.0	15.0	20.0
	Female	62.5	12.5	25.0	70.1	16.4	13.4	51.4	35.1	13.5
26	Last year's work was a good preparation for this year's work									
	Male	70.4	0.0	29.6	65.2	17.4	17.4	80.0	0.0	20.0
	Female	56.9	6.9	36.1	73.1	6.0	20.9	86.5	5.4	8.1
27	I am able to memorize all I need									
	Male	42.6	5.6	51.9	47.8	13.0	39.1	40.0	0.0	60.0
	Female	22.2	5.6	72.2	38.8	3.0	58.2	21.6	5.4	73.0
31	I have learned a lot about empathy in my profession									
	Male	63.0	0.0	37.0	65.2	8.7	26.1	75.0	15.0	10.0
	Female	75.0	13.9	11.1	89.6	3.0	7.5	81.1	8.1	10.8
41	My problem solving skills are being well developed here									
	Male	83.3	1.9	14.8	82.6	0.0	17.4	60.0	0.0	40.0
	Female	65.3	11.1	23.6	88.1	0.0	11.9	89.2	8.1	2.7
45	Much of what I have to learn seems relevant to a career in healthcare									
	Male	75.9	0.0	24.1	69.6	4.3	26.1	95.0	0.0	5.0
	Female	87.5	5.6	6.9	89.6	3.0	7.5	100	0.0	0.0

Table 11.4 shows that there are significant gender based differences in the individual items of subscale 3 for students at KFU, AGU, and UAE. For KFU, the differences exist for items: 5 (p=.002), 27 (p=.000), 31 (p=.031), and 41 (p=.021). For AGU, the difference exists for item 45 (p=.038). For UAE, the differences exist for items 10 (p=.042), 41 (p=.048), and 45 (p=.040).

TABLE 11.5: PERCENTAGE OF STUDENTS' PERCEPTION OF ATMOSPHERE

(0+1=STRONGLY DISAGREE+DISAGREE=DISAGREE, 2=UNSURE, 3+4=AGREE+STRONGLY AGREE=AGREE)

Scale 4		KFU (N=126)			AGU (N=90)			UAE (N=57)		
Item	Statement	A (%)	unsure (%)	DA (%)	A (%)	unsure (%)	DA (%)	A (%)	unsure (%)	DA (%)
11	The atmosphere is relaxed during the ward teaching									
	Male	72.2	0.0	27.8	60.9	21.7	17.4	55.0	25.0	20.0
	Female	37.5	40.3	22.2	61.2	20.9	17.9	45.9	45.9	8.1
12	This school is well timetabled									
	Male	46.3	1.9	51.9	39.1	8.7	52.2	70.0	5.0	25.0
	Female	41.7	1.4	56.9	49.3	4.5	46.3	94.6	0.0	5.4
17 (**R**)	Cheating is a problem in this school									
	Male	53.7	0.0	46.3	26.1	13.0	60.9	30.0	10.0	60.0
	Female	13.9	9.7	76.4	43.3	11.9	44.8	27.0	10.8	62.2
23	The atmosphere is relaxed during lectures									
	Male	51.9	0.0	48.1	78.3	0.0	21.7	75.0	0.0	25.0
	Female	43.1	6.9	50.0	73.1	4.5	22.4	78.4	5.4	16.2
30	There are opportunities for me to develop interpersonal skills									
	Male	61.1	3.7	35.2	56.5	4.3	39.1	45.0	5.0	50.0
	Female	48.6	12.5	38.9	61.2	9.0	29.9	75.7	13.5	10.8
33	I feel comfortable in class socially									
	Male	59.3	5.6	35.2	34.8	17.4	47.8	70.0	5.0	25.0
	Female	66.7	2.8	30.6	64.2	9.0	26.9	78.4	5.4	16.2
34	The atmosphere is relaxed during seminars/tutorials									
	Male	59.3	3.7	37.0	73.9	13.0	13.0	75.0	5.0	20.0
	Female	56.9	4.2	38.9	70.0	4.5	25.4	78.4	5.4	16.2
35 (**R**)	I find the experience disappointing									
	Male	25.9	1.9	72.2	30.4	8.7	60.9	15.0	0.0	85.0
	Female	30.6	6.9	62.5	20.9	1.5	77.6	10.8	5.4	83.8
36	I am able to concentrate well									
	Male	59.3	3.7	37.0	87.0	0.0	13.0	75.0	5.0	20.0
	Female	58.3	6.9	34.7	80.6	7.5	11.9	78.4	2.7	18.9
42	The enjoyment outweighs the stress of this course									
	Male	57.4	1.9	40.7	56.5	0.0	43.5	55.0	0.0	45.0
	Female	44.4	2.8	52.8	68.7	6.0	25.4	43.2	8.1	48.6
43	The atmosphere motivates me as a learner									
	Male	53.7	1.9	44.4	52.2	0.0	47.8	60.0	0.0	40.0
	Female	43.1	2.8	54.2	64.2	4.5	31.3	73.0	5.4	21.6
49	I feel able to ask the questions I want									
	Male	57.4	0.0	42.6	69.6	0.0	30.4	70.0	5.0	25.0
	Female	54.2	4.2	41.7	64.2	1.5	34.3	75.7	0.0	24.3

Table 11.5 indicates that males and females at AGU perceive their atmosphere similarly. However, males and females at KFU and UAE tend to have significantly different perceptions. For KFU, the differences exist for items 11 (p=.013), 17 (p=.000), and 42 (p=.028). For UAE, the differences exist for items 12 (p=.039), and 30 (p=.004).

TABLE 11.6: PERCENTAGE OF STUDENTS' SOCIAL SELF-PERCEPTIONS
(0+1=STRONGLY DISAGREE+DISAGREE=DISAGREE, 2=UNSURE, 3+4= AGREE+STRONGLY AGREE=AGREE)

Subscale 5		KFU (N=126)			AGU (N=90)			UAE (N=57)		
Item	Statement	A (%)	unsure (%)	DA (%)	A (%)	unsure (%)	DA (%)	A (%)	unsure (%)	DA (%)
3	There is a good support system for students who get stressed									
	Male	33.3	5.6	61.1	8.7	17.4	73.9	5.0	5.0	90.0
	Female	8.3	9.7	81.9	20.9	10.4	68.7	21.6	10.8	67.6
4 (**R**)	I am too tired to enjoy this course									
	Male	53.7	0.0	46.3	47.8	0.0	52.2	85.0	0.0	15.0
	Female	66.7	1.4	31.9	46.3	4.5	49.3	64.9	5.4	29.7
14	I am rarely bored on this course									
	Male	46.3	3.7	50.0	26.1	13.0	60.9	25.0	0.0	75.0
	Female	23.6	2.8	73.6	29.9	4.5	65.7	37.8	0.0	62.2
15	I have good friends in this school									
	Male	72.2	1.9	25.9	65.2	0.0	34.8	80.0	0.0	20.0
	Female	88.9	1.4	9.7	79.1	3.0	17.9	89.2	0.0	10.8
19	My social life is good									
	Male	63.0	1.9	35.2	47.8	0.0	52.2	75.0	0.0	25.0
	Female	83.3	0.0	16.7	83.6	0.0	16.4	83.8	0.0	16.2
28	I seldom feel lonely									
	Male	63.0	5.6	31.5	34.8	13.0	52.2	45.0	10.0	45.0
	Female	63.9	4.2	31.9	50.7	3.0	46.3	51.4	2.7	45.9
46	My accommodation is pleasant									
	Male	42.6	16.7	40.7	34.8	26.1	39.1	70.0	10.0	20.0
	Female	8.3	65.3	26.4	55.2	29.9	14.9	40.5	16.2	43.2

Table 11.6 reveals significant gender based differences for students at each university. For KFU, the differences exist for items 3 (p=.002), 14 (p=.001), 15 (p=.005), and 19 (p=.005). For AGU, the differences exist for items 19 (p=.007), and 46 (p=.018). For UAE, the differences exist for item 3 (p=.029).

Examining the students' perceptions over the five subscales based on a continuum scale[1] ranging from 'poor' to 'excellent' suggests there are trends (Table 11.7). Firstly, the majority of males and females at KFU felt that the learning, teachers, academic development, atmosphere, and social aspects are 'good'[2].

Secondly, the majority of males and females at AGU felt that all subscales are 'good'. Thirdly, the majority of males and females at UAE perceived the five aspects of their learning environment as 'good', (except subscale 5 for male). However, about half of males viewed their social aspect as 'not good'.

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[1] The basis for this continuum scale is as follows: 'poor' ranged from '0-25%' of the maximum score, 'not good' ranged from '26-50%', 'good' ranged from '51-75%', and 'excellent' is >75%.

[2] The term 'good' represents the combined scores of both 'good' and 'excellent', and the term 'not good' represents the combined scores of both 'poor' and 'not good'.

TABLE 11.7: STUDENTS' PERCEPTIONS OF OVERALL SUBSCALES OF THE DREEM BASED ON GENDER

University		Subscale One (/48)					
		Poor < 13	**Not Good 13-24**	**Good 25-36**	**Excellent > 36**	**Mean**	**Mean/Max.**
KFU	Male	0.00	38.90	55.60	5.60	26.93	56.10%
	Female	5.60	31.90	59.70	2.80	25.97	54.10%
AGU	Male	0.00	17.40	52.20	30.40	31.35	65.31%
	Female	0.00	6.00	59.70	34.30	33.49	69.77%
UAE	Male	0.00	40.00	60.00	0.00	27.15	56.56%
	Female	0.00	13.50	78.40	8.10	30.08	62.67%
University		Subscale Two (/44)					
		Poor < 12	**Not Good 12-22**	**Good 23-33**	**Excellent > 33**	**Mean**	**Mean/Max.**
KFU	Male	0.00	40.70	51.90	7.40	23.52	53.45%
	Female	1.40	31.90	58.30	8.30	25.42	57.77%
AGU	Male	4.30	21.70	47.80	26.10	26.70	60.68%
	Female	1.50	16.40	59.70	22.40	28.90	65.68%
UAE	Male	0.00	30.00	50.00	20.00	26.20	59.55%
	Female	0.00	56.80	43.20	0.00	32.08	72.91%
University		Subscale Three (/32)					
		Poor < 9	**Not Good 9-16**	**Good 17-24**	**Excellent > 24**	**Mean**	**Mean/Max.**
KFU	Male	1.90	20.40	59.30	18.50	20.00	62.50%
	Female	1.40	29.20	61.10	8.30	18.57	58.03%
AGU	Male	4.30	0.00	78.30	17.40	20.83	65.09%
	Female	0.00	14.90	58.20	26.90	21.67	67.72%
UAE	Male	0.00	20.00	60.00	20.00	19.85	62.03%
	Female	0.00	2.70	73.00	24.30	21.19	66.22%
University		Subscale Four (/48)					
		Poor < 13	**Not Good 13-24**	**Good 25-36**	**Excellent > 36**	**Mean**	**Mean/Max.**
KFU	Male	5.60	24.10	57.40	13.00	27.02	56.29%
	Female	5.60	30.60	55.60	8.30	26.14	54.46%
AGU	Male	4.30	26.10	47.80	21.70	28.83	60.06%
	Female	1.50	22.40	50.70	25.40	30.33	63.19%
UAE	Male	0.00	30.00	50.00	20.00	29.50	61.46%
	Female	0.00	10.80	62.20	27.00	32.38	67.46%
University		Subscale Five (/28)					
		Poor < 8	**Not Good 8-14**	**Good 15-21**	**Excellent > 21**	**Mean**	**Mean/Max.**
KFU	Male	5.60	40.70	48.10	5.60	14.65	52.32%
	Female	11.10	40.30	43.10	5.60	13.93	49.75%
AGU	Male	13.00	56.50	26.10	4.30	12.74	45.50%
	Female	6.00	35.80	52.20	6.00	15.18	54.21%
UAE	Male	10.00	45.00	45.00	0.00	12.75	45.54%
	Female	8.10	40.50	48.60	2.70	14.59	52.11%

11.2.1: DISCUSSION

Males and females at KFU differ in their perceptions of some individual items within the five subscales of the DREEM (Table 11.1, 11.2, 11.3, 11.4, 11.5, and 11.6). Firstly, dimensions which have been perceived more negatively by females compared with males.

(1) Being encouraged to participate in class. As indicated earlier in Chapter 5, the collectivist culture of the Gulf states results in students being reluctant to participate in class unless they are invited to (Hofstede, 1986). This is especially true in the case of female students. Such a lack of participation may be attributed to cultural specificity or to the shyness of females. Thus, it is advisable for teachers at KFU to encourage females to participate more in class and ask questions in order to enhance their learning.

(2) Teaching helps develop competence and problem-solving skills. The females' feeling of dissatisfaction may reflect a bias in the present cultural context in which the curriculum operates.

(3) The previous learning strategies and memorisation ability. This may be explained by the effect of the habitual learning strategies used at pre-university level, while students realise that such strategies are not effective for the demand of the university workload. Ramsden (1992) indicated that students' learning strategies at university level were affected greatly by their previous learning strategies. Thus, it is advisable for teachers to introduce a course on learning strategies and to encourage students to identify their learning strategies so they will maximise their use of a desirable deep approach and minimise the undesirable surface one. A reduction of factual information in the content of the curriculum is also recommended.

(4) A good support system and course enjoyment. This result is consistent with the findings of McMurray et al. (1980) and Clark and Rieker (1986), who found that females are more liable to become stressed and be dissatisfied with their learning experience than males. Females need a good support system to deal with stress and have counselling on their dissatisfaction with academic issues.

(5) Ward teaching atmosphere. This may be explained by the effect of what Hofstede (1986) called 'cultural shock'. Female learning at both pre-university and pre-clinical level takes place within an exclusively female environment. This situation suddenly changes when the females start to deal with both genders of patient during their ward teaching, creating a stressful atmosphere for females. So, it is advisable for the authorities at KFU to introduce female students to patients of both genders in their early training. In doing so, the cultural shock can be minimised and female self-confidence maximised.

Secondly, males more so than females felt that: (1) Teachers are authoritarian. In such situations, the teacher's personal characteristics are more likely to influence males than females because, in more conservative institutions, the females do not have opportunities to interact directly with their male teachers outside the classroom. Thus, it is suggested that the same opportunity for interacting directly with faculty members be provided for both genders.

(2) Teachers not being well prepared. This suggests a deficiency in the learning process, which needs to be taken into consideration by the university authorities. Better preparation by teachers for their classes is associated with their enthusiasm in teaching and their interest in the subject which in turn can enhance student learning (Husbands, 1996). Thus, it is suggested that the responsible bodies at

this university allocate teachers to courses which suit their individual interests. Another possible explanation is that female students at KFU, which is a single-gender university, are taught by male and female teachers, while male students are only taught by male teachers. In Saudi society, i.e. masculine society, male teachers in higher education have more opportunity to work outside the university for non-academic purposes, which could leave them with less time to allocate for the preparation of their classes. On the other hand, female teachers have limited opportunity, if at all, to work outside the university in non-academic jobs. This in turn may leave female teachers to assign more time for their preparation compared with male teachers who could have other non-academic commitments besides teaching. Thus, it is recommended that the higher education authority reduce the commitment of male teachers outside the university by increasing their wages and reducing the teaching hours for each faculty member.

(3) Cheating. One possible explanation for more males than females perceiving cheating as a problem could be attributed to motivation, since it has been shown that females in higher education tend to be more intrinsically motivated than males (Vallerand et al., 1992). Students with intrinsic motivation tend to study for the purpose of learning *per se*, and are satisfied with doing so, which implies that they are unlikely to cheat (Newstead et al., 1996). Females in the present study showed more intrinsic motivation (see section 11.4) while males showed more achieving motivation (see section 11.3). With achieving motivation, e.g. getting higher marks, male students may tend to do whatever it takes to get high marks, even cheating. Thus, it is recommended that the authorities at KFU university identify to what extent cheating is really a problem and take appropriate action to counteract it.

Summarising males' and females' views based on a continuum scale ranging from 'poor' to 'excellent' (refer to foot-note number 1 to find the basis for such continuum) (Table 11.7) reveals that about half of the males and females felt that their learning environment is 'good'. They also felt that there is room for improvement for at least one third of the learning environment as measured by DREEM. Examples of such improvements include providing a support system, involving students in the learning process, and providing equal opportunities for both sexes to participate in classes.

In the AGU, more females than males felt comfortable in class socially, had a good social life, and were happy with their accommodation and friendships. The high contentment of females at AGU with their social life may be explained from a cultural point of view. In a collective society, such as the Gulf region, adult females spend most of their pre-marital lifetime within their parental home, indeed it is not acceptable for females to live independently from their parents unless they are married. As a result, they are not independent socially and financially as is the case with most adult females in the Western culture. The social activities for females are limited mainly to their family and female friends. In such circumstances, females are normally used to a lifestyle where social activities and interpersonal relations are limited, whereas at university the social life is entirely different. AGU university, which is co-educational, provides students with an open climate in terms of easy accessibility to their teachers of both genders, great freedom in terms of reaching all the universities' facilities when they need to[3], initiating friendships among a variety of

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[3] For example at one Gulf single-gender university the timetable for the laboratory and the special main library is restricted to males at one time and females at another, female students may not feel at liberty to access these facilities when they need them.

students, of which 74% are female. This may explain why female students at AGU showed more satisfaction with the social aspects of their learning environment.

Studies such as McMurray et al. (1980) and Clark and Rieker (1986) found that females tend to experience more depression, more stress, and less satisfaction with their academic life than their male counterparts. However, females at AGU in the present study showed high satisfaction with the social aspects of their learning environment compared with males. Thus, these results contradict the above studies. In addition, students in a problem-based learning environment have more satisfaction and show less stress concerning their academic life (Moore-West et al., 1989; Kaufman et al., 1998). Moreover, it has been shown that females tend to have a stronger social orientation than males (Oxford and Ehrman, 1995). Thus, at AGU, the females' experience of a problem-based curriculum coupled with an open climate at a coeducational university, may contribute to the high positive attitudes of females towards the social aspects of their learning environment.

For both males and females, the areas which need the most improvement are: establishing a good support system, ensuring the extent to which teaching is well focused, utilising the teaching time more efficiently, reducing the amount of factual information, recruiting knowledgeable faculty members and stressing the important role of teachers' personal behaviour with students.

At UAE, female students view their teachers more positively than males do. They describe them as knowledgeable, having good communication skills, being good at providing feedback and constructive criticism and well prepared for their classes. Abdulrazzaq and Qayed (1991) claimed that the medical education curriculum in the

UAE university deviated from being problem-based learning towards more teacher-oriented.

In addition, Paul et al. (1994) found that female students at the UAE university preferred more teacher-oriented, well-organised and practical learning than did male students. On the other hand, males preferred to work in a group. Thus, since teachers provide females with a teacher-centred approach, which they prefer, females rated their teaching more positively. These results support the findings of Husbands (1996) that students tend to evaluate more positively the teaching of those teachers who delivered lectures in a more highly didactic situation that matches students' preferences, than those in a more interactive class-teaching situation.

Moreover, in a teacher-oriented class the teacher-student interaction is usually limited compared with that in a student-centred class. Such limited interaction may prevent students viewing teachers as angry or authoritarian. In addition, the society in the Gulf countries influences to some extent the relationship between female students and a male teacher. For example females who had only female teachers prior to university may be more reluctant to ask questions or become involved in a discussion with a male teacher. In such a situation, one would expect that male teachers would be more polite with female students in order to encourage them to communicate in class, provide them with constructive criticism, and give good feedback. Thus, the high satisfaction of female students at UAE with their teachers may be attributed to the nature of their interaction with their teacher in a teacher-oriented class and the influence of cultural values in the United Arab Emirates that shape such interaction.

For both males and females, the main dimensions which need improvement are the following: establishing a good support system, encouraging students' participation

in class, reducing the content in the curriculum, paying attention to the negative implications of cheating on students' learning, providing the opportunity for students to ask questions. It is recommended that the teachers at these universities adopt a more stimulating approach, encourage students to interact and become more involved in the learning process.

The above discussion shows to what extent gender influences perceptions of climate. Accordingly, this part provides an answer to one of the research questions: the effect of gender on learning environment. In addition, it provides some recommendations for enhancing the learning environment for both genders in the Gulf region.

11.3: INFLUENCE OF GENDER ON STUDENTS' APPROACHES TO STUDY

To explore whether there are significant differences between male and female in their approaches to study, the following hypothesis was tested:

H2: There is no significant difference in student approaches to study (measured by the ASI) between male and female students in the KFU, AGU, and UAE universities.

At KFU, the Mann-Whitney test [Table 11.8] revealed significant differences between male and female students in the *reproducing*, *meaning*, and *versatile* approaches.

TABLE 11.8: COMPARISON OF STUDENTS' APPROACHES TO STUDY (0= "STRONGLY DISAGREE", 4= "STRONGLY AGREE")

Scale	KFU (N=126)			AGU (N=90)			UAE (N=57)		
	Mean (SD)	Mean rank	P-value	Mean (SD	Mean rank	P-value	Mean (SD)	Mean rank	P-value
Achieving (/24)									
Male	15.9 (3.91)	65	.76	18.3 (1.91)	52	.19	17.9 (3.36)	33	.17
Female	15.7 (3.72)	63		17.1 (3.33)	43		16.6 (2.89)	27	
Reproducing (/24)	15.0 (3.69)	55	.03	16.2 (3.52)	45	.84	17.2 (2.25)	30	.79
Male	16.5 (2.91)	70		16.4 (3.53)	46		17.0 (3.09)	29	
Female									
Meaning (/24)									
Male	14.8 (4.71)	55	.03	16.1 (3.66)	36	.04	16.3 (3.64)	26	.40
Female	16.4 (3.40)	70		18.0 (3.68)	49		17.0 (3.80)	30	
Comprehension (/24) learning									
Male	16.1 (3.46)	61	.55	15.0 (4.52)	41	.32	15.8 (3.08)	28	.71
Female	16.2 (3.25)	65		16.0 (2.44)	47		15.9 (2.71)	30	
Operation (/24) learning									
Male	13.2 (3.61)	60	.40	14.1 (3.54)	35	.02	14.7 (3.53)	28	.63
Female	13.9 (3.26)	66		15.8 (3.58)	49		15.1 (3.31)	30	
Versatile (/48) approach									
Male	30.7 (8.20)	51	.00	33.5 (7.45)	34	.02	35.5 (5.60)	27	.54
Female	35.0 (5.81)	73		37.5 (5.70)	49		36.1 (6.08)	30	
Learning pathologies (/48)	28.4 (5.92)	64	.86	27.9 (6.37)	43	.62	28.4 (5.20)	28	.80
Male	28.0 (5.43)	63		28.6 (5.42)	46		28.8 (5.35)	29	
Female									
Prediction for success (/120)									
Male	64.5 (8.37)	57	.06	69.2 (5.58)	40	.21	68.6 (7.89)	30	.84
Female	67.1 (8.22)	69		70.7 (6.94)	48		68.5 (6.87)	29	

At AGU, the Mann-Whitney test revealed significant differences between male and female students in the *meaning*, *operation*, and *versatile* approaches. The Mann-Whitney test indicated no significant differences between male and female students at UAE. These results confirm the null hypothesis for students at UAE.

11.3.1: DISCUSSION

Female students at KFU and AGU tend to use the *versatile*, *meaning*, *reproducing* (for KFU only) and *operation* learning (for AGU only) approaches more than male students. This suggests that females tend to vary their study methods according to the requirements of the task, try to understand the subjects of their courses, and also rely on rote memorisation more than their male counterparts (for

KFU). Thus, females tend to have a deeper approach than males. The findings of significantly higher scores on *versatile* approach for female students supports the claim of Meyer et al. (1994), that females tend to have versatile learning styles. In addition, the tendency of females to use a deeper approach supports the findings of Watkins and Hattie (1981) but contradicts those of the Sadler-Smith (1996) study.

One possible explanation for KFU females' tendency to use a deeper approach than males could be related to their intrinsic motivation (see section 11.4). Another possible explanation could be attributed to their higher satisfaction, though not significant, with their teachers (see section 11.2).

At AGU, the problem-based curriculum encourages all students to adopt a deep approach. However, females have a deeper approach than males, which could be explained as follows. Being at a co-educational school may create a somewhat competitive environment between males and females. Students at AGU are multinational. The majority of these students hold scholarships from their government, so they are considered highly successful students based on their high school grade. So, it is to be expected that this group will be highly competetive. This is evidenced by the scores of both males and females on the achieving scale. So the high score of females on deep approach could be attributed to the highly competetive environment coupled with females' intrinsic motivation.

The absence of significant differences among students at UAE based on gender could be explained as follows. Students under the problem-based curriculum are encouraged to adopt a deep approach. Both males and females at UAE reported higher scores on all learning approaches. Being in a single-gender school with a small number of students in a class makes students cooperate rather than compete with each

other. So the absence of such differences could be attributed to this less competetive environment. This result supports those of Geiger and Pinto (1991), Richardson (1993), Hayes and Richardson (1995), Willcoxson and Prosser (1996) who claimed no significant gender-based differences in approaches to learning.

Despite the non-significant results between male and female students at the KFU and AGU on the remaining scales and UAE on all scales of the ASI, Table 11.8 revealed that there are nevertheless common general trends. Firstly, female students at the three universities reported more use of a deep approach than males do. One possible explanation may be attributed to their intrinsic motivation, which could lead them to adopt such an approach (see section 11.4). These results are in conflict with the findings of Severiencs and Ten Dam (1994) and the Sadler-Smith (1996) studies, that males use a deeper approach than females. In addition, these results provide clear evidence that females' learning approaches are not a disadvantage at a coeducation school, as is the case at AGU, or under the traditional curriculum, as is the case at KFU.

Secondly, males use more *achieving* approach than females. This indicates that males tend to use organised study methods, work hard, and have high *achievement* motivation to do well in order to achieve better results than their classmates. One possible explanation why male students in the present study have higher scores on achieving is the highly competitive environment. This result is consistent with the findings of the Chessell (1986) study, that more male students than female considered the importance of such a scale in their approaches to study.

Therefore, these universities should be aware of the effect of a competitive classroom environment on students' learning. It is also advisable for teachers to create

a relaxed and comfortable classroom environment that encourages students to cooperate rather than compete with each other, so that learning will be fostered. In addition, teachers should be aware of the effect of gender differences on approaches to learning. They should encourage both sexes to adopt a desirable, deep approach to learning. Moreover, it is recommended that teachers acknowledge the cultural specificity of the Gulf States with regard to gender differences in approaches to learning, and to vary their teaching methods to suit the needs of both sexes.

The overall result of this study does not show consistently significant differences between male and female medical students in their approaches to study. Such lack of consistency may be attributed to the nature of medical schools as being single-sex or co-education. This finding is consistent with that of the Richardson and King (1991) study, that there are no consistent and reliable differences between male and female students. In sum, the preceding discussion shows the characteristics of approaches to study used by both genders at medical schools in the Gulf region. In addition, it provides some suggestions for encouraging the adoption of a deep approach.

11.4: INFLUENCE OF GENDER ON STUDENTS' MOTIVES FOR ENTERING MEDICAL SCHOOLS

To find out whether there is a significant difference between male and female motives for entering medical school, the following hypothesis was tested.

H3: There is no significant difference in motives to study medicine between males and females in the KFU, AGU, and UAE universities.

TABLE 11.9: INFLUENCE OF GENDER ON STUDENTS' MOTIVES FOR ENTERING MEDICAL SCHOOLS (0= "NOT IMPORTANT AT ALL", 4= "VERY IMPORTANT")

Statements	KFU (N=126)			AGU (N=90)			UAE (N=57)		
	Mean (SD)	MR	P	Mean (SD)	MR	P	Mean (SD)	MR	P
1.A desire of my family members for me to pursue a career in medicine									
Male	2.61 (1.23)	67	.32	2.65 (1.36)	43	.62	2.25 (1.37)	30	.75
Female	2.33 (1.39)	61		2.84 (1.33)	46		2.03 (1.58)	28	
2.My desire to be with my friend in the same college									
Male	1.76 (1.45)	80	.00	.696 (1.06)	51	.13	.550 (.825)	29	.87
Female	.556 (1.14)	51		.418 (.923)	44		.541 (.900)	29	
3.To follow my family career tradition which is medicine									
Male	1.54 (1.42)	78	.00	.522 (1.08)	45	.80	.400 (.940)	27	.42
Female	.417 (.930)	52		.597 (1.10)	46		.622 (1.18)	30	
4.To fulfil my internal desire to help sick people									
Male	2.94 (.899)	49	.00	3.17 (1.11)	38	.04	3.25 (1.06)	25	.06
Female	3.55 (.748)	74		3.63 (.735)	48		3.73 (.651)	31	
5.The high expected income for doctors motivated me to pursue medicine									
Male	2.72 (.656)	83	.00	2.39 (.838)	61	.00	2.00 (1.21)	33	.18
Female	1.55 (1.19)	49		1.46 (1.19)	40		1.54 (1.01)	27	
6.Studying medicine provides me with a high social prestige									
Male	2.87 (.912)	71	.04	2.78 (1.08)	49	.40	3.25 (1.25)	37	.01
Female	2.40 (1.21)	58		2.49 (1.27)	44		2.49 (1.26)	25	
7.To cover the shortage in national / local physicians									
Male	2.54 (.985)	67	.34	1.74 (1.32)	38	.10	2.95 (1.09)	27	.42
Female	2.22 (1.46)	61		2.25 (1.38)	48		3.16 (1.01)	30	
8.A personal desire to pursue a career that is *intellectually* challenging									
Male	2.74 (1.04)	65	.67	2.70 (1.36)	40	.20	2.45 (1.35)	23	.03
Female	2.51 (1.40)	62		3.16 (.931)	47		3.22 (.946)	32	
9.A past chronic family illness motivated me to study medicine									
Male	2.07 (1.32)	74	.00	1.48 (1.56)	49	.50	.600 (.820)	22	.01
Female	1.28 (1.55)	56		1.25 (1.42)	44		1.45 (1.32)	33	

MR= Mean rank, P= P-value

At KFU, the Mann-Whitney test [Table 11.9] revealed significant gender-based differences on the following motives for entering medical school: motive number 2, 3, 4, 5, 6, and 9. For AGU, the Mann-Whitney test revealed significant

gender-based differences on motive number 4 and 5. At UAE, the Mann-Whitney test revealed significant gender-based differences on motive number 6, 8, and 9.

11.4.1: DISCUSSION

Table 11.9 shows that both males and females at KFU perceive helping sick people as their most important motive for entering medical school. However, female students at KFU reported significantly higher scores than males did. The second most important motive for males was the high social prestige, while for females it was the intellectual challenge. Male students indicated higher scores on being motivated by high social prestige than did females. In addition, males were more likely to be influenced by a desire to earn a high income than females.

Although both males and females ranked motives associated with being close to friends and following a traditional family career as the less important motives for entering medical school, male students rated these two motivations as being more important than did females. This result reflects the significant roles of friendship and family ties on students' selection of study areas. These results support the claim of Hofstede (1991) that families' and friends' roles are significant influences on individual decision in a collective society. However, it contradicts the findings of Hilliard (1995) in Western culture, that highlight the non-significant influence of family on students for pursuing their medical study. So, the result of the present study provides clear evidence for the influence of cultural specificity. In fact, being close to a friend at the same college is indeed not an easy goal to achieve, particularly at KFU, as the number of applicants for the limited number of places is increasing annually and the process of selecting and admitting students is rigorous.

Moreover, chronic family illness was less important motive for females than males. This result may reflect the actual experience of males with family illnesses. This could in turn reflect the influence of family matters on individuals' decisions to pursue their studies.

At AGU, both males and females reported that fulfilling a desire to help sick people was the first and most important motive for entering medical school. However, female students at AGU rated this motive significantly higher than males. The second most important motive for females was a desire to pursue an intellectually challenging career, while for males it was the high social prestige.

A significant difference was found between males and females on being motivated by a desire to earn a high income. Males reported significantly higher scores on this motive than females did, ranking it as the fifth most important motive, while it was the sixth most important motive for females. These results are consistent with the findings of the Vaglum et al. (1999) study, who found that men scored higher on income motive whereas women scored higher on people oriented motives, such as the opportunity to work with and care for people, and to provide social and humanitarian assistance.

At UAE both males and females indicated that "to fulfil my internal desire to help sick people" was their first most important motive for entering medical school. Male students rated "studying medicine provides me with high social prestige" as their second most important motive, while for females it was "a personal desire to pursue a career that is intellectually challenging". It seems that males reported significantly higher positive scores on the motive associated with prestige but significantly lower positive scores than females on motives associated with the personal desire to pursue a

career that is intellectual challenging. One possible explanation why female students at UAE accorded higher scores to motives associated with a desire to pursue an intellectually challenging career than males, is attributed to cultural specificity. Females in this masculine society provide strong emotional support for their family and husband, perceiving their primary role as being to satisfy their parents' and husbands' needs, taking care of everything within the house, and, in most cases, depending largely on their male partner for support. When choosing to study medicine, these female students based their selection to a large extent on their personal desire to study medicine despite any obstacles they might encounter.

The marked significant difference in this study between males and females at UAE on the motive associated with prestige contradicts the findings of Vaglum et al. (1999), who reported that no significant differences on such a motive exist between men and women. However, the significantly higher positive rating given by females on the intellectual challenge motive is in agreement with his results.

In addition, both males and females at UAE rated the experience of chronic family illness as being a less important motive. However, females showed significantly higher positive scores on this motive. This could be explained by the fact that females tend to be more empathetic and have more emotional feeling than males.

The data showed that both males and females at all three universities ranked the desire to help sick people as their most important motive. However, females indicated a higher mean score on this motive than males, which could be explained by the traditional role of females. The female selection of this as their most important motive may stem from the fact that the traditional role of the female is perceived to be the 'helper' of their parents and family in their parents' house. Later, their role is

again perceived to be the 'helper', taking care of their husband and children in the marital situation. From this perspective, the high female rank for the above motive may stem from the influence that has been exerted by the collectivist society. The tendency of females towards helping others as being their important motive supports the findings of Robbins et al. (1983) who found that females were more inclined toward helping people as their most important motive for pursuing medical studies.

The male students at KFU, AGU, and UAE, identified the expected high social prestige and high income as their most important motives for entering medical school. These results are consistent with the findings of Robbins et al. (1983) that men tend to rank 'good income' as being an important motive for entering medical school. To explain why males in the present study tend to report income and prestige as important motives for entering medical school, it is important to remember that in Islamic society men are responsible for establishing and supporting a large family. Moreover, as indicated in Chapter 5, societies in the Gulf region are male oriented. They derive pride from the number of male members there are in the family, because males represent power and security for the family. Another feature of the masculine society is the need for 'recognition' and 'earnings'. 'Recognition' refers to getting the deserved recognition when someone does a good job, and 'earnings' refers to the ability to earn a high level of income (Hofstede, 1984, 1991). So, by entering medical school male students in this society are more likely to be motivated by the desire to be recognised, have a high degree of social prestige, and obtain a good income.

The above discussion provides an answer to the research question concerning the influence of gender on motives for entering medical school in the Gulf region.

11.5: THE INFLUENCE OF GENDER ON ENGLISH LANGUAGE ACHIEVEMENT

To find out whether there is a significant gender-based difference in English language achievement, the following hypothesis was tested:

H4: There is no significant differences in the English language achievement (measured by Grade Point Average) as experienced by male and female students at the KFU, AGU, and UAE universities.

At KFU, AGU, and UAE the Mann-Whitney test (table 11.10) indicates no significant gender-based differences in students' English language achievement. These results confirm the null hypthesis for students at KFU, AGU, and UAE.

TABLE 11.10: THE INFLUENCE OF GENDER ON ENGLISH LANGAUGE ACHIEVEMENT

	KFU			AGU			UAE		
	Mean (SD)	Mean Rank	p-value	Mean (SD)	Mean rank	p-value	Mean (SD)	Mean Rank	p-value
English Language Achievement (GPA)									
Male	2.02 (1.02)	70	.05	1.30 (.559)	43	.46	2.20 (.616)	32	.22
Female	1.71 (.956)	58		1.43 (.701)	46		2.00 (.707)	27	

11.5.1: DISCUSSION

The finding shows that there is no significant gender-based difference in students' English achievement at the three universities. This result may be attributed to the nature of the population. Medical students are normally selected based on their high school diploma and students are required to have at least 85% of the general Grade Point Average of the total marks in the subjects at high school (Ministry of Higher Education, 1999; Arabian Gulf University, 1998b; United Arab Emirates University, 1998a). So, they are considered to be more successful students among high school graduates. These results contradict the findings of Farhady (1982) who

found significant gender-based differences in English achievement, in terms of a listening comprehension test, where female university students outperformed males. It also contradicts the finding of Eisenstein (1982) who found that females performed significantly better than males on a dialect discrimination task and those of Burstall (1975) who found significant gender-based differences in language achievement favouring the females. However, the result of this study is consistent with the findings of Mpofu et al. (1998) who found no significant gender-based difference in medical students' language achievement as measured by the Test of English as a Foreign Language (TOEFL).

Gardener (1985) argued that success in learning a language depends upon two factors: students' aptitude and motivation towards learning that language. These factors are influenced by individual differences, e.g. gender. However, based on the results of this study, one could argue at least superficially that achievement in learning English language is not necessarily influenced by students' gender. Thus, it may be that other factors contributed more to English achievement than gender issues.

11.6: INFLUENCE OF GENDER ON STUDENTS' PERCEPTIONS OF LEARNING ENGLISH AS A SECOND LANGUAGE

As indicated earlier, the perception towards learning English as a second language involves motivation, attitude towards the English learning environment, attitude towards people speaking English, and orientation to study English language. To find out whether differences between male and female perceptions of learning

English as a second language are statistically significant, the following hypothesis was tested.

H5: There is no significant difference in the perception of learning English as a second language between male and female students at the KFU, AGU, and UAE universities.

At KFU, the Mann-Whitney test [Table 11.11] revealed significant differences between male and female students in their perceptions of their English language courses, motivation, orientation, i.e. instrumental and integrative orientation, and their attitude toward people using English.

TABLE 11.11: INFLUENCE OF GENDER ON STUDENTS' PERCEPTIONS OF LEARNING ENGLISH AS A SECOND LANGAUGE (0= "STRONGLY DISAGREE", 4= "STRONGLY AGREE")

Items	KFU (N=126)			AGU (N=90)			UAE (N=57)		
	Mean (SD)	MR	P	Mean (SD)	MR	P	Mean (SD)	MR	P
Motivation toward studying English									
Male	2.46 (.593)	54	.012	2.50 (.640)	40	.228	2.42 (.672)	24	.109
Female	2.70 (.577)	71		2.70 (.512)	47		2.77 (.563)	32	
Integrativeness (attitude toward people speaking English)									
Male	2.27 (.775)	55	.026	2.39 (.639)	40	.233	2.24 (.783)	26	.333
Female	2.57 (.771)	70		2.56 (.842)	47		2.47 (.514)	31	
Instrumental Orientation									
Male	2.77 (.986)	53	.005	2.97 (.791)	40	.258	3.10 (.727)	27	.445
Female	3.27 (.644)	71		3.20 (.624)	47		3.29 (.508)	30	
Integrative Orientation									
Male	2.52 (.882)	47	.000	3.07 (.809)	41	.316	2.83 (.618)	22	.026
Female	3.25 (.735)	76		3.28 (.618)	47		3.17 (.653)	33	
Perceptions of English course									
Male	2.52 (.770)	45	.000	3.10 (.768)	41	.280	1.97 (1.04)	18	.000
Female	3.24 (.665)	78		3.31 (.623)	47		3.06 (.651)	35	
Perceptions of teachers of English course									
Male	2.45 (.839)	59	.195	2.63 (.935)	40	.259	2.14 (.882)	20	.002
Female	2.64 (.922)	67		2.89 (.837)	47		2.86 (.720)	34	
Perceptions of environment									
Male	2.48 (.665)	50	.000	2.83 (.709)	40	.246	2.06 (.837)	18	.000
Female	2.90 (.684)	73		3.07 (.574)	47		2.95 (.614)	35	

MR=Mean rank, P=P-value

At AGU, the Mann-Whitney test showed no significant gender-based differences in the perceptions of learning English language. These results confirm the null hypothesis for students at AGU. At UAE, the Mann-Whitney test revealed significant gender-based differences in students' perceptions towards the English language learning environment, i.e. the English language course and the teachers of English language courses, and their uses of integrative orientation.

11.6.1: DISCUSSION

Table 11.11 shows that both males and females at the three universities are motivated towards studying English. However, females showed higher scores for such motivation. Females at KFU showed significantly higher positive motivation which could be attributed to their strong intrinsic motivation to study medicine (as shown in section 11.4), since English language courses are part of the core curriculum on the pre-medical course. In addition, English is the medium of communication during their studies and later on in professional life. These findings support those of Cook (1996) who claimed that the interest of male and female students in studying a second language subject is different, with the latter being more likely to be interested in studying such subjects.

With regard to students' attitudes towards people speaking English, both males and females at the three universities have a positive attitude (mean$>$2.24), which could be attributed to the cultural belief that people who speak English are well educated and consequently admired by society. Females at the three universities reported a more positive attitude than males, which could be explained by the cultural specificity which encourages politeness and discourages saying unpleasant things about others.

Moreover, female students at KFU in particular hold a significantly more positive attitude towards people using the English language. This result contradicts the findings of Svanes (1988) who found no significant gender-based differences in Asian students in their attitude towards the people of the target language, in this case Norwegian.

One possible explanation may be attributed to the fact that at KFU there is a large number of British and American staff, who are more likely to represent the culture of people speaking English. In contrast, the faculty members of the English course at AGU and UAE are mainly multinational. English is probably not their first language, and so they in turn do not reflect the culture of people speaking English. This may affect students' attitude towards people using the English language.

Thus, it is recommended that those responsible for English courses at medical schools in the Gulf States emphasise recruiting faculty members for whom English is the first language. This may enhance students' understanding of the culture of people speaking English which could in turn affect their attitude to and learning of the English language. In addition, it is suggested that teachers on the English course expose students more to the cultural aspects of English speaking people in order to encourage a positive attitude. This is important because success in learning a language is affected by the attitude towards people of that language (Gardner, 1985). It is also recommended that students be directly involved in English cultural studies since this is a useful way of increasing their motivation to learn English (Ho, 1998).

Both males and females had high scores on both the *instrumental* and *integrative* orientations. This indicates that they perceive studying English as important not only for the purpose of using the language in the short term, since it is

the medium of instruction during their study in their universities, but they also see it as an important language in the long term, since they will use it in their academic and professional lives for life-long learning.

Females at both KFU and UAE showed significantly higher scores on *integrative* orientation. This may reflect their perception that the English language is the international language used for communication in the majority of countries around the world and it is the language of science in the medical field, at least from their perspective. Thus, it is recommended that teachers encourage students to acknowledge the important of integrative orientation for learning the English language, since such orientation sustains long term motivation for learning the language (Gardner, 1985; Gardner et al., 1985). This may be achieved by emphasising the importance of being a life-long learner, and by encouraging them to perceive English as important not just for their academic work, but also for life-long learning.

Both male and female students at the KFU, AGU, and UAE (females only) indicated a high agreement with their English course (mean >2.5). However, females at KFU and UAE reported significantly higher satisfaction with their English courses than their counterparts. Perhaps they perceive the English course as a useful and interesting subject to be studied. Thus, it is recommended that teachers use relevant examples from the medical field with a view to enhancing students' interest in their English course.

Male students at UAE showed a negative attitude towards their English course (mean <2.0). They may perceive the English course as difficult or feel they do not need such a course, as they already have a satisfactory level of English, at least in their own estimation. Males in the Gulf region have more opportunities to interact

with foreign workers, and to travel abroad alone compared with females, which may help with acquisition of English (however, no significant gender-based differences were found on English achievement, section 11.5). Thus, it is recommended that the UAE review the English course requirements with a view to exempting students who have a satisfactory English level. Introducing an *English for specific purposes* (ESP) course that covers medical issues, could increase students' motivation and their interest in the English course.

With regard to the attitude towards teachers of English, both males and females at the three universities indicated positive perceptions (mean > 2.13). Females at UAE indicated a significantly more positive attitude towards their teachers than males. This may reflect their satisfaction with their teachers for encouraging them to practise the English language, being aware of the different level of students' understanding, and providing them with good feedback. It could also be attributed to their motivation towards studying English, since students with more positive affective predispositions are more likely to study harder to acquire the material (Gardner et al., 1985). Thus, it is advisable for teachers to be aware of the gender role in students' perception of learning English. Providing both sexes with the opportunities to practise the language is also recommended.

This section provides an answer to the research question regarding the influence of gender on attitude towards studying English language.

11.7: THE INFLUENCE OF GENDER ON STUDENTS' LEARNING STRATEGIES IN STUDYING ENGLISH AS A SECOND LANGUAGE

To explore whether there are gender differences in learning strategies for studying English as a second language, the following hypothesis was tested.

H6: There is no significant difference in the learning strategies for English as a second language between male and female students at the KFU, AGU, and UAE universities.

At KFU, the Mann-Whitney test (Table 11.12) revealed significant differences between male and female students in metacognitive and cognitive strategies. For metacognitive strategies, students differ in *advance organiser*, *self management*, and *self monitor*. For cognitive strategies, students differ in *inferring* strategy only.

At AGU, the Mann-Whitney test revealed significant gender-based differences in cognitive strategies, i.e. *note-taking* and *resourcing*. At UAE, the Mann-Whitney test revealed significant gender-based differences in the three types of learning strategies: metacognitive: *advance organizer, direct attention, select attention;* and cognitive strategies: resources, *note-taking, elaborating*; and social strategies: *co-operating*.

TABLE 11.12: THE INFLUENCE OF GENDER ON STUDENTS' STRATEGIES ON LEARNING ENGLISH AS A SECOND LANGUAGE (0= "STRONGLY DISAGREE", 4= "STRONGLY AGREE")

	KFU			AGU			UAE		
	Mean (SD)	Mean Rank	p-value	Mean (SD)	Mean rank	p-value	Mean (SD)	Mean Rank	p-value
Metacognitive Strategies									
Male	2.20 (.62)	57.54	.112	2.28 (.85)	38.30	.125	1.70 (.72)	20.25	.003
Female	2.35 (.76)	67.97		2.54 (.68)	47.97		2.30 (.73)	33.73	
Advance organizer									
Male	1.94 (1.21)	73.75	.006	1.77 (1.10)	39.39	.191	.93 (.99)	20.25	.003
Female	1.34 (1.11)	55.81		2.13 (1.16)	47.80		1.92 (1.17)	33.73	
Direct attention									
Male	2.39 (1.37)	61.40	.564	2.30 (1.33)	48.83	.714	1.40 (1.18)	21.10	.006
Female	2.49 (1.51)	65.08		2.40 (1.43)	46.07		2.41 (1.23)	33.27	
Selective attention									
Male	1.72 (1.29)	60.99	.492	2.22 (1.48)	46.57	.817	1.00 (1.21)	21.85	.014
Female	1.93 (1.50)	65.38		2.15 (1.38)	45.13		1.89 (1.26)	32.86	
Self-management									
Male	2.16 (.701)	52.89	.005	2.33 (1.05)	40.85	.319	1.925 (.78)	24.42	.124
Female	2.59 (.892)	71.46		2.60 (.78)	47.10		2.250 (.69)	31.47	
Self-monitor									
Male	2.69 (.882)	49.81	.000	2.72 (1.04)	36.98	.061	2.73 (1.08)	27.15	.508
Female	3.26 (.787)	73.77		3.16 (.88)	48.43		2.96 (.89)	30.00	
Self-evaluation									
Male	2.46 (1.24)	56.56	.052	2.78 (1.13)	43.59	.670	2.05 (1.27)	24/08	.068
Female	2.88 (1.14)	68.70		2.87 (1.17)	46.16		2.68(.973)	31.66	
Cognitive Strategies									
Male	2.33 (.84)	56.27	.054	2.48 (.64)	30.96	.002	2.11 (.76)	21.63	.013
Female	2.60 (.72)	68.92		2.97 (.60)	50.49		2.61 (.58)	32.99	
Resourcing									
Male	2.43 (1.34)	63.84	.925	2.39 (1.37)	32.35	.003	2.10 (1.20)	20.13	.001
Female	2.35 (1.54)	63.24		3.24 (1.11)	50.01		3.14 (.92)	33.80	
Translation									
Male	2.23 (1.09)	60.30	.388	1.89 (1.04)	36.39	.050	2.45 (.825)	34.53	.060
Female	2.38 (1.15)	65.90		2.44 (1.21)	48.63		1.89 (1.05)	26.01	
Note-taking									
Male	2.28 (1.09)	56.91	.077	2.67 (.92)	35.28	.028	1.73 (1.15)	20.00	.002
Female	2.57 (1.22)	68.44		3.15 (.73)	49.01		2.68 (.86)	33.86	
Elaboration									
Male	2.35 (1.33)	59.25	.236	2.65 (1.22)	39.33	.166	1.65 (1.34)	20.73	.002
Female	2.64 (1.31)	66.69		3.09 (.88)	47.62		2.73 (1.04)	33.47	
Inferring									
Male	2.57 (1.34)	52.32	.001	3.00(1.00)	42.17	.449	3.00 (1.12)	28.20	.770
Female	3.36 (.88)	71.88		3.13 (1.04)	46.64		3.19 (.84)	29.43	
Social Strategies									
Male	**2.32 (1.06)**	**58.62**	**.192**	**2.51 (.80)**	**42.35**	**.500**	**2.06 (1.04)**	**22.08**	**.018**
Female	**2.56 (1.03)**	**67.16**		**2.63 (.87)**	**46.58**		**2.70 (.62)**	**32.74**	
Questions for clarification									
Male	2.35 (1.15)	59.41	.269	2.37 (.99)	38.80	.148	2.25 (1.12)	29.90	.750
Female	2.56 (1.19)	66.57		2.69 (1.04)	47.80		2.34 (.83)	28.51	
Cooperation									
Male	2.28 (1.21)	58.52	.179	2.65 (.96)	46.80	.776	1.88 (1.23)	18.48	.000
Female	2.55 (1.28)	67.24		2.57 (1.00)	45.05		3.07 (.78)	34.69	

11.7.1: DISCUSSION

Table 11.12 shows that male and female students at KFU indicated the use of metacognitive strategies, namely *direct attention, self-management, self-monitoring*,

and *self-evaluation* more than other strategies of the metacognitive type. However, females showed significantly more use of *self-management* and *self-monitoring* strategies than males did. The significantly higher positive scores of females on *self-management* and *self monitoring* strategies may be explained by their documented desire to manage their own learning in a metacognitive sense (Green and Oxford, 1995). This result is consistent with the findings of Vandergrift (1997) who found that female students use more metacognitive strategies in their listening tasks than males, although not significantly.

In addition, both males and females indicated less use of the *advance organiser* and *selective attention* strategies. However, males indicated that they tend to use the *advance organiser* strategy more often compared with females.

For cognitive strategies, both sexes indicate their use of this type of strategy. However, females tend to use *inferring* strategy more often than males. For social strategies, there were no significant gender-based differences. However, the general trend shows that females more often reported the use of the three types of strategies.

Similarly, both males and females at AGU indicated that they use metacognitive and social strategies. Females more often indicated the use of cognitive strategies, namely *note-taking* and *resources* strategies than males did. The result of significant gender-based differences on cognitive strategies, in terms of *note-taking*, which involve identifying and summarising the main points, contradict the findings of Green and Oxford (1995) who found no significant gender-based differences on cognitive strategies, such as reasoning, analysing, summarising, and practising. In addition, the finding of high scores, though not significant, on social strategies for female students at AGU, which is a co-educational university, may be explained by:

(1) the feeling of being in a non-threatening environment, where the proportion of females is twice that of males (see chapter seven). In such circumstances females tend to use social strategies such as asking questions and participating in group discussion more than males. This result contradicts the finding of Burden and Williams (1998) who found that males tend to participate more in a co-educational class than females. (2) females in this co-educational environment may not experience a 'cultural shock' when they find themselves suddenly in a new environment, face to face and beside students of the opposite sex, which may in turn make them feel relatively hesitant about using social strategies that require more cooperation between students and more involvement in class discussion. It is recommended that the AGU liberalise their policies towards accepting more male students as it seems to be female student dominated at the moment. In this way both sexes will have equal distribution and the males will not feel like a minority group at this university. By doing this, both sexes may have the opportunity to feel less threatened in their environment.

At UAE, males indicate less use of all strategies of the metacognitive type, except *self-monitoring* and *self-evaluation*, while females indicate their high frequent use of all, except *advance organiser* and *selective attention*. However, females reported significantly higher scores on metacognitive strategies, such as *advance organiser, direct attention*, and *selective attention* than males did.

With regard to cognitive strategies, although both males and females indicated their use of *resourcing* and *inferring* strategies more often, females showed significantly more use of *resourcing* than males do. In addition, females reported using both *note-taking* and *elaboration* more often, but fewer use of *translation* strategies. In contrast males indicated using *note-taking* and *elaboration* strategies

less, but more use of *translation* strategies. Females have significantly higher positive scores on both *note-taking* and *elaboration* but lower negative (mean <2) on *translation* strategies than males. These results are in accordance with the findings of Mpofu et al. (1998) who found that male students at UAE university tend significantly to revert to Arabic in their participation in problem-based learning discussion, i.e. use of *translation* strategies, while females tend to explain to each other using English, which may involve using resourcing strategies.

For social strategies males tended to use questions for clarification more often, but they showed fewer tendencies to use co-operation strategies. Females reported using both strategies more often. This result supports the findings of Green and Oxford (1995) who found that females scored higher in conversational behaviour such as asking for clarification. It also supports the findings of Politzer (1983) who found that females used social learning strategies significantly more often than males. One possible explanation for the high scores of females on social strategies may be attributed to women's stronger social orientation compared with males.

The general trend reveals that females at UAE tend to use all three types of strategies significantly more than males. This result supports the findings of Green and Oxford (1995) who found significant gender-based differences on social strategies, for females cooperating and asking for clarification more often than males.

It appears that there is a tendency for females at the three universities to use language learning strategies more often than males. The findings of the present study support the comparative studies, e.g. Politzer (1983), Oxford and Nyikos (1989), Oxford and Ehrman (1995), Green and Oxford (1995), Vandergrift (1997) in showing that females tend to use language learning strategies more often than males.

Students, both male and female, at KFU reported the use of cognitive more often than metacognitive and social strategies. Females at AGU reported more frequent use of cognitive compared with metacognitive and social strategies, while males tended to use more social compared with cognitive and metacognitive strategies. Males tend to participate and work with other students or in a group. This finding may be due to certain underlying social and cultural values. At UAE, female students use social strategies more often than metacognitive and cognitive strategies, while male students reported more frequent use of cognitive compared with metacognitive and social strategies. It appears that males and females use different approaches to language learning. Such differences may be attributed to the differences in learning style, motivations, and attitudes (Oxford and Ehrman, 1995).

English language courses at medical schools in the Gulf region should expose students to different strategies and incorporate tasks which foster creative and communicative learning. In addition, the encouragement of a variety of strategy types should be stressed.

The preceding discussion shows to what extent genders influence the degree of utilisation of strategies for learning English as a second language by medical students in the Gulf region.

11.8: CONCLUSIONS

The objective of this chapter was to explore the influence of gender on four main topics: the medical environment; approaches to study; the motives for entering medical school; English achievement; attitude toward learning English as a second

language; and learning strategies used to learn English as a second language. The following conclusions emerged.

1) The data shows there are consistencies in the perceptions of both males and females at KFU regarding their learning environment as measured by the DREEM. However females express more concern with regard to the degree of participation, the adequacy of their previous learning strategies, the absence of a support system, and the unrelaxed ward-teaching atmosphere. Males express more concern with the personal characteristics of their teachers, the performance of their teachers in class, and the problem of cheating in their university.

Therefore, early exposure to patients in order to reduce the cultural shock, acknowledging the role of teachers' personal characteristics and performance on students' learning, establishing a social support system at the university campus, involving students more in the learning process should all enhance students' satisfaction with their learning environment.

2) The existence of an open climate in terms of liberty to communicate and interact with teachers, freedom in terms of utilising the facilities of university whenever students need to, and the existence of diverse friendships with multinational students could contribute to the high satisfaction of female students with their social environment at AGU. Taking into consideration both the nature of the society (i.e. masculine society) and the minority status of male students at AGU, the admission of more male students should contribute to greater male satisfaction with social aspects.

3) The changing of teaching from being student-centred towards being more teacher-centred and the preference of females for a didactic teaching strategy are likely contributors to high positive perceptions of their teachers at UAE. This result

could raise a question about the suitability of a problem-based curriculum in a segregated educational environment, which reflects the cultural role in education.

4) There is a tendency for more females to adopt a deep approach than males. Therefore, study skills courses should be introduced to give students the opportunity to gain insight into their individual learning styles and to encourage them to adopt a deep approach. In addition, attention should be paid to teaching, assessment methods, and curriculum content.

5) Female students tend to use more cognitive strategies, and they are also more liable to use different classes of learning strategies for dealing with English as a second language compared with male students. Therefore, teachers should be trained to teach language learning strategies, to encourage students to adopt a variety of language learning strategies, and to provide students with equal opportunities to practise such strategies.

6) Female students show greater satisfaction with the English learning environment, have a more positive attitude towards people speaking English and a higher motivation and orientation towards studying English language than male students. Therefore, *English for specific purposes* (ESP) which involves issues related to the medical field should be introduced. In addition, it is also suggested that cultural studies be introduced.

Finally, the data shows that males and females place a different level of importance on motivations for entering medical schools. Females are associated with intrinsic motivation, such as helping people, while males are associated with extrinsic motivation, such as a career that will provide them with a high degree of social prestige and a high income. Therefore, students should be made more aware of the

importance of intrinsic motivation for sustaining their long-term motivation for pursuing medicine, since intrinsic motivation will positively influence students' learning.

CHAPTER TWELVE

CONCLUSIONS, RECOMMENDATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

12.1: INTRODUCTION

This chapter aims to present the main conclusions emerging from the empirical findings discussed in the pervious five chapters. In addition, it will provide some recommendations and suggestions for future research.

12.2: CONCLUSIONS

12.2.1: LEARNING ENVIRONMENT

Subscale 1: Students' Perceptions of Learning:

1) The type of curriculum has an influence on students' satisfaction with their learning aspects. Students under problem-based learning were happy with their teaching for being student-centred, stimulating, encouraging them to be active learners and develop their competence and confidence. On the other hand, those in the traditional environment complained of their teaching being too teacher-centred, having rigid core courses, an absence of flexible elective courses, and little contact with patients during the initial training. However, a common feature of both type of curriculum is the teaching over-emphasising factual learning.

2) The year of study influences the degree of satisfaction with learning aspects under the traditional curriculum. For example, the overload of content, non-integrated courses with lack of relevance to the subject matter contributed to the low satisfaction of second year students with their pre-clinical learning environment at the traditional school. On the other hand, fourth year students were much more satisfied than second year students for being exposed to real ward teaching, interacting with patients, and feeling the relevance of their discipline.

3) The level of satisfaction with the learning aspect under the innovative curriculum was not influenced by seniority (second vs. fourth). However, the relative change in the curriculum from being problem-based towards more didactic teaching and from being student-centred towards more teacher-centred was the concern of fourth year students at the innovative curriculum university, UAE.

4) The type of gender-involvement affects the degree of satisfaction. The coeducational innovative environment contributed more to students' satisfaction with their learning aspect by providing students with more access to teachers than the single-gender innovative environment.

Subscale 2: Students' Perceptions of Teachers

1) The degree of satisfaction with teachers for students under both the traditional and the innovative curriculum is 'good'. However, those under the traditional curriculum complain of their teachers being authoritarian, getting angry in class, and ridiculing them.

2) The year of study influences the extent of students' satisfaction with their teachers under the traditional curriculum. The prolonged contact of fourth year students with their teachers contributed to their high satisfaction with their teachers.

3) Gender has no effect on students' satisfaction with teachers in the co-educational innovative environment. However, the case was the opposite at single-gender traditional and single-gender innovative. Females have greater satisfaction in a single-gender innovative environment.

Subscale 3: Students' Academic Self-perception

1) The type of curriculum did not influence students' academic self-perception. All students have a positive perception and high satisfaction with their academic

development. However, all students complain of their inability to memorize all they need.

2) The extent of satisfaction with academic development was not influenced by seniority (second vs. fourth). However, this does not seem to be the case under the traditional curriculum, where those in the fourth year were happier with their academic development than second year students.

3) Gender has an effect on the level of satisfaction at innovative curriculum institutions. The experience of relevancy of subject matter at innovative curriculum universities contributed to high satisfaction amongst female students with their academic development.

4) Regardless of the type of curriculum, it seems that being in a single-gender environment affects the level of both genders' satisfaction with the development of their problem-solving skills. Females at traditional-single-gender and males at innovative-single-gender universities complain of their inadequate development of such skills.

Subscale 4: Students' Perception of Atmosphere

1) The problem-based curriculum seems to be more conducive to learning compared with the traditional curriculum. It provides a relaxed environment and more opportunities to be involved in the learning process.

2) Cheating is a problem at all Gulf universities. However, students at the innovative coeducational AGU university were more concerned about this problem.

3) The year of study has an influence on students' perceptions of their atmosphere. Such an influence is manifest in the traditional environment. The experience of real

contact with patients in clinical years contributed to students' satisfaction with their atmosphere.

4) The experience of little contact with patients during early training, and non-integrated discipline contributed to less satisfaction of pre-clinical students at traditional curriculum universities.

5) Gender has more manifest influence on student's satisfaction with their atmosphere in a single-gender environment. Firstly, it appears that females in a single-gender traditional environment complain of being stressed and of the lack of being relaxed during ward teaching, which more than likely contributes to cultural shock. On the other hand, males in the single-gender traditional environment complain of problems of cheating in their university. Secondly, females in the single-gender innovative environment feel that there are opportunities to develop interpersonal skills and that the school is well timetabled.

Subscale 5: Students' Social Self-perception

1) The type of curriculum does not exert any influence on how students perceive their social aspects. Their social life is good but they complain of the absence of a support system.

2) The extent of students' satisfaction was not influenced by their seniority.

3) The gender dimension has an effect on students' satisfaction with their social aspects. In this regard, females in the co-educational innovative environment [AGU] have greater satisfaction with their social life. The experience of a problem-based curriculum, open climate and the freedom in student-teacher interaction contributed to the high satisfaction of females at [AGU].

12.2.2: STUDENTS' LEARNING APPROACHES

1) The type of curriculum has an influence on students adopting a particular learning approach. The innovative curriculum encourages a deep approach. However, it has no marked influence on *reproducing* approaches.

2) It appears that medical students in the Gulf region experience the 'narrowness' approach, i.e. the need for both understanding and memorising, due to the effect of using English as the formal language of teaching. Thus, understanding and memorising are not necessarily mutually exclusive.

3) The experience of a heavy workload, assessment methods of objective-type tests combined with a limited choice over subjects and content encourage adopting a *reproducing* approach under the traditional curriculum.

4) Approaches to learning were not influenced by seniority. In other word approaches to learning were consistent regardless of seniority.

5) Females have a greater tendency to show deep approaches than males under both the traditional and the innovative curriculum.

12.2.3: MOTIVATION FOR PURSUING MEDICAL SCHOOL

1) The most important motive rated by students, regardless of their gender and their level of study, is the intrinsic desire to help sick people.

2) There is a consistency in students' motivation regardless of seniority. Students enter medical schools with high intrinsic motivation and still retain this as they proceed in their study.

3) There is a variation in the level of importance of motivation rated by both genders. Females' motivations are associated with the desire to help others, while males' are associated with earning high income and high social prestige.

12.2.4: LANGUAGE LEARNING STRATEGIES AND ATTITUDE TOWARD LEARNING ENGLISH

1) There is a strong relationship between English achievement and medical academic achievement.

2) There is a strong relationship between English achievement and the age at which students were first exposed to learning English.

3) There is a strong relationship between English achievement and the formal level of study of the English language.

4) Students at all universities utilise the three types of language learning strategies. However, the degree of utilisation differs among students under the traditional and the innovative curriculum. Students under the innovative curriculum utilise a wide range of language learning strategies and more often than those at traditional curriculum universities.

5) There is a strong relationship between language learning strategies and learning approaches to study. Students using the three types of language learning strategies are more likely to use a deep approach.

6) There is a positive relationship between English achievement and both language learning strategies and motivation to learn English at UAE.

7) There is a positive relationship between English achievement and perception of the English course at UAE.

8) There is a positive relationship between English achievement and a positive perception towards people speaking English language at KFU.

9) All students across the three universities have a high motivation towards learning English, have a positive attitude towards people speaking English, and have both instrumental and integrative orientation to learning the English language. However,

students in the coeducational environment have greater satisfaction with their English learning environment in terms of their English courses.

12.2.5: CULTURE

The influence of cultural dimensions in the Gulf States is clearly noted in the empirical findings of the research.

1) There is limited participation of students in class, particularly for females, since students normally expect teachers to initiate discussion.

2) Students' intellectual disagreement with teachers may be perceived as disloyalty, which could have negative implications for their relationships.

3) A feeling of 'cultural shock' among females at their exposure to ward teaching involving patients of both genders.

4) Cultural traditions shape the extent and the nature of interactions and relationships between students and their teachers.

5) Culture has an effect on the extent of involvement in social activities of both genders.

6) Cultural norms, in terms of what males and females are expected to do regarding career opportunities, have an influence on students' motivation to pursue academic subjects. For example, both genders are motivated by their internal desire to help sick people, however, males placed more emphasis than females on the importance of motivation associated with a desire to earn a high income and high social prestige.

7) The role of the family has a manifest influence on students' decisions on selecting a particular field of study.

8) The use of a 'narrowness' approach to study, where the emphasis is on both understanding and memorising the learning material.

12.3: IMPLICATIONS AND RECOMMENDATIONS

The above conclusions have several implications and suggest recommendations for several groups within the higher education environment. Accordingly, these implications and recommendations will be categorised into the following groups:

12.3.1: FOR POLICY MAKERS AT INSTITUTIONS OF HIGHER EDUCATION WITHIN THE GULF STATES

Policy makers should pay attention to the following points:

1) The GCC are special countries with their own specific health problems. So, setting a curriculum which reflects the health needs of the local community should be a priority. This approach would require conducting field research aiming at finding out what common health problems exist in the Gulf region, thus ensuring that graduate doctors are well equipped for the local profession.

2) The GCC countries have a content-centred curriculum, taught in a traditional didactic way in most of their medical schools, so it is necessary to reduce the amount of factual information in the curriculum. This would encourage students to put more effort into understanding their subjects in a more meaningful way, rather than memorising the material with a superficial level of understanding. This requires the ongoing re-evaluation of the curriculum. One way to accomplish this goal would be to co-operate with other medical schools at the international level, to gain from their experience. However, this approach could be faced with the difficulty of identifying to what extent the amount of factual information should be reduced.

3) Some of the GCC medical schools have a fixed curriculum. It is recommended that elective courses be introduced as part of the curriculum, which could help students to pursue their specific interests. This goal requires the recruitment of additional faculty

members which could lead to a shortage of funds necessary to cover the cost of additional faculty.

4) Teaching methods in the GCC countries depend heavily on lecturing. Encouraging faculty members to vary their teaching methods, rather than depending on lecturing as the main method of teaching is recommended. Even though the lecturing method has its own advantages, the use of a variety of teaching methods (e.g. interactive lecturing, small group teaching, independent learning activities) should be introduced. This would help students to become more involved in the learning process, more satisfied with their participation, and more likely to adopt a deep approach. This objective requires the availability of extra facilities such as small group session rooms and clinical skill laboratories. In addition, it may require a staff development programme in which teachers can have assistance in developing different teaching skills.

5) Some of the medical schools in the Gulf region still employ a traditional curriculum. Shifting the traditional curriculum to problem-based learning will encourage active learning, develop critical thinking, increase motivation, interest and awareness of the relevance of putting what they have been taught theoretically into practice. However, a change of this magnitude will not be carried out without overcoming obstacles. For example, the cultural norm, more clearly noted in Saudi Arabia, may prevent the true application of problem-based learning in terms of preventing female students from going out alone to seek for relevant information. In other words, maximising advantages of problem-based learning techniques requires providing more freedom of movement to seek different sources of knowledge. In sum, such a change requires the strong belief on the part of the policy makers in both the

advantages and the applicability of problem-based learning. Therefore, as an immediate alternative some co-ordination and integration of courses is strongly recommended to achieve at least the introduction of a limited number of problem-based objectives.

6) Traditional medical schools in the Gulf region delay the interaction of medical students with patients. Better results could be achieved by exposing students in their early training to real patients and health problems in order to enhance their satisfaction with their learning environment, the development of their competence, confidence, and elaboration skills. In addition, introducing female students, particularly in single-gender universities, to patients of both genders will minimise the culture shock they will face during the ward teaching.

7) Medical schools in the Gulf region vary in their adherence to implementing the principles of problem-based learning. Applying the principles of problem-based learning in teaching and emphasising the factors that could help maintain such principles is recommended. One approach would be to recruit faculty members with broad experience of teaching at a problem-based curriculum university. This could help in implementing the major positive features of the problem-based curriculum.

In addition, providing training workshops for teachers on instruction methods for problem-based learning would help to enhance teachers' motivations to apply problem-based learning in their teaching on an ongoing basis. Again, this may require financial and time resources being provided for faculty members who are already busy with their teaching commitment. However, providing an incentive to encourage teachers involvement in such training may help.

8) Traditional medical schools in the Gulf region are characterised by having a large number of students in class. Reducing large class sizes, in order to increase opportunities for student-teacher interaction, encouraging the development of a rapport with teachers, and increasing the participation of students in the class is recommended. This could be limited by the availability of faculty members and classrooms.

9) In conservative societies, such as Saudi Arabia and, to some extent, UAE, where single-gender education is adopted, female students do not have sufficient interaction with their male teachers. Providing more opportunities for female students at single gender universities to communicate with their teachers is recommended. One possible approach could be through providing office hours for male teachers in female students' departments. This would require allocating offices for male teachers to meet female students.

10) None of the GCC medical schools investigated has a student support system. Establishing a good support system for all students is essential. This would help them explore their learning problems and manage their academic and social stresses. This requires creating an open channel between students and faculty members who are in charge of providing consultations. However, this could be faced with a barrier of secrecy which is a predominant feature of Gulf society. In order to overcome such a barrier, students should be assured of confidentiality in reporting their personal problems and encouraged to seek professional help.

11) Medical students at KFU revealed their low satisfaction with the standard of the university residential accommodation. So, enhancing the standards of accommodation is recommended. This would improve an important aspect of students' learning

environment and would require the allocation of additional financial resources. However, the necessary resources would be limited to the yearly governmental fund provided for each university.

12) The Arabian Gulf University at Bahrain is lacking a teaching hospital. So, it is recommended that a teaching hospital affiliated with the university for students at AGU be established in order to provide a relaxed training atmosphere. However, this could be limited by the availability of financial resources.

13) It is recommended that, at an early stage of students' studies, study skill courses be provided, that emphasise the following: (a) training students in searching for relevant information on their subject matter, e.g. using the Internet and different data bases, and how to use the libraries, thus maximising the benefits of their study time and enhancing their curiosity about and interest in their subject; (b) helping students to identify their own learning styles through using one of the learning approach inventories and encouraging them to adopt a deep approach.

14) Some teachers at universities in the Gulf region are poorly paid. So, it is suggested that pay for such faculty be increased. This could lead academics to concentrate more on their profession rather than looking for jobs outside the universities, as this could have a negative impact on their primary task. However, this could be constrained by the governmental funds allocated to different universities.

15) Students at Gulf states will be exposed to formal English language at different levels of the national curriculum. Introducing the English language at the elementary level of the national curriculum in the Gulf region is recommended. This would enhance students' acquisition of this language, but would require the development of a new curriculum and recruitment of specialised staff. However, both the advantages

and disadvantages for the proposed curriculum and the availability of governmental funds should be investigated to this end.

12.3.2: FOR FACULTY MEMBERS AT MEDICAL SCHOOLS IN THE GULF REGION

Faculty members should pay attention to the following points:

1) The main method of assessment used at Gulf traditional medical schools is the use of multiple choice questions to measure the recall of information. So, changing the assessment methods from those that demand mainly the recall of factual knowledge, towards assessments that encourage a high level of mental manipulation is essential. This would create a high level of understanding and encourage students to adopt a deep approach. A possible drawback is that this would require teachers to allocate more time for correcting and providing feedback.

2) The GCC countries are a collectivist society where students always avoid intellectual disagreement during any interaction with their teachers. Encouraging communication between students and faculty members is recommended. Teachers should behave in a personable manner, and show concern and respect for students. This would encourage students to interact with them in a more friendly environment. Moreover, teachers should be more committed to respecting their office hours, thus ensuring they actually are available for students during such hours.

3) The problem of cheating was noted in all three medical schools. Paying attention to counteracting the problems associated with cheating is essential. Even though cheating can take different forms which make it difficult to be detected, teachers should conduct continuous evaluation of students' work (e.g. students' progress in research papers and independent study tasks).

4) The culture of the GCC countries has an influence on the nature of communication between female students and their male teachers. So, teachers should take into consideration the cultural specificity regarding gender differences in the learning process such as female shyness and limited interaction with teachers. They should encourage female students to be more independent, active learners, increase their participation and provide them with opportunities to ask questions.

5) There is an unsupportive environment in the classroom of medical schools in the Gulf region, in particular KFU. So, creating a relaxed class environment is recommended. Such an environment is normally characterised by staff encouraging students to be more co-operative rather than competitive, thus fostering learning. One approach is to encourage the students to be involved in teamwork.

12.3.3: FOR POLICY MAKERS OF ENGLISH LANGUAGE COURSES AT MEDICAL SCHOOLS

Policy makers in English language departments should pay attention to the following points:

1) English language programmes at Gulf medical schools emphasise to a large extent only one particular type of language learning strategy. Teachers should be provided with training workshops on teaching different language learning strategies in order to encourage students' adoption of such strategies.

2) At some medical schools in the Gulf region, e.g. KFU and UAE, there are no elective English courses. So, providing extra elective English courses in order to enhance students' language competency is recommended. This requires additional financial and faculty resources.

3) Most medical schools in the Gulf region recruit faculty members for English Language courses whose native language is not English. It would be advisable to

recruit faculty members for English courses who speak English as their first language, as they would be better equipped to represent the culture of people speaking English. This would enhance students' attitudes towards the culture, which in turn would have a positive effect on their motivation for studying English. However, this approach may be limited by the budget of university, as wages for such people are higher than those from developing countries.

4) It would be more helpful for medical students in the Gulf region to have English courses that emphasise not only pure English as a subject but also include medical science terminology, i.e. *English for specific purposes*. This is to maximise students' interest and ensure the English material is relevant to their later career.

12.3.4: FOR TEACHERS OF ENGLISH LANGUAGE COURSES AT MEDICAL SCHOOLS IN THE GULF REGION

Teachers at English language departments should pay attention to the following points:

1) Encouraging students' involvement with the language learning tasks and providing opportunities for students to practice communication and interaction in the English language. This would result in an improvement in their English achievement, possibly leading to better medical academic achievement.

2) Medical students in the Gulf region, particularly at KFU, are not provided with a clear syllabus of the objectives of the English language course. So, providing such a syllabus would enhance students' understanding of what is expected from the course, make them plan for their study, and also enhance their utilisation of language learning strategies.

3) Each medical school in the Gulf region emphasises a particular type of linguistic learning activity. A variety of linguistic learning activities should be used to ensure a

variety of language learning strategies, since language strategies are highly context dependent.

12.3.5: FOR STUDENTS OF MEDICAL SCHOOLS IN THE GULF REGION

Medical students in the Gulf region should pay attention to the following points:

1) Culture plays a major role for students selecting one area of study over the other. However, it is recommended that they pursue their study of medicine based on strong intrinsic motivation, away from family influences. This could enhance their interest in medicine and consequently enhance their creativity of thinking, the use of a deep approach to study, and foster their success.

2) The GCC countries are a collectivist society where students are normally reluctant to participate in class, which could have a negative impact on their learning. Accordingly, students should participate in classes, co-operate with each other, and ask questions.

3) All medical students in the Gulf region, whether in traditional or innovative schools, should benefit from information technology by using the Internet to keep up to date with the latest developments in their fields.

4) The formal language of instruction in medical schools in the Gulf region is English, which is a foreign/second language. Therefore, students should put more effort into the acquisition of the English language. This could be achieved through different channels, e.g. attending additional private English programmes, listening to radio and watching English T.V programmes in order to enhance their English language proficiency.

12.4: SUGGESTIONS FOR FUTURE RESEARCH

In the light of the findings of this study, the following suggestions are worthwhile considering for future research.

1) This study compared students' motivations on entering medical schools based on two variables: the year of study and gender. So, it would be worth while conducting a longitudinal study on students' motivation to find whether it has changed over time and make them aware of the importance of intrinsic motivation for sustaining long-term motives towards pursuing medicine as a career.

2) This study utilised a questionnaire as the main research method to investigate students' language learning strategies. Accordingly, using another type of research method (e.g. qualitative through interviews) could yield different insights regarding students' language learning strategies.

3) This study surveyed students' perception of their learning environment. Accordingly it would be worthwhile surveying both teachers and students to compare their perception of the learning environment to provide valuable data on all aspects of the learning environment.

4) This study surveyed second and fourth year medical students. Accordingly it is suggested that students be surveyed at different levels of their study, using cross-sectional studies to explore the effect of the year on the perceptions of learners in their pre-clinical and clinical years.

5) This study found out that cheating is a problem in the Gulf medical schools, however, it did not go into details of examining what kind of cheating. Accordingly a possible area for further research could be to conduct a study to find out the extent of different kinds of cheating.

6) This study only covered three Gulf medical schools. Accordingly, it would be worthwhile comparing the results of this study with other medical schools within the Gulf and other Arab medical schools.

7) This study highlighted the need for a support system to help students deal with their problems. Accordingly, it would be worthwhile conducting a study to identify the different needs of both genders.

8) This study only covered traditional-single-gender, innovative-single-gender, and innovative-coeducational schools. Accordingly it would be worthwhile comparing the results of this study with another traditional-coeducational school.

9) This study suggested some evidence that teachers at the three medical schools are authoritarian. Since the teacher-student relationships are important in the learning process, it would be worthwhile investigating in more depth through interviewing students, the major characteristics students like and dislike in their teachers.

10) This study highlighted the need for different study skills. It is therefore suggested that perceptions of both teachers and students be investigated regarding the most relevant study skills needed by medical students.

11) Culture has emerged as one important factor affecting the learning environment, learning approach, and motivation. Accordingly, a worthwhile avenue for future research could be the relative importance of various cultural traits.

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APPENDICES

APPENDIX 6.1

THE ENGLISH VERSION OF THE SURVEY

DEMOGRAPHIC DATA

1. Age:.....

2. Gender Male ☐ Female ☐

3. Age at which you were first exposed to English language:.....

4. Year of Study:.....

5. Please indicate your school level in which you *STARTED* studying English in formal education:

(Please select ***ONLY ONE*** choice)

Elementary school level ☐ Intermediate school level ☐

Secondary school level ☐ University level ☐

6. Please indicate your overall grade in your English courses (at the end of your premedical years) at your medical college:

(Please select ***ONLY ONE*** choice)

90-100 (Excellent) [A] ☐ 80-90 (Very good) [B] ☐

70-80 (Good) [C] ☐ 60-70 (Average) [D] ☐

50-60 (Below average)[E] ☐ Other (Please specify).....

7. Please indicate your overall grade average in your medical courses at the present time:

(Please select ***ONLY ONE*** choice)

90-100 (Excellent) [A] ☐ 80-90 (Very good) [B] ☐

70-80 (Good) [C] ☐ 60-70 (Average) [D] ☐

50-60 (Below average)[E] ☐ Other (Please specify).....

8. Nationality: Saudi ☐ Bahraini ☐ United Arab Emirates ☐

Others (Please specify).....

9. Country where did you obtain your high school diploma:

Saudi ☐ Bahrain ☐ United Arab Emirates ☐

Others (Please specify).....

PART ONE

This part aims to explore your perceptions with respect to the importance of the following motives that could influence your choice for pursuing medicine as a career.

Please indicate your views of the importance of each of the following motives based on the following table:

Very Important	Some Important	About Average	Little Important	Not Important At All
4	3	2	1	0

No	Motive	Relative Importance				
1	A desire of my family members for me to pursue a career in medicine	4	3	2	1	0
2	My desire to be with my friends in the same college	4	3	2	1	0
3	To follow my family career tradition which is medicine	4	3	2	1	0
4	To fulfil my internal desire to help sick people	4	3	2	1	0
5	The high expected income for doctors motivate me to pursue medicine	4	3	2	1	0
6	Studying medicine provide me with a high social prestige	4	3	2	1	0
7	To cover the shortage in national/local physicians	4	3	2	1	0
8	A personal desire to pursue a career that is intellectually challenging	4	3	2	1	0
9	A past chronic family illnesses motivate me to study medicine	4	3	2	1	0

PART TWO

APPROACHES TO STUDYING

In this part we would like you to indicate whether you agree or disagree with each of the following statements concerning your approaches to studying in general.
Please choose only one choice based on the following table.

Definitely agree	Agree with reservations	Disagree with reservations	Disagree strongly	Use *only* if you can not make up your mind one way or the other
4	3	1	0	2

1	I find it easy to organise my study time effectively.	4	3	1	0	2
2	I try to relate ideas in one subject to those in others.	4	3	1	0	2
3	Although I have a fairly good general idea of many things, my knowledge of the details is rather weak.	4	3	1	0	2
4	I like to be told precisely what to do in essays or other set work.	4	3	1	0	2
5	The best way for me to understand what technical terms mean is to remember the textbook definitions.	4	3	1	0	2
6	It is important to me to do really well in the courses here.	4	3	1	0	2
7	I usually set out to understand thoroughly the meaning of what I am asked to read.	4	3	1	0	2
8	When I am reading I try to memorise important facts which may come in useful later.	4	3	1	0	2
9	When I am doing a piece of work, I try to bear in mind exactly what that particular lecturer seems to want.	4	3	1	0	2
10	I am usually cautions in drawing conclusions unless they are well supported by evidence	4	3	1	0	2
11	My main reason for being here is so that I can learn more about the subjects which really interest me.	4	3	1	0	2
12	In trying to understand new ideas, I try to relate them to real life situations to which they might apply	4	3	1	0	2
13	I am more interested in the qualifications I'll get than in the courses I'm taking	4	3	1	0	2
14	I am usually prompt at starting work in the evenings.	4	3	1	0	2
15	Although I generally remember facts and details, I find it difficult to fit them together into an overall picture.	4	3	1	0	2
16	I generally put a lot of effort into trying to understand things which initially seem difficult.	4	3	1	0	2
17	I often get criticised for introducing irrelevant ideas into essays or discussions.	4	3	1	0	2
18	Often I find I have to read things without having a chance to really understand them.	4	3	1	0	2

19	If conditions are not right for me to study, I generally manage to do something to change them.	4	3	1	0	2
20	Puzzles and problems fascinate me, particularly where you have to work through the material to reach a logical conclusion.	4	3	1	0	2
21	I often find myself questioning things that I hear in lectures or read in books.	4	3	1	0	2
22	I find it helpful to 'map out' a new topic for myself by seeing how the ideas fit together.	4	3	1	0	2
23	I tend to read very little beyond what is required for completing assignments.	4	3	1	0	2
24	It is important to me to do things better than my friends, if I possibly can.	4	3	1	0	2
25	Tutors seem to want me to be more adventurous in making use of my own ideas	4	3	1	0	2
26	I spend a good deal of my spare time in finding out more about interesting topics which have been discussed in classes.	4	3	1	0	2
27	I seem to be a bit too ready to jump to conclusions without waiting for all the evidence	4	3	1	0	2
28	I find academic topics so interesting, I should like to continue with them after I finish this course.	4	3	1	0	2
29	I think it is important to look at problems rationally and logically without making intuitive jumps.	4	3	1	0	2
30	I find I have to concentrate on memorising a good deal of what we have to learn.	4	3	1	0	2

PART THREE:

MEDICAL EDUCATION ENVIRONMENT MEASURE

This part aims to explore your perceptions towards the learning environment of your medical school.

Please indicate to what extent you agree/disagree with the statements based on the following table:

Strongly Agree	Agree	Disagree	Strongly Disagree	Unsure
4	3	1	0	2

1.	I am encouraged to participate in class.	4	3	1	0	2
2.	The teachers are knowledgeable.	4	3	1	0	2
3.	There is a good support system for students who get stressed.	4	3	1	0	2
4.	I am too tired to enjoy this course.	4	3	1	0	2
5.	Learning strategies which worked for me before continue to work for me now.	4	3	1	0	2
6.	The teachers are patient with patients.	4	3	1	0	2
7.	The teaching is often stimulating.	4	3	1	0	2
8.	The teachers ridicule the students.	4	3	1	0	2
9.	The teachers are authoritarian.	4	3	1	0	2
10.	I am confident about my passing this year.	4	3	1	0	2
11.	The atmosphere is relaxed during the ward teaching.	4	3	1	0	2
12.	This school is well timetabled.	4	3	1	0	2
13.	The teaching is student centered.	4	3	1	0	2
14.	I am rarely bored on this course.	4	3	1	0	2
15.	I have good friends in this school.	4	3	1	0	2
16.	The teaching helps to develop my competence.	4	3	1	0	2
17	Cheating is a problem in this school.	4	3	1	0	2
18	The teachers have good communications skills with patients.	4	3	1	0	2
19	My social life is good.	4	3	1	0	2
20	The teaching is well focused.	4	3	1	0	2
21	I feel I am being well prepared for my profession.	4	3	1	0	2

22.	The teaching helps to develop my confidence.	4	3	1	0	2
23.	The atmosphere is relaxed during lectures.	4	3	1	0	2
24.	The teaching time is put to good use.	4	3	1	0	2
25.	The teaching over-emphasises factual learning.	4	3	1	0	2
26.	Last year's work has been good preparation for this year' work.	4	3	1	0	2
27.	I am able to memorise all I need.	4	3	1	0	2
28.	I seldom feel lonely.	4	3	1	0	2
29.	The teachers are good at providing feedback to students.	4	3	1	0	2
30.	There are opportunities for me to develop interpersonal skills.	4	3	1	0	2
31.	I have learned a lot about empathy in my profession.	4	3	1	0	2
32.	The teachers provide constructive criticism here.	4	3	1	0	2
33.	I feel comfortable in class socially.	4	3	1	0	2
34.	The atmosphere is relaxed during seminars/tutorials.	4	3	1	0	2
35.	I find the experience disappointing.	4	3	1	0	2
36.	I am able to concentrate well.	4	3	1	0	2
37.	The teachers give clear examples.	4	3	1	0	2
38.	I am clear about the learning objectives of the course.	4	3	1	0	2
39.	The teachers get angry in class.	4	3	1	0	2
40.	The teachers are well prepared for their classes.	4	3	1	0	2
41	My problem solving skills are being well developed here.	4	3	1	0	2
42	The enjoyment outweighs the stress of this course.	4	3	1	0	2
43	The atmosphere motivates me as a learner.	4	3	1	0	2
44	The teaching encourage me to be an active learner.	4	3	1	0	2
45	Much of what I have to learn seems relevant to a career in healthcare.	4	3	1	0	2
46	My accommodation is pleasant.	4	3	1	0	2
47	Long term learning is emphasised over short term learning.	4	3	1	0	2
48	The teaching is too teacher-centered.	4	3	1	0	2
49	I feel able to ask the questions I want.	4	3	1	0	2
50	The students irritate the teachers.	4	3	1	0	2

PART FOUR

This part deals with your views concerning your language learning strategies for English as a second language and your attitude towards learning such language.

Please select only one choice based on the following table.

Strongly Agree	Agree	Disagree	Strongly Disagree	Use Only if you can not make up your mind one way or the other
4	3	1	0	2

1	I prepare myself for a classroom session in which new material is expected to be presented.	4	3	1	0	2
2	I look at the topic(s) prior to the class.	4	3	1	0	2
3	I prepare myself for the new information/lecture by reviewing the previous one prior to attending the lecture.	4	3	1	0	2
4	I decide in advance to attend the required sessions in English courses.	4	3	1	0	2
5	I enjoy attending extra elective sessions in English courses.	4	3	1	0	2
6	I get benefits, in terms of enhancing my English learning, from attending seminars in English class.	4	3	1	0	2
7	I get benefits, in terms of enhancing my English learning, through watching English TV programs.	4	3	1	0	2
8	I attend private classroom programs for learning English during the summer holidays.	4	3	1	0	2
9	I monitor my own speech, in my English class, through checking my pronunciation.	4	3	1	0	2
10	I monitor my own speech through checking the accuracy of my vocabulary in English class.	4	3	1	0	2
11	I check my grammar during my conversation in the English classroom.	4	3	1	0	2
12	During my English language courses I check my results (for example written exams) with the correct/standards answers.	4	3	1	0	2
13	I refer to an English dictionary whenever I am faced with unfamiliar concepts during my reading.	4	3	1	0	2
14	I consult my native language dictionary whenever I am faced with word(s) I do not understand during the class.	4	3	1	0	2
15	I consult a specialized medical dictionary, in my native language, for clarification of meaning.	4	3	1	0	2
16	I keep up with my own note-taking.	4	3	1	0	2
17	During lectures, I try to write down the important points.	4	3	1	0	2
18	During my reading of the English course materials I write down the main ideas.	4	3	1	0	2
19	I relate new information to the old.	4	3	1	0	2
20	During my reading, I guess the meaning of new words based on their context in the statement.	4	3	1	0	2

21	I ask the English course teacher for clarification about new concepts.	4	3	1	0	2
22	In the class, I ask an English speaker to explain any difficult English phrase(s).	4	3	1	0	2
23	During the English course I enjoy participating in group discussion activities.	4	3	1	0	2
24	In my English courses, I like to join my English course class mates in conducting learning activities as a group.	4	3	1	0	2
25	My English course is necessary because English is the best language for studying science.	4	3	1	0	2
26	My English language course is very useful for me.	4	3	1	0	2
27	My English course is a difficult subject to understand.	4	3	1	0	2
28	Studying English is important for me only because I will need it for my future career.	4	3	1	0	2
29	Studying English is important for me because it will make me a more medically knowledgeable person.	4	3	1	0	2
30	Studying English is important for me because I think it will someday be useful in getting a good job.	4	3	1	0	2
31	Studying English is important for me because other people will respect me more if I have a knowledge of a foreign language.	4	3	1	0	2
32	Studying English is important to me because it will allow me to be more at ease with those classmates who speak English.	4	3	1	0	2
33	Studying English is important for me because it will allow me to meet and converse with a greater variety of people.	4	3	1	0	2
34	Studying English is important for me because it will enable me to better understand and appreciate English art and literature.	4	3	1	0	2
35	Studying English is important for me because I will be able to participate more freely in the activities of other cultural groups.	4	3	1	0	2
36	Learning English is very important for lifelong learning particularly in medicine.	4	3	1	0	2
37	I enjoy communicating in English language, with other English speaking teachers.	4	3	1	0	2
38	I do not like to express my opinion in English language during a class/tutorial discussion.	4	3	1	0	2
39	I enjoy using English language in discussion with my class mates of my own nationality.	4	3	1	0	2
40	I practice English language outside the classroom.	4	3	1	0	2
41	I look for English programs on the TV.	4	3	1	0	2
42	My English teachers encourage me to speak in English outside the class.	4	3	1	0	2
43	My English teachers are helpful in providing me with answers to questions I have concerning English language materials.	4	3	1	0	2
44	During the English courses, my English teachers are aware of the different levels of students understanding.	4	3	1	0	2
45	Whenever I make a mistake in English, my teachers tend to correct me in an encouraging way.	4	3	1	0	2

46	The English-speaking people have produced pioneers, artists and scientists.	4	3	1	0	2
47	I have a favourable attitude toward English- speaking people.	4	3	1	0	2
48	The more I learn about the English- speaking people, the more I admire them.	4	3	1	0	2
49	During my English course, I really worked hard to learn the language.	4	3	1	0	2
50	Compared to my other courses, I spent very little time studying English.	4	3	1	0	2
51	When I have a problem understanding something we are learning in English class, I just forget about it.	4	3	1	0	2
52	I have a dream that I master English as fluent as its native speaker.	4	3	1	0	2

APPENDIX 6.2

THE MEANING AND SCORES OF THE ASI SCALES

I. ASI MEANING

Scale	Meaning
Achieving	Well-organised study methods Competitiveness Hope for success or motivated to achieve
Reproducing	Rote-learning and memorisation Extrinsically motivated Influenced by attraction of qualifications 'Surface' approach to learning
Meaning	'Deep' approach to learning Interested in medicine for itself Intrinsically motivated
Comprehension learning	'Holist' approach Broad perspective of learning task Relates concepts to wider context
Operation learning	'Serialist' approach step-by-step sequential and detailed approach
Versatile approach	Ability to adopt either approach according to demands of learning task
Learning pathologies	Jumping to conclusions on insufficient evidence ('globetrotting') Failing to see how topics fit into an overall picture Over-emphasis on details ('improvidence')
Prediction for success	Best prediction for overall academic success Highly organised study methods with versatile approach strong motivation Some tendency towards competitiveness Lack of doubts or fear of failure

(Sources: Entwistle, 1981; Chessell, 1986)

II. ASI SCORES

$$\text{Achieving} = \frac{A}{24}$$

$$\text{Reproducing} = \frac{B}{24}$$

$$\text{Meaning} = \frac{D}{24}$$

$$\text{Comprehension learning} = \frac{C+G}{24}$$

$$\text{Operation learning} = \frac{E+F}{24}$$

$$\text{Versatile approach} = \frac{D + C + E}{48}$$

$$\text{Learning pathologies} = \frac{B + F + G}{48}$$

$$\text{Prediction for Success} = \frac{A+D+C+E+(48-B-F-G)}{120}$$

Letter	Correspondent Statement Number in ASI
A	1,6,9,14,19,24
B	4,8,13,18,23,30
C	2,12,22
D	7,11,16,21,26,28
E	10,20,29
F	5,15,25
G	3,17,27

APPENDIX 6.3

SUBSCALES OF THE DREEM

A. Students' perception of teaching:

- I am encouraged to participate in class
- The teaching is sufficiently concerned to develop my confidence
- The teaching encourages me to be an active learner
- The teaching is well focused
- The teaching is sufficiently concerned to develop my competence
- I am clear about the learning objectives of the course
- The teaching is often stimulating
- The teaching time is put to good use
- The teaching is student centred
- Long-term learning is emphasized over short term
- The teaching is too-teacher centred
- The teaching over-emphasizes factual learning

i.e. 12 items max score 48 for this subscale

B. Students' perceptions of teachers:

- The teachers are good at providing feedback to students
- The teachers have good communication skills with patients
- The teachers are knowledgeable
- The teachers give clear examples
- The teachers are well prepared for their classes
- The teachers provide constructive criticism here
- The teachers ridicule the students
- The teachers get angry in class
- The teachers are authoritarian
- The teachers are patient with patients
- The students irritate the teachers

i.e. 11 items/max score 44 for this subscale

C. *Students' academic self-perceptions:*

- I am able to memorize all I need
- Much of what I have to learn seems relevant to a career in medicine
- I feel I am being well prepared for may profession
- Last year's work has been a good preparation for this year's work
- My problem-solving skills are being well developed here
- I am confident about passing this year
- I have learned a lot about empathy in my profession
- Learning strategies which worked for me before continue to work for me now

i.e. 8 itmes/max score 32 on this subscale

D. Students' perceptions of atmosphere:

- The atmosphere is relaxed during lectures
- I feel able to ask the questions I want
- I feel comfortable in class socially
- There are opportunities for me to develop interpersonal skills
- The atmosphere is relaxed during seminars/tutorials
- The enjoyment outweighs the stress of studying medicine
- The atmosphere motivates me as a learner
- I am able to concentrate well
- The atmosphere is relaxed during the ward teaching
- This school is well timetabled
- I find the experience disappointing
- Cheating is a problem in this school

i.e. 12 itmes/max score for this subscale 48

E. Student's social self-perceptions:

- I have good friends in this school
- There is a good support system for students how get stressed
- I am too tired to enjoy this course
- I am rarely bored on this course
- My accommodation is pleasant
- My social life is good
- I seldom feel lonely

i.e. 7 items/max score for this subscale is 28

APPENDIX 6.4

THE ARABIC VERSION OF THE SURVEY

دراسة استكشافيه عن واقع طرق دراسة الطلاب والطالبات والبيئة التعليمية الطبية في كليات الطب بجامعات دول الخليج العربي

عزيزي الطالب/الطالبة

السلام عليكم ورحمة الله و بركاته وبعد:

فإن من أهداف التعليم الجامعي تسهيل العملية التعليمية، وتشجيع الطلبه على التعلم/الدراسة .ولقد أوضحت الدراسات الحديثة أن دراسة العوامل المهمة التي تؤثر على عملية تعلم الطلاب/ الطالبـات أصبحت من الضرورات الملحة لهدف تحسين البيئة التعليمية بشكل عام. وفى المجال الطـبي بصفـة خاصة فان دراسة تلك العوامل تتطلب الأخذ بعين الاعتبار العوامل المؤثرة على الوسط التعليمـي الطبي المحيط بالطلبة. وبما أن اللغة الإنكليزية تمثل لغة التدريس الأساسية فى كليات الطب بجامعـات دول الخليج العربى، فانها تصبح جزءُ لا يتجزأ من العوامل المؤثرة فى البيئة التعليمية الطبية.

والاستبيان المرفق هو عبارة عن جزء من بحث أُعده حالياً للحصول على درجة الدكتوراه فى مجـال التعليم الطبي من جامعة دندي بالمملكة المتحدة. ويهدف هذا البحث إلى دراسة العوامل المؤثـرة في طرق دراسة الطلبه، والعوامل المؤثرة على البيئة التعليمية الطبية، والعوامل المؤثرة على طرق دراسـة اللغة الإنجليزية كلغة ثانية؛ ومدى تأثير تلك العوامل على المحصلة الأكاديمية للطلاب/الطالبـات فى كليات الطب بجامعات دول الخليج العربي. لهذا فقد قُسم البحث إلى ثلاثة أجزاء لكل منها هـدف معين.

ولعلمي الأكيد في تشجيعكم للبحث العلمي، علية آمل المساعدة و ذلك بتفضلكـم مشـكورين بالإجابة على الاستبيان المرفق. وأؤكد لكم أن أجابتكم ستعامل بسرية تامة وسوف تستخدم لغرض البحث العلمي لهذه الدراسة فقط.

وأخيرا تقبلوا مني فائق تحياتي وتقديري، شاكرة لكم حسن تعاونكم ومساعدتكم...

الباحثة

منى بنت فيصل القحطانـي

البيانات الشخصية

١. العمر:.....

٢. الجنس : ذكر ☐ أنثى ☐

٣. العمر عندما بدأت تتعلم اللغة الإنكليزية لأول مرة:.....

٤. السنة الدراسية (مثال سنة أولى ، سنة ثانية):.....

٥. الرجاء الإشارة إلى المستوى الدراسي الذي تم من خلاله البدء بدراسة اللغة الإنكليزية في التعليم الرسمي:

(الرجاء إبداء اختيار واحد فقط)

المرحلة الابتدائية ☐ المرحلة المتوسطة ☐

المرحلة الثانوية ☐ المرحلة الجامعية ☐ أخرى (الرجاء تحديد ذلك).....

٦. الرجاء الإشارة إلى معدلك التراكمي الكلي في مواد اللغة الإنكليزية في نهاية مرحلة إعدادي طب (أي نهاية السنة الثانية):

(الرجاء إبداء اختيار واحد فقط)

٩٠-١٠٠ (ممتاز) {A} ☐ ٨٠-٩٠ (جيد جداً) {B} ☐

٧٠-٨٠ (جيد) {C} ☐ ٦٠-٧٠ (متوسط) {D} ☐

٥٠-٦٠ (تحت المتوسط) {E} ☐ أخرى (الرجاء التحديد).....

٧. الرجاء الإشارة إلى المعدل العام في المقررات الطبية في الوقت الحالي:

(الرجاء إبداء اختيار واحد فقط)

٩٠-١٠٠ (ممتاز) {A} ☐ ٨٠-٩٠ (جيد جداً) {B} ☐

٧٠-٨٠ (جيد) {C} ☐ ٦٠-٧٠ (متوسط) {D} ☐

٥٠-٦٠ (تحت المتوسط) {E} ☐ أخرى (الرجاء التحديد).....

٨. الجنسية : سعودي ☐ بحريني ☐ إماراتي ☐ أخرى (الرجاء تحديد ذلك) .....

٩. البلد الذي حصلت منه على الدرجة الثانوية العامة

السعودية ☐ البحرين ☐ الإمارات ☐ أخرى (الرجاء تحديد ذلك).....

الجزء الأول:

يهدف هذا الجزء إلى معرفة رأيك حول أهمية العوامل التى حفزتك/شجعتك على اختيـــار الطـــب كمجال للدراسة وكمهنةٍ للمستقبل

الرجاء وضع دائرة حول الإجابة التي تعكس وجهة نظرك حيال العوامل التالية(٩ عوامل) التي حفزتك/شجعتك على اختيار الطب كمجال للدراسة وكمهنه للمستقبل وذلك حسبًا للجدول التالي:

مهم جداً	مهم بعض الشيء	متوسط الاهمية	قليل الاهمية	غير مهم إطلاقاً
٤	٣	٢	١	٠

رقم العبة	العبارة	الرجاء وضع دائرة حول الرقم الذي يعكس وجهة نظرك				
١	تحقيقا لرغبة أفراد العائلة لان اصبح طبيبا/طبيبه	٤	٣	٢	١	٠
٢	رغبتي في أن أكون مع أصدقائي الذين التحقوا بكلية الطب	٤	٣	٢	١	٠
٣	تمشيا مع التقليد العائلي، حيث أن هناك العديد من الأطباء بين أفراد العائلة	٤	٣	٢	١	٠
٤	تحقيقا لرغبتي الشخصية في مساعدة الناس المرضى	٤	٣	٢	١	٠
٥	الدخل المالي العالي المتوقع للأطباء كان عاملا مشجعا لى	٤	٣	٢	١	٠
٦	لأن دراسة الطب تكسبني مترله اجتماعيه عاليه	٤	٣	٢	١	٠
٧	اخترت دراسة الطب لكي أغطى النقص في وجود أطباء ط	٤	٣	٢	١	٠
٨	الرغبة في مزاولة مهنة فيها تحد فكري	٤	٣	٢	١	٠
٩	وجود تجربة مرضية مزمنة فى العائلة كان لها الأثر في اختياري لدراسة الطب	٤	٣	٢	١	٠

الجزء الثاني:

الغرض من هذا الجزء هو معرفة رأيك في أساليب / طرق دراستك للمواد الطبية

الرجاء وضع دائرة حول الإجابة التي تعكس رأيك على العبارات التالية (٣٠عبارة) وذلك حسب الجدول التالي:

موافق بشدة	موافق بتحفظ	غير موافق بتحفظ	غير موافق بشدة	يستخدم فقط عندما لا تنطبق العبارة عليك أو عندما تجد أنه من الصعب إبداء رأي معين حول تلك العبارة
٤	٣	١	٠	٢

رقم العبارة	العبارة	الرجاء وضع دائرة حول الرقم الذي يعكس وجهة نظرك				
١	أجد أنه من السهل علي تنظيم وقت دراستي بفاعلية	٤	٣	١	٠	٢
٢	أحاول أن أربط الأفكار في مادة معينة مع أفكار ترد في مواد أخرى	٤	٣	١	٠	٢
٣	على الرغم من انه لدي أفكار عامة جيدة في عدة مجالات لكن معرفتي بتفاصيلها تعتبر ضعيفة	٤	٣	١	٠	٢
٤	أُفضل ان يقال لي بالتفصيل ماذا ينبغي علي عمله عند القيام بكتابة المقالات أو أية واجبات دراسيه أخرى	٤	٣	١	٠	٢
٥	إن أفضل طريقة بالنسبة لي لفهم معنى المصطلحات هو أن أتذكر معناها الحرفي في الكتاب	٤	٣	١	٠	٢
٦	يُهمني تحقيق نتائج جيده/ طيبه في المقررات الدراسية	٤	٣	١	٠	٢
٧	أنا في العادة أحاول أن أفهم تفاصيل معاني ما يطلب مني قراءته	٤	٣	١	٠	٢
٨	عندما أقرأ أحاول حفظ الحقائق المهمة والتي قد تأتي علي بالفائدة مستقبلاً	٤	٣	١	٠	٢
٩	عندما أقوم بأداء واجب دراسي لمادة معينه أحاول أن أضع في ذهني ما يريده بالضبط محاضر تلك المادة ، لكي أعكس ذلك في أدائي للواجب المطلوب	٤	٣	١	٠	٢
١٠	عند قراءتي (مذا كرتي) للمواد الدراسية عادةً ما أكون حذراً في استخلاص النتائج إلا إذا كانت مدعمة بأدلة واضحة	٤	٣	١	٠	٢
١١	السبب الأساسي لوجودي في هذه الكلية هو إمكانية دراسة ا لمواد الدراسية التي أجدها ممتعه لي	٤	٣	١	٠	٢
١٢	عند محاولة فهم أفكار جديدة أثناء الدراسة أحاول أن أربط تلك الأفكار بما يوجد في الحياة العملية والتي قد يمكن تطبيقها في تلك المواقف	٤	٣	١	٠	٢

موافق بشدة	موافق بتحفظ	غير موافق بتحفظ	غير موافق بشدة	يستخدم فقط عندما لا تنطبق العبارة عليك أو عندما تجد أنه من الصعب إبداء راي معين حول تلك العبارة
٤	٣	١	٠	٢

١٣	تهمني الشهادات التي سأحصل عليها أكثر من اهتمامي بالفصول والمقررات التي ادرسها	٤	٣	١	٠	٢
١٤	أنا في العادة أكثر استعداداً للدراسة ليلاً	٤	٣	١	٠	٢
١٥	بالرغم من أنني أتذكر عامةً الحقائق والتفاصيل في مادة معينه إلا أنني أجد صعوبة في محاولة ربطها وترتيبها في صورة واحدة شاملة	٤	٣	١	٠	٢
١٦	أنا في العادة أبذل الكثير من الجهد في محاولة فهم الأشياء التي تبدو صعبة للوهلة الأولى	٤	٣	١	٠	٢
١٧	غالباً ما أتعرض للنقد من جراء استخدامي لأفكار ليس لها علاقة بفكرة المقالة أو النقاش الدائر في محاضرة ما	٤	٣	١	٠	٢
١٨	غالبا ما أجد نفسي مضطرا لقراءة بعض المواضيع دون أن تتوفر لي الفرصة لفهمها فهما جيدا	٤	٣	١	٠	٢
١٩	إذا كانت الظروف غير مناسبة لي للدراسه في وقت ما فإني أحاول أن أعمل شيئا ما لتغيير تلك الظروف	٤	٣	١	٠	٢
٢٠	تجذبني المسائل والمعضلات الدراسيه، خاصة عندما ينبغي علي العمل على حلها من خلال استخدام عدة مواد دراسيه وذلك للوصول إلى استنتاج منطقي معقول	٤	٣	١	٠	٢
٢١	غالبا ما أجد نفسي أتساءل عن الأشياء التي أسمعها في المحاضرة أو أقرأها في الكتب	٤	٣	١	٠	٢
٢٢	أجد أنه من المفيد عند وضع تصميم لموضوع دراسي جديد أن أحاول أن أجد كيف بإمكاني ربط الأفكار ببعضها البعض	٤	٣	١	٠	٢
٢٣	أنا أميل لقراءة القليل جدا من المعلومات الخارجيه خارج ما هو مطلوب مني لإكمال الواجب الدراسي	٤	٣	١	٠	٢
٢٤	من المهم بالنسبة لي على قدر المستطاع أن أحصل على نتائج أفضل من زملائي	٤	٣	١	٠	٢
٢٥	يبدو أن المحاضرين يحاولون جعلي أكثر تحفزا لاستخدام أفكاري الخاصة	٤	٣	١	٠	٢
٢٦	أحاول أن أقضي وقتا كبيرا من فراغي في محاولة البحث أكثر عن مواد سبق وأن نوقشت في الفصل	٤	٣	١	٠	٢

موافق بشدة	موافق بتحفظ	غير موافق بتحفظ	غير موافق بشدة	يستخدم فقط عندما لا تنطبق العبارة عليك أو عندما تجد أنه من الصعب إبداء راي معين حول تلك العبارة
٤	٣	١	٠	٢

٢٧	اعتقد أنني دائما أتسرع للقفز الى استخلاص النتائج قبل استعراض جميع الأدلة	٤	٣	١	٠	٢
٢٨	أجد أن كثيرا من المواضيع الأكاديمية الطبية مثيرة للاهتمام ولذا أرغب في الاستمرار في البحث والقراءة عنها بعد نهاية الفصل	٤	٣	١	٠	٢
٢٩	أعتقد أنه من الضروري النظر إلى المسائل الدراسية بصورة عقلانية ومنطقية بدون الإسراع في الوصول إلى حلول بشأنها	٤	٣	١	٠	٢
٣٠	أجد أن علي حفظ الكثير مما أتعلمه عن ظهر قلب	٤	٣	١	٠	٢

الجزء الثالث:

يهدف هذا الجزء الى معرفة رأيك في العوامل البيئية التي قد تؤثر على البيئية الأكاديمية في جامعتك / كُليتك

الرجاء وضع دائرة حول الإجابة التي تعكس وجهة نظرك من العبارات التالية (٥٠ عبارة) وذلك حسب الجدول التالي:

موافق بشدة	موافق بتحفظ	غير موافق بتحفظ	غير موافق بشدة	يستخدم فقط عندما لا تنطبق العبارة عليك أو عندما تجد أنه من الصعب إبداء راي معين حول تلك العبارة
٤	٣	١	٠	٢

في هذه الكلية التي أدرس بها:

رقم العبارة	العبارة	الرجاء وضع دائرة حول الرقم الذي يعكس وجهة نظرك				
١	أشعر بالتشجيع دائماً للمشاركة في المناقشات داخل الفصل	٤	٣	١	٠	٢
٢	يتصف المدرسون في هذه الكلية بسعة المعرفة	٤	٣	١	٠	٢
٣	يوجد نظام دعم جيد للطلاب/الطالبات الذين يقعون تحت ضغط نفسي	٤	٣	١	٠	٢
٤	أنا أشعر بالإرهاق لدرجة لا تمكنني من الاستمتاع بهذا الفصل الدراسي	٤	٣	١	٠	٢
٥	أساليب الدراسة التي كنت أستخدمها سابقا لا زلت أجدها فعاله الآن	٤	٣	١	٠	٢
٦	يتحلى المدرسون بالصبر مع المرضى	٤	٣	١	٠	٢
٧	غالباً ما يكون التعليم حافزاً للمشاركة والاهتمام	٤	٣	١	٠	٢
٨	يسخر المدرسون من الطلاب في هذه الكلية	٤	٣	١	٠	٢
٩	المدرسون ذوو طابع يغلب عليه حب السيطرة	٤	٣	١	٠	٢
١٠	أشعر بالثقة بالنفس من اجتياز الامتحانات هذه السنة	٤	٣	١	٠	٢
١١	الوسط التعليمي أثناء الدراسة في أجنحة المرضى يبعث على الراحة	٤	٣	١	٠	٢
١٢	يتصف الجدول الدراسي في هذه الكلية بدقة المواعيد الزمنية	٤	٣	١	٠	٢
١٣	عملية التدريس هنا تركز على أن يكون الطالب المحور الرئيسي في عملية التدريس	٤	٣	١	٠	٢

موافق بشدة	موافق بتحفظ	غير موافق بتحفظ	غير موافق بشدة	يستخدم فقط عندما لا تنطبق العبارة عليك أو عندما تجد أنه من الصعب إبداء رأي معين حول تلك العبارة
٤	٣	١	٠	٢

١٤	نادرا ما أشعر بالملل في هذا الفصل الدراسي	٤	٣	١	٠	٢
١٥	لدي أصدقاء جيدين في هذه الكلية	٤	٣	١	٠	٢
١٦	طريقة التدريس في هذه الكلية تساعدني على تطوير كفاءتي	٤	٣	١	٠	٢
١٧	يعتبر الغش مشكله متفشية في هذه الكلية	٤	٣	١	٠	٢
١٨	يتمتع المدرسون بمهارات جيدة للاتصال والتخاطب مع المرضى	٤	٣	١	٠	٢
١٩	أعتبر حياتي الاجتماعية في هذه الكلية جيدة	٤	٣	١	٠	٢
٢٠	يتصف التدريس بالتركيز المباشر على موضوع الدرس	٤	٣	١	٠	٢
٢١	أشعر بأن الدراسة في هذه الكلية أعدتني إعدادا جيدا لأداء متطلبات مهنتي	٤	٣	١	٠	٢
٢٢	عملية التدريس في هذه الكلية تساعدني على تطوير ثقتي بنفسي كطالب	٤	٣	١	٠	٢
٢٣	الجو العام أثناء المحاضرات يدعو للراحه والطمأنينة	٤	٣	١	٠	٢
٢٤	الوقت المخصص للتدريس يستغل استغلالا جيدا	٤	٣	١	٠	٢
٢٥	تركز عملية التدريس بشكل كبير على تعلم الحقائق	٤	٣	١	٠	٢
٢٦	يعتبر عملي خلال السنة الأكاديمية الماضية تحضيرا جيدا لهذه السنة	٤	٣	١	٠	٢
٢٧	أشعر بمقدرتي على حفظ كل ما أريد	٤	٣	١	٠	٢
٢٨	نادرا ما أحس بالوحدة في هذه الجامعة	٤	٣	١	٠	٢
٢٩	يجيد المدرسون التعامل مع أسئلة الطلاب واستفساراتهم	٤	٣	١	٠	٢
٣٠	تتوفر في هذه الكلية عدة فرص لتحسين أسلوبي في التعامل مع الآخرين	٤	٣	١	٠	٢
٣١	مهنتي علمتني كثيرا كيف أتعاطف مع الآخرين	٤	٣	١	٠	٢
٣٢	النقد الذي يوجهه المدرسون للطلبه من النوع البناء	٤	٣	١	٠	٢
٣٣	أشعر بالراحه من الناحية الاجتماعية في هذا الفصل	٤	٣	١	٠	٢
٣٤	الجو التعليمي العام مريح خلال المحاضرات والمناقشات/ وحلقات البحث	٤	٣	١	٠	٢
٣٥	أعتقد أن تجربتي الدراسية مخيبه للآمال	٤	٣	١	٠	٢
٣٦	لدي المقدرة على التركيز الجيد	٤	٣	١	٠	٢

موافق بشدة	موافق بتحفظ	غير موافق بتحفظ	غير موافق بشدة	يستخدم فقط عندما لا تنطبق العبارة عليك أو عندما تجد أنه من الصعب إبداء راي معين حول تلك العبارة
٤	٣	١	٠	٢

٣٧	يقوم المدرسون بتقديم أمثلة واضحة خلال المحاضرات	٤	٣	١	٠	٢
٣٨	أنا أفهم بوضوح الأهداف التعليمية لهذا الفصل الدراسي وما هو المطلوب تعلمه بنهاية الفصل	٤	٣	١	٠	٢
٣٩	يغضب المدرسون أثناء المحاضرات	٤	٣	١	٠	٢
٤٠	يتصف المدرسون بالإعداد الجيد لمحاضراتهم	٤	٣	١	٠	٢
٤١	طورت دراستي في هذه الكلية مهارتي في حل المشاكل/ المسائل الدراسية	٤	٣	١	٠	٢
٤٢	المتعة الدراسية تفوق التعب في هذا الفصل الدراسي	٤	٣	١	٠	٢
٤٣	الجو العام للدراسة في هذه الكلية يُشجعني كطالب	٤	٣	١	٠	٢
٤٤	في هذه الكلية يشجع التدريس على أن أكون طالب علم نشط وفعال	٤	٣	١	٠	٢
٤٥	يبدو لي أن الكثير مما أتعلمه يتعلق بمهامي المستقبلية في مجال العناية الصحية	٤	٣	١	٠	٢
٤٦	سكني الجامعي مريح بشكل عام	٤	٣	١	٠	٢
٤٧	تركز عملية التعليم على التعليم على المدى الطويل بدلاً من التعليم على المدى القصير	٤	٣	١	٠	٢
٤٨	تركز عملية التدريس على أن يكون المدرس هو المحور الرئيس في عملية التدريس	٤	٣	١	٠	٢
٤٩	أشعر أنه باستطاعتي توجيه أي سؤال أريد في هذه الكلية	٤	٣	١	٠	٢
٥٠	كثيراً ما يستثير الطلاب غضب المدرسين في هذه الكلية	٤	٣	١	٠	٢

الجزء الرابع:

يهدف هذا الجزء الى معرفة رأيك في أساليب / طرق دراستك للغه الإنكليزية كلغة ثانيه في كليـــــة الطب وكذلك معرفة رأيك في بعض العوامل التي قد تُوثر على اكتسابك للغه الإنكليزية

الرجاء وضع دائرة حول الإجابة التي تعكس وجهة نظرك من العبارات التالية (٥٢ عبارة) وذلك حسبا للجدول التالي:

موافق بشدة	موافق بتحفظ	غير موافق بتحفظ	غير موافق بشدة	يستخدم فقط عندما لا تنطبق العبارة عليك أو عندما تجد أنه من الصعب إبداء راي معين حول تلك العبارة
٤	٣	١	٠	٢

رقم العبارة	العبارة	الرجاء وضع دائرة حول الرقم الذي يعكس وجهة نظرك				
١	أقوم بتهيئة نفسي للمحاضرة التي أتوقع أن يُقدم فيها مادة جديده في اللغة الإنكليزية	٤	٣	١	٠	٢
٢	أ طلع على مواضيع مادة اللغة الإنكليزية قبل الدخول إلى المحاضرة	٤	٣	١	٠	٢
٣	أهيئ نفسي للمحاضرة الجديدة في اللغة الإنكليزية بالإطلاع على المحاضرة السابقة	٤	٣	١	٠	٢
٤	أُقرر مسبقاً حضور المحاضرات المطلوبة في مقرر اللغة الإنكليزية	٤	٣	١	٠	٢
٥	استمتع بحضور محاضرات إضافية في اللغة الإنكليزية	٤	٣	١	٠	٢
٦	أجد فائدة في تعزيز تعلمي اللغة الإنكليزية وذلك من خلال حضوري لمحاضرات أخرى في صفوف اللغة الإنكليزية	٤	٣	١	٠	٢
٧	أجد فائدة في تعزيز تعلمي اللغة الإنكليزية وذلك من خلال مشاهدة برامج التلفزيون باللغة الإنكليزية	٤	٣	١	٠	٢
٨	أحرص على حضور برامج خاصة لتعليم اللغة الإنكليزية خلال عطلة الصيف	٤	٣	١	٠	٢
٩	أثناء دراسة اللغة الإنكليزية أحاول أن أراقب ما انطق / ألفظ به باللغة الإنكليزية من خلال التأكد من معرفة موا قع نهاية الجمل	٤	٣	١	٠	٢
١٠	أثناء درس اللغة الإنكليزية أحاول أن أراقب ما انطق / ألفظ به باللغة الإنكليزية من خلال التأكد من صحة المفردات اللغوية	٤	٣	١	٠	٢

موافق بشدة	موافق بتحفظ	غير موافق بتحفظ	غير موافق بشدة	عليك أو عندما تجد أنه من الصعب إبداء رأي معين حول تلك العبارة
٤	٣	١	٠	٢

١١	أحاول التأكد من سلامة استخدامي لقواعد اللغة الإنكليزية عند المحادثه في محاضرة اللغة الإنكليزية	٤	٣	١	٠	٢
١٢	أثناء دراسة مقررات اللغة الإنكليزية أحاول التأكد من أجوبتي (مثلاً الامتحانات المكتوبة) بمقارنتها بالأجوبة المثالية الصحيحة	٤	٣	١	٠	٢
١٣	أثناء دراسة مقررات اللغة الإنكليزية أستخدم قاموس إنكليزي ـــ إنكليزي كلما واجهتني مفردة غير معروفة	٤	٣	١	٠	٢
١٤	أثناء دراسة مقررات اللغة الإنكليزية أستعين بمعجم إنكليزي - عربي كلما واجهتني مفردة غير معروفة أثناء الدرس	٤	٣	١	٠	٢
١٥	أستعين بمعجم للمصطلحات الطبية باللغة العربية لتوضيح معاني بعض المفردات	٤	٣	١	٠	٢
١٦	أحاول المواظبه على تدوين الملاحظات خلال الدرس	٤	٣	١	٠	٢
١٧	أحاول أن أكتب نقاط الدرس المهمة أثناء محاضرة اللغة الإنكليزية	٤	٣	١	٠	٢
١٨	أحاول أن أدون الأفكار الرئيسة خلال قراءتي للمواضيع في مادة اللغة الإنكليزية	٤	٣	١	٠	٢
١٩	أحاول ربط المعلومات الجديدة في اللغة الإنكليزية بالمعلومات القديمة ذات الصلة	٤	٣	١	٠	٢
٢٠	أثناء قراءتي باللغة الإنكليزية أحاول أن أستشف معاني الكلمات الجديدة حسب موقعها في الجملة	٤	٣	١	٠	٢
٢١	أحاول أن أسأل مدرس اللغة الإنكليزية للمساعدة في توضيح معاني بعض المصطلحات الجديدة	٤	٣	١	٠	٢
٢٢	أحاول الاستعانة بشخص يتحدث الإنكليزية أثناء دراسة مقررات اللغة الإنكليزية للمساعدة في توضيح معاني بعض المصطلحات الجديدة	٤	٣	١	٠	٢
٢٣	كنت استمتع بالمشاركة في النقاشات أو المحادثات بالإنكليزية مع الطلاب بشكل جماعي أثناء برنامج اللغة الإنكليزية	٤	٣	١	٠	٢
٢٤	أثناء دراستي في برنامج اللغة الإنكليزية أرغب في مشاركة زملائي في إجراء فعاليات تعليمية باللغة الإنكليزية بشكل جماعي	٤	٣	١	٠	٢
٢٥	مقرر اللغة الإنكليزية ضروري لأن اللغة الإنكليزية هي أفضل لغه لدراسة العلوم الطبية	٤	٣	١	٠	٢

موافق بشدة	موافق بتحفظ	غير موافق بتحفظ	غير موافق بشدة	يستخدم فقط عندما لا تنطبق العبارة عليك أو عندما تجد أنه من الصعب إبداء راي معين حول تلك العبارة
٤	٣	١	٠	٢

٢٦	مقرر اللغة الإنكليزية مفيد جداً بالنسبة لي	٤	٣	١	٠	٢
٢٧	مقرر اللغة الإنكليزية صعب الفهم	٤	٣	١	٠	٢
٢٨	دراسة اللغة الإنكليزية مُهمة بالنسبة لي لأنني سأحتاج اللغة في مستقبلي المهني	٤	٣	١	٠	٢
٢٩	دراسة اللغة الإنكليزية مُهمة بالنسبة لي لأنها ستساعدني على إطلاع أكثر من الناحية الطبية	٤	٣	١	٠	٢
٣٠	دراسة اللغة الإنكليزية مُهم بالنسبة لي لأنني أعتقد أنها ستكون في يوم ما مفيدة لي للحصول على وظيفة جيدة	٤	٣	١	٠	٢
٣١	دراسة اللغة الإنكليزية مُهم بالنسبة لي لأن معرفة لغة أجنبية يزيد من احترام الآخرين لي	٤	٣	١	٠	٢
٣٢	دراسة اللغة الإنكليزية مُهم بالنسبة لي لأن ذلك سيساعدني أكثر على التفاهم و التعامل مع زملائي المتحدثين باللغة الإنكليزية	٤	٣	١	٠	٢
٣٣	دراسة اللغة الإنكليزية مُهم بالنسبة لي لأن ذلك سيهيء لي فرصة المقابلة والحوار مع طبقات مختلفة من الناس	٤	٣	١	٠	٢
٣٤	دراسة اللغة الإنكليزية مُهم بالنسبة لي لأن ذلك سيساعدني أفضل على تفهم وتذوق الفن والأدب الإنكليزي	٤	٣	١	٠	٢
٣٥	دراسة اللغة الإنكليزية مُهم بالنسبة لي لأن ذلك سيهيأ لي المشاركة بحرية أكثر في نشاطات وفعاليات مع ثقافات من جنسيات مختلفة	٤	٣	١	٠	٢
٣٦	تعلم اللغة الإنكليزية مُهم للتعليم بعيد الأمد خصوصاً في الطب	٤	٣	١	٠	٢
٣٧	أستمتع بالمخاطبة باللغة الإنكليزية مع مدرسين يتحدثون اللغة الإنكليزية	٤	٣	١	٠	٢
٣٨	لا أرغب في ابداء رأيي مستخدماً اللغة الإنكليزية أثناء المحاضرات أو دروس المراجعه	٤	٣	١	٠	٢
٣٩	أستمتع باستخدام اللغة الإنكليزية أثناء المناقشة مع زملائي في الصف الذين يشاركونني نفس لغة الأم (اللغة العربيه)	٤	٣	١	٠	٢
٤٠	أمارس المخاطبة باللغة الإنكليزية خارج قاعة المحاضرات	٤	٣	١	٠	٢
٤١	أحرص على مشاهدة البرامج الإنكليزية في التلفزيون	٤	٣	١	٠	٢
٤٢	يشجعني مدرسو اللغة الإنكليزية على التحدث باللغة الإنكليزية خارج الصف	٤	٣	١	٠	٢

موافق بشدة	موافق بتحفظ	غير موافق بتحفظ	غير موافق بشدة	يستخدم فقط عندما لا تنطبق العبارة عليك أو عندما تجد أنه من الصعب إبداء راي معين حول تلك العبارة
٤	٣	١	٠	٢

٤٣	يساعدني مدرسو اللغة الإنكليزية في الحصول على أجوبة لأسئلة تتعلق بمادة اللغة الإنكليزية	٤	٣	١	٠	٢
٤٤	خلال تعلم اللغة الإنكليزية ، مدرسو اللغة الإنكليزية على علم باختلاف مستوى الفهم لدى الطلاب	٤	٣	١	٠	٢
٤٥	كلما ارتكبت خطأ باللغة الإنكليزية يحاول مدرسو اللغة الإنكليزية تصحيح ذلك الخطأ بأسلوب مشجع	٤	٣	١	٠	٢
٤٦	تمكنت الشعوب الناطقة باللغة الإنكليزية من إنتاج رُواد من الفنانين والعلماء	٤	٣	١	٠	٢
٤٧	أنظر بإيجابية تجاه الأشخاص الناطقين باللغة الإنكليزية	٤	٣	١	٠	٢
٤٨	كلما تعلمت شيئاً جديداً عن الشعوب الناطقة باللغة الإنكليزية كلما زاد إعجابي بهم	٤	٣	١	٠	٢
٤٩	بذلت جهداً كبيراً لتعلم اللغة الإنكليزية عند التحاقي بفصل / منهاج تعلم اللغة الإنكليزية	٤	٣	١	٠	٢
٥٠	أمضيت وقتاً قليلاً في تعلم اللغة الإنكليزية بالمقارنة مع المقررات الدراسيه الأخرى	٤	٣	١	٠	٢
٥١	عندما تواجهني صعوبه في فهم شيئ ما ندرسه في مقرر اللغة الإنكليزية فانني غالباً أتجاهل ذلك الشيء	٤	٣	١	٠	٢
٥٢	أتمنى لو أستطيع استخدام اللغة الإنكليزية بطلاقة الناطقين بها	٤	٣	١	٠	٢

APPENDIX 7.1

NORMALITY TEST

Table: THE NORMALITY TEST FOR THE STUDNETS' PERCEPTIONS		
Variable (Statement)	P-Value Based on Anderson-Darling Test For Normality	Normality Result
P1S1	0.000	Not Normal
P1S2	0.000	Not Normal
P1S3	0.000	Not Normal
P1S4	0.000	Not Normal
P1S5	0.000	Not Normal
P1S6	0.000	Not Normal
P1S7	0.000	Not Normal
P1S8	0.000	Not Normal
P1S9	0.000	Not Normal
P2S1	0.000	Not Normal
P2S2	0.000	Not Normal
P2S3	0.000	Not Normal
P2S4	0.000	Not Normal
P2S5	0.000	Not Normal
P2S6	0.000	Not Normal
P2S7	0.000	Not Normal
P2S8	0.000	Not Normal
P2S9	0.000	Not Normal
P2S10	0.000	Not Normal
P2S11	0.000	Not Normal
P2S12	0.000	Not Normal
P2S13	0.000	Not Normal
P2S14	0.000	Not Normal
P2S15	0.000	Not Normal
P2S16	0.000	Not Normal
P2S17	0.000	Not Normal
P2S18	0.000	Not Normal
P2S19	0.000	Not Normal
P2S20	0.000	Not Normal
P2S21	0.000	Not Normal
P2S22	0.000	Not Normal
P2S23	0.000	Not Normal
P2S24	0.000	Not Normal
P2S25	0.000	Not Normal
P2S26	0.000	Not Normal
P2S27	0.000	Not Normal
P2S28	0.000	Not Normal
P2S29	0.000	Not Normal
P2S30	0.000	Not Normal
P3S1	0.000	Not Normal
P3S2	0.000	Not Normal
P3S3	0.000	Not Normal
P3S4	0.000	Not Normal
P3S5	0.000	Not Normal
P3S6	0.000	Not Normal
P3S7	0.000	Not Normal
P3S8	0.000	Not Normal

Table: THE NORMALITY TEST FOR THE STUDNETS' PERCEPTIONS		
Variable (Statement)	P-Value Based on Anderson-Darling Test For Normality	Normality Result
P3S9	0.000	Not Normal
P3S10	0.000	Not Normal
P3S11	0.000	Not Normal
P3S12	0.000	Not Normal
P3S13	0.000	Not Normal
P3S14	0.000	Not Normal
P3S15	0.000	Not Normal
P3S16	0.000	Not Normal
P3S17	0.000	Not Normal
P3S18	0.000	Not Normal
P3S19	0.000	Not Normal
P3S20	0.000	Not Normal
P3S21	0.000	Not Normal
P3S22	0.000	Not Normal
P3S23	0.000	Not Normal
P3S24	0.000	Not Normal
P3S25	0.000	Not Normal
P3S26	0.000	Not Normal
P3S27	0.000	Not Normal
P3S28	0.000	Not Normal
P3S29	0.000	Not Normal
P3S30	0.000	Not Normal
P3S31	0.000	Not Normal
P3S32	0.000	Not Normal
P3S33	0.000	Not Normal
P3S34	0.000	Not Normal
P3S35	0.000	Not Normal
P3S36	0.000	Not Normal
P3S37	0.000	Not Normal
P3S38	0.000	Not Normal
P3S39	0.000	Not Normal
P3S40	0.000	Not Normal
P3S41	0.000	Not Normal
P3S42	0.000	Not Normal
P3S43	0.000	Not Normal
P3S44	0.000	Not Normal
P3S45	0.000	Not Normal
P3S46	0.000	Not Normal
P3S47	0.000	Not Normal
P3S48	0.000	Not Normal
P3S49	0.000	Not Normal
P3S50	0.000	Not Normal
P4S1	0.000	Not Normal
P4S2	0.000	Not Normal
P4S3	0.000	Not Normal
P4S4	0.000	Not Normal
P4S5	0.000	Not Normal
P4S6	0.000	Not Normal

Table: THE NORMALITY TEST FOR THE STUDNETS' PERCEPTIONS		
Variable (Statement)	P-Value Based on Anderson-Darling Test For Normality	Normality Result
P4S7	0.000	Not Normal
P4S8	0.000	Not Normal
P4S9	0.000	Not Normal
P4S10	0.000	Not Normal
P4S11	0.000	Not Normal
P4S12	0.000	Not Normal
P4S13	0.000	Not Normal
P4S14	0.000	Not Normal
P4S15	0.000	Not Normal
P4S16	0.000	Not Normal
P4S17	0.000	Not Normal
P4S18	0.000	Not Normal
P4S19	0.000	Not Normal
P4S20	0.000	Not Normal
P4S21	0.000	Not Normal
P4S22	0.000	Not Normal
P4S23	0.000	Not Normal
P4S24	0.000	Not Normal
P4S25	0.000	Not Normal
P4S26	0.000	Not Normal
P4S27	0.000	Not Normal
P4S28	0.000	Not Normal
P4S29	0.000	Not Normal
P4S30	0.000	Not Normal
P4S31	0.000	Not Normal
P4S32	0.000	Not Normal
P4S33	0.000	Not Normal
P4S34	0.000	Not Normal
P4S35	0.000	Not Normal
P4S36	0.000	Not Normal
P4S37	0.000	Not Normal
P4S38	0.000	Not Normal
P4S39	0.000	Not Normal
P4S40	0.000	Not Normal
P4S41	0.000	Not Normal
P4S42	0.000	Not Normal
P4S43	0.000	Not Normal
P4S44	0.000	Not Normal
P4S45	0.000	Not Normal
P4S46	0.000	Not Normal
P4S47	0.000	Not Normal
P4S48	0.000	Not Normal
P4S49	0.000	Not Normal
P4S50	0.000	Not Normal
P4S51	0.000	Not Normal
P4S52	0.000	Not Normal

APPENDIX 7.2

CROSS-TABULATION

CROSS TABULATION FOR LEVEL OF FORMAL EDUCATION WHEN STUDENTS STARTED LEARNING ENGLISH & GPA FOR ENGLISH AT THE END OF THE PRE-MEDICAL YEAR AT KFU

Level of Formal Education when Students Started Learning English		GPA for English At the End of the Pre-Medical Year					
		A	B	C	D	E	Row Total
Elementary	Count	23	13	2	1		39
	Raw %	59.0	33.3	5.1	2.6		100.0
	Column %	39.7	29.5	18.2	8.3		31.0
Intermediate	Count	35	31	9	11	1	87
	Raw %	40.2	35.6	10.3	12.6	1.1	100.0
	Column %	60.3	70.5	81.8	91.7	100.0	69.0
Column Total		58	44	11	12	1	
		46.0	34.9	8.7	9.5	0.8	
		100.0	100.0	100.0	100.0	100.0	

CROSS TABULATION FOR LEVEL OF FORMAL EDUCATION WHEN STUDENTS STARTED LEARNING ENGLISH & GPA FOR ENGLISH AT THE END OF THE PRE-MEDICAL YEAR AT AGU

Level of Formal Education when Students Started Learning English		GPA for English At the End of the Pre-Medical Year				
		A	B	C	D	Row Total
Elementary	Count	49	19		2	70
	Raw %	70.0	27.1		2.9	100.0
	Column %	80.3	79.2		100.0	77.8
Intermediate	Count	11	4	3		18
	Raw %	61.1	22.2	16.7		100.0
	Column %	18.0	16.7	100.0		20.0
University	Count	1	1			2
	Raw %	50.0	50.0			100.0
	Column %	1.6	4.2			2.2
Column Total		61	24	3	2	90
		67.8	26.7	3.3	2.2	100.0
		100.0	100.0	100.0	100.0	100.0

CROSS TABULATION FOR LEVEL OF FORMAL EDUCATION WHEN STUDENTS STARTED LEARNING ENGLISH & GPA FOR ENGLISH AT THE END OF THE PRE-MEDICAL YEAR AT UAE

Level of Formal Education when Students Started Learning English		GPA for English At the End of the Pre-Medical Year				
		A	B	C	D	Row Total
Elementary	Count	9	31	12	1	53
	Raw %	17.0	58.5	22.6	1.9	100.0
	Column %	90.0	91.2	100.0	100.0	93.0
Intermediate	Count		2			2
	Raw %		100.0			100.0
	Column %		5.9			3.5
University	Count	1	1			2
	Raw %	50.0	50.0			100.0
	Column %	10.0	2.9			3.5
Column Total		10	34	12	1	57
		17.5	59.6	21.1	1.8	100.0
		100.0	100.0	100.0	100.0	100.0

APPENDIX 7.3

CROSS-TABULATION

CROSS TABULATION FOR AGE AT WHICH STUDENTS WERE FIRST EXPOSED TO LEARNING ENGLISH & GPA FOR ENGLISH AT THE END OF THE PRE-MEDICAL YEAR AT KFU

Age at which Students were First Exposed to Learning English		GPA for English at the End of the Pre-Medical Year					
		A	B	C	D	E	Row Total
1-3	Count	7	2				9
	Raw %	77.8	22.2				100.0
	Column %	12.1	4.5				7.1
4-6	Count	11	7	1	1		20
	Raw %	55.0	35.0	5.0	5.0		100.0
	Column %	19.0	15.9	9.1	8.3		15.9
7-9	Count	4	4				8
	Raw %	50.0	50.0				100.0
	Column %	6.9	9.1				6.3
10-12	Count	28	18	10	6		62
	Raw %	45.2	29.0	16.1	9.7		100.0
	Column %	48.3	40.9	90.9	50.0		49.2
13-15	Count	8	13		5	1	27
	Raw %	29.6	48.1		18.5	3.7	100.0
	Column %	13.8	29.5		41.7	100.0	21.4
Column Total		58	44	11	12	1	126
		46.0	34.9	8.7	9.5	0.8	100.0
		100.0	100.0	100.0	100.0	100.0	100.0

CROSS TABULATION FOR AGE AT WHICH STUDENTS WERE FIRST EXPOSED TO LEARNING ENGLISH & GPA FOR ENGLISH AT THE END OF THE PRE-MEDICAL YEAR AT AGU

Age at which Students were First Exposed to Learning English		GPA for English at the End of the Pre-Medical Year				
		A	B	C	D	Row Total
1-3	Count	6				6
	Raw %	100.0				100.0
	Column %	9.8				6.7
4-6	Count	13	1			14
	Raw %	92.9	7.1			100.0
	Column %	21.3	4.2			15.6
7-9	Count	20	12		1	33
	Raw %	60.6	36.4		3.0	100.0
	Column %	32.8	50.0		50.0	36.7
10-12	Count	19	11	3	1	34
	Raw %	55.9	32.4	8.8	2.9	100.0
	Column %	31.1	45.8	100.0	50.0	37.8
13-15	Count	2				2
	Raw %	100.0				100.0
	Column %	3.3				2.2
16-18	Count	1				1
	Raw %	100.0				100.0
	Column %	1.6				1.1
Column Total		61	24	3	2	90
		67.8	26.7	3.3	2.2	100.0
		100.0	100.0	100.0	100.0	100.0

CROSS TABULATION FOR AGE AT WHICH STUDENTS WERE FIRST EXPOSED TO LEARNING ENGLISH & GPA FOR ENGLISH AT THE END OF THE PRE-MEDICAL YEAR AT UAE						
Age at which Students were First Exposed to Learning English		**GPA for English at the End of the Pre-Medical Year**				
		A	B	C	D	Row Total
1-3	Count		1			1
	Raw %		100.0			100.0
	Column %		2.9			1.8
4-6	Count	2	3		1	6
	Raw %	33.3	50.0		16.7	100.0
	Column %	20.0	8.8		100.0	10.5
7-9	Count	7	16	6		29
	Raw %	24.1	55.2	20.7		100.0
	Column %	70.0	47.1	50.0		50.9
10-12	Count	1	13	6		20
	Raw %	5.0	65.0	30.0		100.0
	Column %	10.0	38.2	50.0		35.1
13-15	Count		1			1
	Raw %		100.0			100.0
	Column %		2.9			1.8
Column Total		10	34	12	1	57
		17.5	59.6	21.1	1.8	100.0
		100.0	100.0	100.0	100.0	100.0

APPENDIX 7.4

CROSS-TABULATION

CROSS TABULATION FOR GPA FOR MEDICAL COURSES AND GPA FOR ENGLISH AT THE END OF THE PRE-MEDICAL YEAR AT KFU

GPA for Medical Courses		GPA for English at the End of the Pre-Medical Year					
		A (>90)	B (81-90)	C (71-80)	D (61-70)	E (50-60)	Row Total
A (>90)	Count	25	1				26
	Raw %	96.2	3.8				100.0
	Column %	43.1	2.3				20.6
B (81-90)	Count	13	14	1	3		31
	Raw %	41.9	45.2	3.2	9.7		100.0
	Column %	22.4	31.8	9.1	25.0		24.6
C (71-80)	Count	14	19	6	3		42
	Raw %	33.3	45.2	14.3	7.1		100.0
	Column %	24.1	43.2	54.5	25.0		33.3
D (61-70)	Count	5	7	4	6	1	23
	Raw %	21.7	30.4	17.4	26.1	4.3	100.0
	Column %	8.6	15.9	36.4	50.0	100.0	18.3
E (50-60)	Count	1	2				3
	Raw %	33.3	66.7				100.0
	Column %	1.7	4.5				2.4
Others	Count		1				1
	Raw %		100.0				100.0
	Column %		2.3				0.8
Column Total		58	44	11	12	1	126
		46.0	34.9	8.7	9.5	0.8	100.0
		100.0	100.0	100.0	100.0	100.0	100.0

CROSS TABULATION FOR GPA FOR MEDICAL COURSES AND GPA FOR ENGLISH AT THE END OF THE PRE-MEDICAL YEAR AT AGU

GPA for Medical Courses		GPA for English at the End of the Pre-Medical Year				
		A (>90)	B (81-90)	C (71-80)	D (61-70)	Row Total
A (>90)	Count	13	1			14
	Raw %	92.9	7.1			100.0
	Column %	21.3	4.2			15.6
B (81-90)	Count	29	11	1		41
	Raw %	70.7	26.8	2.4		100.0
	Column %	47.5	45.8	33.3		45.6
C (71-80)	Count	16	7	1	1	25
	Raw %	64.0	28.0	4.0	4.0	100.0
	Column %	26.2	29.2	33.3	50.0	27.8
D (61-70)	Count	3	4	1	1	9
	Raw %	33.3	44.4	11.1	11.1	100.0
	Column %	4.9	16.7	33.3	50.0	10.0
E (50-60)	Count		1			1
	Raw %		100.0			100.0
	Column %		4.2			1.0
Column Total		61	24	3	2	90
		67.8	26.7	3.3	2.2	100.0
		100.0	100.0	100.0	100.0	100.0

CROSS TABULATION FOR GPA FOR MEDICAL COURSES AND GPA FOR ENGLISH AT THE END OF THE PRE-MEDICAL YEAR AT UAE

GPA for Medical Courses		GPA for English at the End of the Pre-Medical Year				
		A (>90)	B (81-90)	C (71-80)	D (61-70)	Row Total
A (>90)	Count	1		1		2
	Raw %	50.0		50.0		100.0
	Column %	10.0		8.3		3.5
B (81-90)	Count	8	23	7		38
	Raw %	21.1	60.5	18.4		100.0
	Column %	80.0	67.6	58.3		66.7
C (71-80)	*Count*	*1*	11	4	1	17
	Raw %	*5.9*	*64.7*	*23.5*	*5.9*	*100.0*
	Column %	10.0	*32.4*	*33.3*	*100.0*	*21.8*
Column Total		10	34	12	1	57
		17.5	59.6	21.1	1.8	100.0
		100.0	100.0	100.0	100.0	100.0

APPENDIX 7.5

CROSS-TABULATION

CROSS TABULATION FOR NATIONALITY & COUNTRY WHERE STUDENTS OBTAINED THEIR HIGH SCHOOL DIPLOMAS AT KFU

Country Where Students Obtained their High School Diplomas		Students' Nationality			
		Saudi Arabia	Bahrain	Qatar	Row Total
Kuwait	Count	1			1
	Raw %	100.0			100.0
	Column %	0.9			0.8
Saudi Arabia	Count	113	1		
	Raw %	99.1	0.9		
	Column %	99.1	14.3		
Bahrain	Count		6		
	Raw %		100.0		
	Column %		85.7		
Qatar	Count			5	
	Raw %			100.0	
	Column %			100.0	
Column Total		114	7	5	126
		90.5	5.6	4.0	100.0
		100.0	100.0	100.0	100.0

CROSS TABULATION FOR NATIONALITY & COUNTRY WHERE STUDENTS OBTAINED THEIR HIGH SCHOOL DIPLOMAS AT AGU

Country Where Students Obtained their High School Diplomas		Students' Nationality							
		Kuwait	Saudi Arabia	Bahrain	Qatar	UAE	Oman	Others	Row Total
Kuwait	Count	11	1			1		2	15
	Raw %	73.3	6.7			6.7		13.3	100.0
	Column %	100.0	10.0			11.1		66.7	16.7
Saudi Arabia	Count		8					1	
	Raw %		88.9					11.1	
	Column %		80.9					33.3	
Bahrain	Count		1	34					
	Raw %		2.9	97.1					
	Column %		10.0	100.0					
Qatar	Count				15				
	Raw %				100.0				
	Column %				100.0				
UAE	Count					8			
	Raw %					100.0			
	Column %					88.9			
Oman	Count						8		
	Raw %						100.0		
	Column %						100.0		
Column Total		11	10	34	15	9	8	3	90
		12.2	11.1	37.8	16.7	10.0	8.9	3.3	100.0
		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

CROSS TABULATION FOR NATIONALITY & COUNTRY WHERE STUDENTS OBTAINED THEIR HIGH SCHOOL DIPLOMAS AT UAE			
Country Where Students Obtained their High School Diplomas		**Students' Nationality**	
		United Arab Emirates	Row Total
Kuwait	Count	1	1
	Raw %	100.0	100.0
	Column %	1.8	1.8
Qatar	Count	3	3
	Raw %	100.0	100.0
	Column %	5.3	5.3
UAE	Count	53	53
	Raw %	100.0	100.0
	Column %	93.0	93.0
Column Total		57	57
		100.0	100.0
		100.0	100.0