

Science and Mathematics Education Centre

**Motivation, Self-Regulation and Learning Environment
Perceptions: Learning English as a Second Language at the
University Level in Jordan**


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**This thesis is presented for the Degree of
Doctor of Philosophy
of
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DECLARATION

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university. To the best of my knowledge and belief, this thesis contains no material previously published by any other person except where due acknowledgment has been made.

Signature: 
Date: 8/16/13

ABSTRACT

Students' motivational beliefs and self-regulatory practices have been identified as instrumental in influencing the engagement of students in the learning process. The overarching aim of the study reported in this thesis was to investigate students' perceptions of the learning environment and whether this influenced their motivation and self-regulation in learning English as a second language at the university level in the Hashemite Kingdom of Jordan. This exploratory study was one of the first to investigate students' perceptions of the learning environment in the Hashemite Kingdom of Jordan.

My sample involved 994 students, drawn from 13 schools, within three faculties (humanities, health sciences and engineering) of one university. The collection of data involved the administration of two surveys: one to assess students' perceptions of the learning environment and another to assess students' motivation and self-regulation in learning English as a second language.

As a first step, the two surveys, originally developed in Western countries, were modified, translated and validated for use at the university level in the Hashemite Kingdom of Jordan. Analyses involved examining the factor structure, internal consistency reliability and ability to discriminate between schools for the scales of the two instruments. These results strongly supported the reliability and validity of the surveys when used at the university level in the Hashemite Kingdom of Jordan, thereby providing confidence in the results used to answer the research questions.

To answer the first and second research questions, simple correlation and multiple regression analysis were used to examine the influence of: students' perceptions of the learning environment created in English language classes on self-reports of motivation and self-regulation. For the simple correlation, statistically significant ($p < 0.05$) associations were found between students' perceptions of their English language learning environment and their motivation and self-regulation. The multiple correlations (R) were statistically significant for all four of the motivation outcomes.

The regression weights (β) indicated that three of the seven learning environment scales were positively, significantly ($p < 0.05$) and independently related to all four of the motivation and self-regulation outcomes. Further, the multiple correlation between the motivation scales and the students' self-regulation in language learning was positive and statistically significant ($p < 0.05$). Two of the three motivation scales, were positively, significantly ($p < 0.01$) and independently related to Self-Regulation.

Research question three sought to compare the learning environment and motivation and self-regulation scores for males and females. The results of the analysis, using one-way multivariate analysis of variance (MANOVA), indicated that there were statistically significant ($p < 0.05$) differences for five of the seven learning environments. The results suggest that male students perceive statistically significantly more teacher support and involvement during English language classes than females and that female students perceive statistically significantly more student cohesiveness, task orientation and cooperation than their male counterparts. For those scales with a statistically significant difference, the effect size ranged from 0.07 standard deviations to 0.14 standard deviations. In terms of motivation and self-regulation, the results indicated a statistically significant ($p < 0.01$) difference for all four motivation and self-regulation scales, with females reporting more learning goal orientation, holding more value for the tasks set in English language classes and reporting the use of more self-regulatory strategies than their male counterparts. Males, on the other hand, reported a higher sense of self-efficacy than their female counterparts.

The present study was the first within the field of learning environment research to examine the influence of psychosocial learning environments on students' motivation and self-regulation in the area of English language learning at the university level in the Hashemite Kingdom of Jordan. Methodologically, this study contributed to the field through the modification, translation and validation of two instruments to assess students' perceptions of the learning environment and their motivation and self-regulation in English language learning. The two surveys make available, for the first time in the Jordanian context, economical tools that could be used to gather information about their students' perceptions.

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CHAPTER 1

INTRODUCTION AND OVERVIEW

1.1 Introduction

In today's globalised world it is considered important by many countries for children, from a young age, to learn a language that is internationally known and used. English as a *lingua franca* is widely used throughout the Arab world. Education systems in many Arabic countries encourage the use of English for communication and teaching purposes in schools. Different approaches have been used to promote learning English as a second language but it is apparent that the attitudes towards learning English differ between students. Most researchers emphasise that students' attitudes are an integral part of learning and should, therefore, become an essential component of the second language learning pedagogy (Lasagbaster, 2011; Broady, 2005; Wright & McGrory, 2005).

Teachers wishing to motivate their students to take an interest in learning English as a second language need to create conducive learning environments. When language instruction is incomprehensible and uninspiring, it fails the basic task of teaching (Bernaus, Masgoret, Gardner, & Reyes, 2004). While teachers often use tests and examinations to measure the progress of content learning, students' attitudes and beliefs towards learning a specific subject and the psychosocial properties of the classroom are often neglected (Fraser, 2007, 2012). Research in the field of learning environments shows strong and consistent associations between the achievement of the students and characteristics of the learning environment (Fraser, 2012). Therefore, it is important that teachers have information related to the perceptions of their students to help them to improve the teaching and learning process (Aldridge, Fraser, Bell & Dorman, 2012). Past studies suggest that students' attitudes and beliefs about the subject and psychosocial factors within the classroom are important in creating a productive learning environment (Allen & Fraser, 2007; Aldridge & Fraser, 2008; Dorman, 2009). To date, however, no studies have examined whether these associations exist between students' perception of the classroom environment

and motivation and self-regulation among university level students who are learning English as a second language in the Hashemite Kingdom of Jordan. Therefore this study sought to fill this gap. This chapter introduces the present study under the following headings:

- Context of the Study (Section 1.2);
- Theoretical Framework (Section 1.3);
- Research Questions (Section 1.4);
- Significance of the Study (Section 1.5); and,
- Overview of the Thesis (Section 1.6).

1.2 Context of the Study

This section provides a context for the study including: a short history of the Hashemite Kingdom of Jordan (Section 1.2.1); an overview of the education system in the Hashemite Kingdom of Jordan (Section 1.2.2); and, the use and teaching of English as a second language in schools and other learning institutions (Section 1.2.3).

1.2.1 Historical Background of the Hashemite Kingdom of Jordan

The Hashemite Kingdom of Jordan (hence forth referred to as Jordan) is the home to some of mankind's earliest civilizations. The land that became Jordan is part of the historical Fertile Crescent region. The Fertile Crescent is named for its relatively rich soil and arc-shaped area that lies next to the Mediterranean Sea and includes Syria, Jordan, Israel, Lebanon and West Bank. The history of Jordan began around 2000 BC, when Semitic Amorites settled around the Jordan River in an area known as Canaan. Subsequent invaders and settlers have included the Hittites, Egyptians, Israelites, Assyrians, Babylonians, Persians, Greeks, Romans, Arab Muslims, Christian Crusaders, Mameluks, Ottoman Turks and, finally, the British.

At the end of World War I, the League of Nations, as the mandate for Palestine and Transjordan, awarded the territory now comprising Israel, Jordan, the West Bank, Gaza, and Jerusalem to the United Kingdom (Abu Odeh, 1999). In 1922, the British

divided the mandate and established the semi-autonomous Emirate of Transjordan, ruled by the Hashemite Prince Abdullah, with the administration of Palestine, under a British High Commissioner. The mandate over Transjordan ended on May 22, 1946 and, on May 25 the country became the independent Hashemite Kingdom of Transjordan. In 1950, the country was renamed the Hashemite Kingdom of Jordan to include those portions of Palestine that were annexed by King Abdullah.

Jordan is situated in the heart of the Middle East and shares borders with Saudi Arabia, Syria, Iraq, Israel and the West Bank. (Appendix A provides a map showing the location of Jordan within the Middle East.) It is a small country and, although there are few natural resources, it is strategically located at the crossroads of what most Christians, Jews and Muslims call the Holy Land (World Rover, 1995). Jordan occupies an area of 34,492 square miles and has a population of around 6.1 million. At the time of writing this thesis, more than half of the population of Jordan were below the age of 30 years, about 42.2 percent were 14 years or younger and 31.4 were between the age of 15 and 29 years with almost one-third of all Jordanians enrolled in educational facilities.

Islam is the official religion of Jordan and Arabic is the official language. Although Arabic is the major language spoken throughout the country, English is also widely used.

1.2.2 The Education System in Jordan

Schools in Jordan provide education that meets international standards; a reflection of the commitment of the government of Jordan towards the development of a strong educational system (Akkari, 2004). Schools in Jordan have two main categories, public and private. According to official estimates there were 1,493 private schools and 2,787 government schools in Jordan with 75,995 teachers and nearly 1.5 million students (Central Intelligence Agency, 2009).

School education in Jordan is comprised of two sectors: basic education and secondary education, both of which are free. Basic education spans the first 10 years of education and is compulsory for all students through to the age of 15. Secondary

education consists of two years of education for students aged 16 to 18 who have completed the basic level.

Students at the secondary education level can choose to follow either an academic or a vocational stream. At the end of the two-year period, students sit the general secondary examination (Tawjihi) in the appropriate stream and those who pass are awarded the Tawjihi (General Secondary Education Certificate). The academic stream qualifies students for entry into universities, whereas the vocational or technical stream qualifies students for entry into community colleges or the job market.

As of 2007/2008 the gross enrolment rate at the basic education level was 95.7 percent, which is higher than the regional average of 93 per cent. Jordan ensures a high level of gender parity in access to basic services; the gender parity index for gross enrolment ratio at the basic education level is 0.98 (the quotient of the number of females by the number of males enrolled in a given stage of education) which is higher than other Arab countries (UNICEF, 2011). Jordan is also one of only a few Arab countries that have a relatively small disparity in primary school attendance rates between urban and rural areas. This can be attributed to the government policy regarding public financing for basic schooling that is pro-poor at this level of education (Government of Hashemite Kingdom of Jordan, 2013).

Schools in Jordan are spread throughout the country, with schools having been constructed even in the most remote corners. The Ministry of Education places great emphasis on both the basic level and secondary level of education, as evidenced by increased spending by the Jordanian government, with 17.9 percent of the budget expenditure for the fiscal year of 2003 being allocated to education. Indeed, according to some estimates, the government's investment in developing and expanding the public education sector stands at US\$100 million dollars per year (Government of Hashemite Kingdom of Jordan, 2013).

Measures have been taken in recent years to modernise and reform the textbooks and curricula used in public schools, with special emphasis on Islamic culture, computer training and English-language instruction. These efforts are part of the Jordanian

government's attempt to increase the global competitiveness of its future workforce (World Bank, 2008).

For the higher education sector, the first public university to be established was the University of Jordan, which was founded in 1962. Since this time many other public and private universities have been established. To date there are 10 public universities, 13 private universities and 20 public community colleges offering undergraduate and graduate programs in the fields of humanities, social science, religion, medicine, health education, pure and applied sciences and engineering and technologies (Batarseh, 2011). The following section provides a brief history of the higher education system in Jordan.

1.2.3 Higher Education in Jordan

The establishment of higher education in Jordan can be traced back to 1951 with the opening of a facility that provided a one-year, post-secondary teacher training course (Betaeineh, 2008). This institute was established to prepare students to teach at the compulsory school level (from grade 1 to grade 9). In 1952, this one-year course was developed into a two-year teachers' training course and the institution became known as Al-Hussein College. The role of the Al-Hussein College was to prepare pre-service teachers to teach at the basic level of education. The enrolment of teachers training at the college rose from 46 students in 1952 to 7,006 students in 1976. In 1956 the Howarah Teacher Institute was established, followed by six more, two-year teacher institutes in the 1960s. By 1970 teachers training colleges were established in the cities of Amman (the capital): Salt, Ajlun, Zarqa, Irbid, Ma'an, Shobak and Karak (Betaeineh, 2008).

According to Abu-Ashour (1995) the sudden increase in the number of teacher training institutions was due, largely, to the uniting of the East and West Banks of Jordan, as a result of the 1967 and 1969 wars. At this time, King Hussein, who reigned during this era, had a vision to modernise Jordan, which included establishing higher education institutions to promote the development of infrastructure in all arenas.

The higher education system continued to develop during the second half of the 20th century with 1962 heralding the first university in Jordan, the University of Jordan. The University now has 14 academic colleges and, because of the strong demand for higher education, the Yarmouk University was established in 1976. A third university, Mut'ah University, was established in southern Jordan in 1981. In 1986 University of Science and Technology (JUST) was founded near Irbid in the Ramtha region, in northern Jordan (JUST, 2011).

During the last two decades, the higher education sector of Jordan has witnessed significant progress, as evidenced by the increasing number of institutions, enrolled students, academic and administrative staff members. Commensurately, the size of expenditure and financial support from the government to this educational sector has also increased. At the time of writing this thesis, there were 10 public universities and 17 private universities as well as 51 community colleges in Jordan. This increase in the number of universities has been accompanied by a significant increase in the number of students that are enrolled to study, with the number of enrolled students in both public and private universities, being approximately 236,000 (Ministry of Higher Education, 2013).

The admission requirements for most universities in Jordan are that applicants must hold a Jordanian General Secondary Certificate (Tawjihi) and have an English language proficiency of 75%. Students must also obtain an average of 65% to 80% in all of their other subjects. In practice, however, the accepted average scores in each study area are generally higher (as the university accepts the students with the highest average scores). For example, in 2012 the accepted average for professional programs, such as medicine and engineering, were above 95%.

The university from which the sample for the present study was drawn is located in the northern part of Jordan, in the Ramtha region, just outside of Irbid. The university, known as the University of Science and Technology (JUST), was founded in 1986. However, before its establishment as an independent university, it had its roots at Yarmouk University (JUST, 2011). The mission of JUST was to prepare students for careers in engineering, medicine, dentistry, agriculture, and veterinary medicine.

1.2.4 The Use and Teaching of English in Jordan

In today's connected and globalised world, most will agree that international languages, such as English, are becoming increasingly important. Many countries, including much of the Arab world, have embraced the English language and start teaching English at the kindergarten level. To put this into global perspective, O'Brien (2012) notes that people who speak English as a second language already outnumber native speakers.

Hamdan and Hatab (2009) explored the status of the English language in Jordan as reflected in newspaper job advertisements published in 1985, 1995 and 2005. This longitudinal study examined the trends in demand for English language as a requirement for job seekers. They found that, in educational documents, Circa 1969, teaching English was perceived as aiming at the production of a cultured, informed, useful and perceptive citizen. In 2005, English was seen as a means of attaining professional growth by all workers. The status of English is also reflected in job requirements. The study found that in 1985, 96% of the job advertisements were in Arabic and only 4% were in English. But, in 1995, the number of advertisements in Arabic dropped to 77%, but the advertisements in English increased to 23%. By 2005, 30% of the job advertisements were in English, indicating an incremental demand of jobs that require English proficiency.

Jordanians all have some level of English language proficiency. Even the Bedouins, nomadic Arabs living in the desert who are typically without formal education, are able to communicate in English, often because of the frequent presence of tourists (camel rides, desert exploration and visits to ancient archaeological landmarks). It is widely recognised amongst Jordanians that, without the acquisition of the English language, the quality of their employment prospects, ability to communicate and opportunities in general will be reduced. Thus, developing communication skills in English provides diverse benefits for Jordanians and is high on the educational agenda (Abdo & Mark-Breen, 2010).

As English has become the accepted language of international communication, it has also become integrated into Jordanian culture, particularly in the business, political

and tourism arenas. In the commercial sector, English is the language of communication and many companies conduct interviews for job applications in English. It is apparent, therefore, that people who speak English could have advantages in both education and society (Abe, 2004).

The motivation to study English in Jordan is varied. According to a World Bank study (2008), learning English was seen to enable citizens to study or work abroad, to secure a suitable job in Jordan, to be better informed about international events and to develop a better understanding and appreciation of the values and traditions of people from various parts of the world. However, Jordanian's have traditionally held mixed feelings towards learning English as a second language and much of this relates to pedagogical concerns (Kaylani, 1996; Suleiman, 1993)

In Jordan, educational policy reforms started in the early 1990s in a bid to address the challenges brought about by globalisation. This reform process was accelerated under His Majesty King Abdullah II, in early 2001, who envisaged Jordan as the regional technology hub and an active player in the global economy. Various World Bank studies and reports have provided practical suggestions that have been used to guide these reform efforts (World Bank, 1996, 2000, 2009). A key concern to the King and the government was the dominance of the English language in both the education and business arenas. To this end, Taji (2005, p. 93) stated:

With globalization, the use of English has become the standard for communicating knowledge worldwide, for instruction (even in countries where English is not the language of higher education), and for cross-border degree arrangements. The dominance of English is a factor of globalization. It tends to orient those who use it towards the main English-speaking academic systems, which further nurtures the status of universities in many developed countries. Increasingly, international and regional scientific forums are conducted in English.

One example of the dominance of English lies with the work of students and scholars in higher education. As the majority of scientific journals are published in English-speaking countries, authors from these countries have two major advantages: first, they are able to write and submit in their mother tongue; and, second, the peer review

system is dominated by people who share the same language, academic norms and research methodology.

In 2003, the King and his government called for a change in educational policy to ensure that the country would be able to meet the economic, political, social and cultural needs of its people. With assistance from the World Bank, the Education Reform for Knowledge Economy Project (ERfKE) was implemented to support the Government in transforming the education system at the early childhood, basic and secondary levels, with a view to producing graduates with the skills required to be competitive in a knowledge economy (World Bank, 2009). In these reform processes, English competency in the workforce was viewed as important, not only to access up-to-date knowledge but also to improve the ability to communicate internationally.

Taji (2005) examined the development and implementation of educational policy reforms in Jordan, brought about to address the challenges of globalisation. One of the key factors in the reform policies was the dominance of the English language in learning and business organisations. Taji (2005, pp. 93-94) stated:

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Generally, the acquisition of English by Jordanian students is seen by the Ministry of Education to be essential to educational and economic development. For this reason, in 1999, the teaching of English was mandated by Royal Decree in all Jordanian public and private schools and English as a second language is one of the compulsory subjects in school. English is also one of the main subjects on the entrance examinations for tertiary institutions in Jordan.

At the college and university levels, all students are required to complete coursework in English so that they have an acceptable level of proficiency in the language. Learning English, as part of the university enrolment requirements, is intended to better enable graduates to secure employment in Jordan as well as abroad (as discussed above). The medium of instruction in all courses is in English, except Arabic language instruction and students are not given the option to take courses in Arabic. In addition to other subjects, students are required to take two English courses as a language subject and they cannot graduate without passing these English courses. If students fail either of these English courses, they are required to re-take the courses until they reach the required proficiency level (Ahmed Elbetieha, personal communication, 4 June 2013).

Alkawaldeh (2011) investigated the views of non-major university students in a study involving 233 randomly selected students from a university in Jordan. According to the results students feel that parental involvement and self-determinations are two key factors in learning English as a second language. At the same time these students did not view grammar learning as important for communication in English.

It is within this context that the research questions for the present study were formulated to investigate students' perceptions of the learning environment and their motivation and self-regulation in learning English as second language at the university level in Jordan. It is anticipated that the results of this study will prove useful in improving the teaching and learning of English within the higher education sector of Jordan. Given the high status of learning English and the strong advantages of having a high proficiency level, the research reported in this thesis is timely.

1.3 Theoretical Framework

In conducting research we must understand the philosophical issues or paradigms that play a role in human intellectual affairs. Easterby-Smith et al (1997) identify three reasons why the research paradigm is significant, with particular reference to research methodology. First, it can help the research to refine and specify the research methods to be used in a study, that is, to clarify the overall research strategy

to be used. This would include the type of evidence gathered and its origin, the way in which such evidence is interpreted and how it helps to answer the research questions posed. Second, knowledge of research philosophy will enable and assist the researcher to evaluate different methodologies and methods. This will avoid inappropriate use and unnecessary work by identifying the limitations of particular approaches at an early stage. Third it may help the researcher to be creative and innovative in either the selection or adaptation of methods that were previously outside of his or her experience (Easterby-Smith et al., 1997)

Guba and Lincoln (1994) described four worldviews: post-positivism; constructivism; advocacy/participatory; and, pragmatism. Post-positivist scholars attempt to build theory and conduct research in ways that will enhance the objectivity of the research and lead to accurate explanation of the social world. Creswell (2009) noted that, in the post-positivist paradigm, the data, evidence and rational considerations shape the knowledge. Researchers operating within this paradigm, by and large, use a quantitative approach and collect information based on measures completed by the participants or through observations. The present study involved the post-positivist approach in collecting data, involving the use of two assessment measures and draws on and extends research conducted in the field of learning environments and the field of student motivation, both of which are discussed below.

The present study drew on an extended the field of learning environments. The notion that a distinct classroom environment exists began as early as 1936, when Kurt Lewin (1936) recognised that the environment and its interactions with personal characteristics of the individual were determinants of human behaviour. Following Lewin's work, Murray (1938) proposed a Needs-Press model in which situational variables found in the environment account for a degree of behavioural variance. Stern's (1970) Person-Environment Congruence Theory, based on Murray's Needs-Press model, proposed that more congruence between personal needs and environmental press leads to enhanced outcomes. Also, following the work of Murray's Needs-Press model, Getzels and Thelen (1960) put forward a model for the class as a social system that suggested that the interaction of personality needs, expectations and the environment predicts behaviour and outcomes.

The work of Lewin and Murray has provided a strong theoretical base which has influenced research into classroom environments. The assessment of perceptions has reflected the work of these pioneers and, more recently, Murray's Needs-Press model of interaction has been used to identify the situational variables recognised in his model (Anderson & Walberg, 1974; Moos, 1974; Rentoul & Fraser, 1979). In the late 1960s, two instruments were developed which pioneered the use of perceptions to measure the classroom environment. The *Learning Environment Inventory*, developed by Herbert Walberg (Anderson & Walberg, 1968; Walberg, 1968), and the *Classroom Environment Scale*, developed by Rudolf Moos (Trickett & Moos, 1973), paved the way for the development of subsequent instruments.

Subsequent international research efforts involving the conceptualisation, assessment and investigation of perceptions of the classroom environment have firmly established the field of learning environments (Fraser, 1998). Recent classroom research has shown that there are strong and consistent associations between the achievement of the students and characteristics of the learning environment (Aldridge, Laugksch & Fraser, 2006; Wolf & Fraser, 2008).

In the Arab world, there have been only a handful of studies within the field of learning environments and none of these were carried out in Jordan. (Details of these studies are provided in the next chapter.) Therefore, this study made the first attempt to examine students' perceptions of their language learning environments and whether these learning environment perceptions were related to the motivation and self-regulations in Jordan.

Bell, McCallum, Kirk, Brown, Fuller and Scott (2009) noted that many students encounter difficulty in mastering a foreign language due to their attitudes. Understanding the attitudes and perceptions of students towards learning a second language will be important in helping them succeed. This view is also supported by Merisuo-Strom (2007) who indicated that, in today's international world, children need to learn a second language such as English.

Motivation is one of the most researched constructs in education. According to Seifert (2004), four theories are prominent in contemporary educational psychology:

self-efficacy theory; attribution theory; self-worth theory; and, achievement goal theory. Self-efficacy is a construct similar to confidence and usually refers to a person's judgment about their capability to perform a task at a specific level of performance. Achievement goal theory puts forward that students' academic motivation can be understood as attempts to achieve goals or learning goal orientation (Pintrich & De Groot, 1990). The attribution theory refers to the perceived cause of an outcome, including: effort; skills and knowledge; strategies; ability; and, luck. Weiner (1985) notes that attribution gives rise to emotions that can have consequences in motivation. The self-worth theory is concerned with students' attempts to maintain or enhance self-worth and students' behaviours can be understood in terms of protecting self-worth (Covington, 1984).

According to Boekaerts and Cascallar (2006) students' self-regulation in academic settings are important constructs that can influence students' engagement in learning and subsequently achievement in school. They have also indicated that the students' successful engagement in learning is dependent upon the level of motivation and self-regulation in the learning process. This research builds on and extends the past research related to students' motivation and self-regulation in learning English as a second language.

1.4 Research Questions

The overarching aim of the present study was to investigate the relationship between the learning environment, student motivation and self-regulation in second language learning at the university level in Jordan. As a first step, it was important to establish whether the instruments used in this study were valid and reliable for use with these students.

Once the reliability and validity of the surveys were established the data were analysed to examine whether associations exist between students' perceptions of the learning environment created in university-level English language classes and their motivation and self-regulation in English language learning. Therefore, the first and second research questions asked:

Research Question One

Is there a relationship between the nature of the classroom learning environment and students' motivation and self-regulation in learning English as a second language at the university level in Jordan?

Research Question Two

Is there a relationship between students' self-reports of their motivation and their self-regulation in learning English as a second language at the university level in Jordan?

To investigate whether students' perceptions of the learning environment and motivation in English language learning in terms of student motivation, (goal orientation, task value and self-efficacy) and self-regulation were different for male and female students, the third research question was formulated.

Research Question Three

Do differences exist for male and female students in classes teaching English as a second language at the university level in Jordan, with respect to:

- i. Perceptions of the classroom learning environment; and,*
- ii. Engagement and self-regulation in language learning?*

1.5 Significance of the Study

The significance of the present study is described briefly here and extended in Chapter 5. Hitherto, a review of literature indicates that, although there are some studies related to learning English as a foreign language at the high school level in Jordan (for example Kreishan, 2008), there are no studies that have examined students' perceptions of the learning environment and motivation in English language learning at the university level. It is likely, therefore, that the results of this study will provide insights and influence current and future research.

Together with research conducted in other settings and research that focuses on other aspects of the English language classroom, teachers need to carefully decide how they can shape the learning environment to best suit the students. The results of the present study have the potential to provide practical implications for teachers on what constitutes good practices for the English language classroom environment at the university level. The results could highlight for teachers those elements of the learning environment that are likely to influence students' motivation and self-regulation in learning English as second language.

The field of learning environments has a long history in education research. A number of learning environment instruments have been developed and used in various classroom settings. Few valid and reliable instruments exist in the Arab world and, to date, none have been developed specifically for use in Jordan at the university level. This study has made use of a learning environment questionnaire that includes salient features of existing questionnaires, thereby providing a validated and economical tool, in Arabic, that can be used by both teachers and researchers in Jordan.

1.6 Overview of the Thesis

Chapter 1 sets the scene of the research and provides the reader with the context of and rationale for the study. A brief description of the historical background and educational system in Jordan is provided. Background information relating to Jordan, where the present study took place, provides a contextual backdrop to the study. This section places the university, from which the sample was drawn, in historical context and describes the present education system in Jordan. The chapter identifies three research questions and explains the significance of the study.

A review of the literature related to the current study is presented in Chapter 2. This chapter reviews, literature relevant to the field of learning environments and students' motivation towards learning, both in general and toward language learning in particular.

Chapter 3 provides details of the research methods and sampling used in the present study. The research questions are restated and the samples selected for the study are described in detail. The two instruments that were used to assess students' perceptions of the learning environment and their motivation and self-regulation are described together with ethical issues and how these were addressed. Finally, the analysis of the data is described.

Chapter 4 gives a detailed report of the analyses and results of the study. The chapter begins by examining the results of the analyses conducted to examine the reliability and validity of the modified learning environment and attitude questionnaires when used in Jordan. Second, associations between the perceptions of learning environment and attitudes and motivation towards language learning are explored. Finally the chapter describes the gender differences in terms of their perceptions of motivation and their self-regulation.

Chapter 5 is the concluding chapter of the thesis and presents a detailed discussion of the results and educational implications of this study while, at the same time, pointing out the limitations of the study and suggesting future lines of research.

CHAPTER 2

REVIEW OF THE LITERATURE

2.1 Introduction

The overarching aim of the present study was to investigate the learning environment and student motivation and self-regulation in second language learning at the university level in Jordan. With recent developments in globalisation and the knowledge economy, countries around the world are becoming increasingly interconnected with respect to doing business, engaging people-to-people and learning from each other through various communication channels. The most common language of communication today is English, which is rapidly becoming universal (Pakir, 2009). The emergence and dominance of the English language in today's society cannot be ignored and, as such, it has had profound effects not only on the ways in which we do business but also on the education of the next generation (Sharifian, 2009). Learning English is considered to be a high priority by the government of Jordan and, as a result, is a compulsory university-level subject that students are required to pass (Hamdan & Hatab, 2009).

This chapter provides a review of literature related to the present study which is organised under the following headings:

- Learning Environments Research (Section 2.2);
- Instruments for Assessing Classroom Environments (Section 2.3);
- Studies in Language Learning Environments (Section 2.4);
- Past Research on Learning Environments (Section 2.5);
- Motivation and Self-Regulation (Section 2.6);
- Past Instruments that Assess Student Motivation (Section 2.7); and
- Chapter Summary (Section 2.8).

2.2 Learning Environments Research

Learning environment research, grounded in psychosocial contexts of the classrooms, has been firmly established as a field of study over the past four decades. Educators generally agree that, although important, academic achievement does not provide a complete picture of the process of education (Fraser, 2001). The quality of the environment in which students learn plays a pivotal role in achieving desired educational outcomes. With the use of survey instruments and interviews with students, teachers and other stakeholders, educators are able to gain valuable information about the social ecology of the classrooms that could help to improve the instructional approach, classroom management and the learning organisation. Considerable research has been conducted to identify the factors and interactions between students' characteristics, personal preferences, affective traits, motivational levels, study skills and various other factors that could help in organising learning environments which are conducive to learning (Fraser, 2012).

More than 70 years ago a psychologist, Lewin (1936), laid the foundations for the field of learning environments in his work related to how people and the environment interact. Lewin theorised that human behaviour (B) is a function of the interaction between the individual person (P) and the environment (E). His formula $B=f(P,E)$, indicates that the environment and the personal characteristics of an individual both influence and are a function of human behaviour.

Building on Lewin's ideas, Murray (1938) went further to purport a Needs-Press model in which an individual's personal needs or goals might be supported or frustrated by an environmental press. This model referred to the interaction between the person and the environment in which environmental factors, beyond an individual's control, will either enhance or inhibit whether an individual achieves their personal needs and goals. Murray used the term 'alpha press' to describe the environment as viewed by an external observer and the term 'beta press' to describe the environment as perceived by members of that environment. In 1956, Stern, Stein and Bloom further developed Murray's Needs-Press model by dividing beta press into 'private' beta press (the individual student's view of his or her class

environment) and ‘consensual’ beta press (the view held by the entire class as a group).

Moos’ (1974) was interested in the underlying dimensions of social climates. From his findings, Moos proposed three dimensions that characterised all human environments. He classified these dimensions as: the personal development dimensions; relationship dimensions; and, system maintenance and system change dimension. The relationship dimension refers to the type and strength of the personal relationships in the environment, that is, the degree to which people are involved in the environment and assist each other. The personal development dimension assesses basic directions of personal growth and self-enhancement. The system maintenance and system change dimension measures the extent to which the environment is orderly, maintains control and is responsive to change. Moos’ (1974) theoretical framework for human environments, was to become the basis for the development of learning environments instruments and the schemes outlined within the framework are reflected in many of the learning environment instruments that were subsequently developed.

Independent research, conducted by Walberg and Moos in the 1960s, saw the beginning of the field of learning environments. As part of Harvard Project Physics, Walberg developed the Learning Environment Inventory (LEI) (Walberg & Anderson, 1968). At around the same time, Moos built on earlier research that examined a range of human environments including hospitals and correctional centres, to develop the Classroom Environment Scale (CES) (Moos, 1979). Since the work of these two pioneers, many other researchers have continued to examine the psychosocial aspects of the classrooms and considerable progress has been made to conceptualise and assess learning environments in a range of settings and education levels.

Over the past 40 years learning environment research has been found to be useful in addressing many issues that involve education. For example, learning environment questionnaires have been used in curriculum evaluation (Chen, Chang & Chang, 2002, Mink & Fraser, 2005) and examining the effects of environment on student learning (McRobbie & Fraser, 1993). The field includes studies of differences

between students' and teachers' perceptions of the classroom (Fraser & Fisher, 1986) and the status of the special education classrooms (Thorp, Burdern & Fraser, 1994). In addition, recent studies include the examination of the school-level environment (Aldridge, Laugksch and Fraser, 2006), outcomes-focused education (Aldridge & Fraser, 2008) and evaluating transnational online university courses (Yeo, Taylor & Kulski, 2006).

Whilst this section has described the historical development, theoretical underpinnings and emergence of learning environment as a field of study, the following section explores the characteristics and the properties of the instruments that have been used to assess classroom environments.

2.3 Instruments for Assessing Classroom Environments

Since the conception of learning environments as a viable field of education research, a wide array of instruments have been developed to assess students' perceptions of the classroom climate. This section is devoted to describing nine historically important and contemporary instruments, these being: Learning Environment Inventory (LEI); Classroom Environment Scale (CES); Individualized Classroom Environment Questionnaire (ICEQ); My Class Inventory (MCI); College and University Classroom Environment Inventory (CUCEI); Questionnaire on Teacher Interaction (QTI); Science Laboratory Environment Inventory (SLEI); Constructivist Learning Environment Survey (CLES); and What Is Happening In this Class? (WIHIC).

Table 2.1 provides an overview of the nine learning environment questionnaires, including the level of their use, the scales included in each of the questionnaires and the classification of each scale according to Moos' scheme. It is interesting to note that these learning environment questionnaires, described below, have been translated into a range of different languages for use around the world.

Table 2.1 Overview of Learning Environment Questionnaires

Instrument	Level	Scales Classified According to Moos' Scheme		
		Relationship Dimension	Personal Development Dimension	System Dimension
Learning Environment Inventory (LEI)	Secondary	Cohesiveness Friction Favouritism Cliqueness Satisfaction Apathy	Speed Difficulty Competitiveness	Diversity Formality Material Environment Goal Direction Disorganisation
Classroom Environment Scale (CES)	Secondary	Involvement Affiliation Teacher Support	Task Orientation Competition	Order and Organisation Rule Clarity Teacher Control Innovation
Individualized Classroom Environment Questionnaire (ICEQ)	Secondary	Personalisation Participation	Independence Investigation	Differentiation
My Class Inventory (MCI)	Primary	Cohesiveness Friction Satisfaction	Difficulty Competitiveness	
College and University Classroom Environment Inventory (CUCEI)	Tertiary	Personalisation Involvement Student Cohesiveness Satisfaction	Task Orientation	Innovation Individualisation
Science Laboratory Environment Inventory (SLEI)	Secondary	Student Cohesiveness	Open-Endedness Integration	Rule Clarity Material Environment
Constructivist Learning Environment Survey (CLES)	Secondary	Personal Relevance Uncertainty	Critical Voice Shared Control	Student Negotiation
What Is Happening In This Class? (WIHIC)	Secondary	Student Cohesiveness Teacher Support Involvement	Investigation Cooperation	Equity Task Orientation

*Adapted from Fraser (1994) with permission

2.3.1 Learning Environment Inventory (LEI)

Development and validation of a preliminary version of Learning Environment Inventory (LEI) began in the late 1960s in conjunction with the research and evaluation of Harvard Project Physics (Anderson & Walberg, 1968). The final version of the LEI consisted of 105 statements distributed across 15 scales, namely: Cohesiveness; Friction; Favouritism; Cliqueness; Satisfaction; Apathy; Speed; Difficulty; Competitiveness; Diversity; Formality; Material Environment; Goal Direction; and, Disorganisation. Each of the scales has seven items describing typical school classes. Respondents express their degree of agreement or disagreement with each item using the four response alternatives of 'Strongly Disagree', 'Disagree', 'Agree' and 'Strongly Agree'. Almost half of the items are reverse scored.

The LEI does have some shortcomings that more recent questionnaires have striven to overcome. The length of the LEI, with its 105 items, was found to be too long and the distinctiveness of each of the 15 dimensions is dubious. Also, the language was found to be too complex for some students at the high school level. The factorial validity of the LEI was never established and many of the items are no longer pertinent in today's settings as they are more applicable to teacher-centred classrooms.

2.3.2 Classroom Environment Scales (CES)

The Classroom Environment Scale (CES) was developed by Rudolf Moos (1974, 1979). The instrument was the result of a comprehensive programme of research involving a range of human environment including psychiatric hospitals, prisons, university residences and work milieus. The final version of the CES has 90 items with 10 items in each of nine scales, namely: Involvement; Affiliation; Teacher Support; Task Orientation; Competition; Order and Organisation; Rule Clarity; Teacher Control; and, Innovation. Items for the CES are responded to using a True-False format. The scoring is reversed on almost half of the items.

The CES measures some dimensions that are quite different to the LEI (see Table 2.1). Whilst the CES pioneered a useful instrument for measuring the learning

environment, there are shortcomings associated with the instrument. Like the LEI, the CES tends to be more suited to teacher-centred classes, making many of the items unsuitable in today's settings. Further, the factorial validity has not been established and there are two major issues associated with the use of a true-false response scale, these being: whether such a scale allows for sufficient discrimination; and, whether a true-false response is suitable for providing an accurate gauge of the perceptions of the participants.

2.3.3 *My Class Inventory (MCI)*

The My Class Inventory (MCI) is a simplified version of the LEI, developed for use with students at the primary school level (Fisher & Fraser, 1981; Fraser, 1989; Fraser Anderson, & Walberg, 1982; Fraser & O'Brien, 1985; Goh & Fraser, 1998). The MCI has been found to be useful particularly with students with low reading ability. The MCI contains 38 items in the long form and 25 items in the short form. In the short form, there are five items, evenly distributed among five of the LEI's original scales of: Cohesiveness; Friction; Satisfaction; Difficulty; and, Competitiveness.

The MCI can be used to measure students' perceptions of the preferred (or ideal) and actual classroom environment. It has traditionally used a two-point response format of Yes-No, although Goh and Fraser (1998) modified this to a three-point response format, for their study in Singapore, consisting of: Seldom; Sometimes; and, Most of the Time. Weaknesses of the MCI, that are worthy of consideration, include: the factorial validity (which has not been established); the Yes-No rating scale (which could suggest a correct answer) that has been overcome by Goh and Fraser (1998); and, the conceptual problem of using satisfaction as an environment dimension rather than an outcome.

2.3.4 Individualized Classroom Environment Questionnaire (ICEQ)

Whilst the CES and LEI both catered for more teacher-centred classrooms, the Individualized Classroom Environment Questionnaire (ICEQ) was developed by Rentoul and Fraser (1980) to distinguish between more traditional classrooms and those in which student curricula and teaching caters for individual needs. In addition to pioneering the use of an instrument to measure the transition from a traditional to individualised classroom, the ICEQ was developed in various forms that allowed the measurement of the teacher's and students' perceptions of the actual and preferred classroom environment. The ICEQ was developed for use at the secondary level and measures the five dimensions of: Personalisation; Participation; Independence; Investigation; and, Differentiation (Rentoul & Fraser, 1980; Fraser, 1990, 1999).

The long form of the ICEQ includes 50 items with 10 items in each scale. The short form has 25 items, with five items in each scale. For both forms, students respond to items using a five-point frequency response scale of: Almost Never; Seldom; Sometimes; Often; and, Very Often. The scoring direction is reversed for many of the items. Although the short version provides teachers an economical means of measuring the classroom environment, the factorial validity of this version has not been established.

2.3.5 College and University Classroom Environment Inventory (CUCEI)

The College and University Classroom Environment Inventory (CUCEI) was developed by Fraser and Treagust (1986) for use in small classes (about 30 students) at tertiary institutions such as colleges and universities. The final version of the CUCEI has 49 items in seven scales, namely: Personalisation; Involvement; Student Cohesiveness; Satisfaction; Task Orientation; Innovation; and, Individualisation. The response format involves a Likert-type rating scale of: Strongly Agree; Agree; Disagree; and, Strongly Disagree. The scoring direction is used for approximately half of the items (Fraser & Treagust, 1986). Although developed specifically for use at the university level, past studies that have used this questionnaire have not reported a strong factorial validity, therefore, this survey was not considered to be suitable for the present study.

2.3.6 Science Laboratory Environment Inventory (SLEI)

As the name implies, the Science Laboratory Environment Inventory (SLEI) was developed by Fraser, Giddings and McRobbie (1995) to assess students' perceptions of the distinct learning environment created in the science laboratory classroom at the senior high school level (Fraser, Giddings & McRobbie, 1995; Fraser & McRobbie, 1995). The initial version of the SLEI contained 72 items in eight scales but extensive field-testing and item and factor analysis has led to a more valid and economical version. The final version has seven items in each of the five original scales: Student Cohesiveness; Open-endedness; Integration; Rule Clarity; and, Material Environment. Items are responded to using a five-point frequency response scale, with the alternatives of: Almost Never; Seldom; Sometimes; Often; and, Very Often. Out of 35 items, 13 of them are worded and scored in the reverse manner.

The SLEI has been used and validated in different countries including Australia (Fisher, Harrison, Henderson & Hofstein, 1998; Fraser, & McRobbie, 1995; Henderson, Fisher & Fraser, 2000), Israel (Hofstein, 2006; Hofstein, Cohen & Lazarowitz, 1996), Singapore (Quek, Wong & Fraser, 2005, Wong & Fraser, 1996), Korea (Fraser & Lee, 2009), Nigeria (Aladejana & Aderibigbe, 2007) and the US (Lightburn & Fraser, 2007). A study by Fraser and Lee (2009) investigated the learning environment of senior high school science laboratory classrooms in Korea with 439 students (99 science-independent stream students, 195 science-orientated stream students and 145 humanities stream students). Aladejana and Aderigbe (2007) used the SLEI in Nigeria with the sample of 328 senior secondary students who had been exposed to laboratory classes in both studies and, findings revealed a strong factorial validity for the five scales of the SLEI: Student Cohesiveness; Open-endedness; Integration; Rule Clarity; and Material Environment.

Lightburn and Fraser (2007) also validated SLEI with 761 high-school biology students. Data analyses supported the SLEI's factorial validity, internal consistency reliability and ability to differentiate between classrooms. Overall, the results of these studies provide support for the reliability and validity of the SLEI in a range of countries.

2.3.7 *Constructivist Learning Environment (CLES)*

The Constructivist Learning Environment Survey (CLES) assesses the extent to which a classroom environment conforms to the constructivist philosophy. The CLES was developed to help teachers in their reflections and fine-tuning of their teaching strategies (Taylor, Fraser & Fisher, 1997) and includes 30 items with 6 items in each of five scales: Personal Relevance; Uncertainty; Critical Voice; Shared Control; and. Student Negotiation (Kim, Fisher, & Fraser, 1999; Nix Fraser, & Ledbetter., 2005; Taylor et al. 1997). A shortened version of the CLES, developed by Johnson and McClure (2004), retained the five original scales, but the number of items in each scale was reduced from six to four. The CLES was the first classroom environment instrument in which the items were arranged consecutively rather than randomly or cyclically, thus providing students with a questionnaire that was responded to more reliably than most previous questionnaires.

The CLES has been translated into other languages and used in Taiwan (Aldridge, Fraser, Taylor & Chen, 2000) and Korea (Kim et al., 1999). The factor structure of the CLES has been established in several countries including Australia (Taylor et al., 1997), Taiwan (Aldridge et al., 2000; Yang, Huang & Aldridge, 2002), the US (Johnson & McClure, 2004; Nix et al., 2005; Spinner & Fraser, 2005; Tulloch, 2011) and South Africa (Aldridge, Fraser & Sebela, 2004). Although useful and relevant in a range of settings, the CLES was not considered to be appropriate for the present study which sought to provide a more parsimonious view of the learning environment.

2.3.8 *What Is Happening In This Class (WIHIC)*

The What Is Happening In this Class? (WIHIC) questionnaire was selected for use in the present study. Therefore, in addition to information regarding the development and conceptualisation of the survey, this section provides information about the use of the WIHIC in a range of studies. The WIHIC, originally developed by Fraser, McRobbie and Fisher (1996), was the product of combining salient scales from a wide range of existing questionnaires with additional scales that accommodate contemporary educational concerns, such as equity and constructivism (Fraser,

McRobbie, & Fisher, 1996). The original version of the WIHIC had nine scales, each with ten items: Student Cohesiveness; Teacher Support; Involvement; Autonomy/Independence; Investigation; Task Orientation; Cooperation; Equity; and, Understanding. This 90-item version was administered to 355 students in grade 9 and 10 mathematics and science classes in five Australian schools. Data were analysed to examine the factor structure of the new questionnaire and student interviews were used to ascertain how they interpreted each of the items and why they provided specific answers. During this phase, refinements were made to the questionnaire and two scales were omitted, these being, Autonomy/Independence and Understanding. In a more recent study, involving samples from Taiwan and Australia, this original version was refined to a more economical 56-item version, with eight items in each of seven scales (Aldridge, Fraser & Huang, 1999): Student Cohesiveness; Teacher Support; Involvement Investigation; Task Orientation; Cooperation; and, Equity.

The WIHIC was one of the first instruments to involve both a personal and class form. In the class form, statements are worded to elicit responses about the class as a whole, for example “Friendships are made among students in this class”. For the personal form, on the other hand, statements are worded to obtain a personal response from the individual student, for example, “I make friendships among students in this class”. The personal form of the WIHIC was used in the present study to allow analyses to identify differences in perceptions between subgroups within a class, in this case, males and females (Rawnsley & Fisher, 1997).

Since its inception in 1996, the What Is Happening In this Class? (WIHIC) has been used around the world. While the English version of the instrument consistently shows high reliability and validity, subsequent translations into other languages and use in foreign contexts has produced equally good results. The WIHIC has been validated in independent studies in Singapore (Chionh & Fraser, 2009; Khoo & Fraser, 2008), India (Koul & Fisher, 2005), South Africa (Aldridge, Fraser & Ntuli, 2009), Indonesia (Fraser, Aldridge & Adolphe, 2010; Wahyudi & Treagust, 2006), Korea (Kim, Fisher & Fraser, 2000), the US (Allen & Fraser, 2007; Ogbeuhi & Fraser, 2007; Wolf & Fraser, 2008), the United Arab Emirates (Afari, Aldridge, Fraser & Khine, 2013; MacLeod & Fraser, 2010), Canada (Zandvleit & Fraser, 2004, 2005) and Australia, Canada and the UK (Dorman, 2003).

Perhaps the most comprehensive validation of the WIHIC was by Dorman (2003) who used a sample of 3980 high school students from Australia, Canada and the UK. His analysis of the data utilised a confirmatory factor analysis that supported the seven scale *a priori* factor structure. Table 2.2 provides a summary of the studies, around the world, in which the WIHIC has been used.

Reported below is a selection of studies that have been conducted in different countries, contexts and languages and for different purposes. These studies, in addition to cross-national studies, support the wide international applicability of the WIHIC as a valid measure of classroom learning environments.

Wahyudi and Treagust (2004) used an Indonesian version of a modified form of the WIHIC questionnaire to investigate the nature of science classroom learning environments in Indonesian lower secondary schools. The sample involved 1188 students and their teachers in 16 schools. The results support the reliability and validity of this Indonesian version of the modified WIHIC. The researchers also found significant differences between students' perceptions of the actual and preferred learning environment, with students tending to prefer a more favourable classroom learning environment than the one that they actually experienced. They reported that female students generally held slightly more positive perceptions of both actual and preferred learning environments. It was also found that students held less favourable perceptions of both actual and preferred learning environments than did their teachers. Interestingly it was found that there were significant differences in students' perceptions of the actual classroom learning environment depending on the schools' locality, with students in rural schools holding less favourable perceptions than students in urban and suburban schools for all seven WIHIC scales.

Table 2.2 Internationalisation of the WIHIC Questionnaire

Country	Language	Authors
Australia	English	Dorman (2001) Velayutham & Aldridge (2011) Aldridge, Fraser & Hunag (1999)
Brunei	English	Khine & Fisher (2001)
Canada	English	Zandvliet & Fraser (2004)
India	English	Koul & Fisher (2005)
Indonesia	Indonesian	Fraser, Aldridge & Adolphe (2011) Soebari & Aldridge (in press) Wahyudi & Treagust (2004)
Korea	Korean	Kim, Fisher & Fraser (2000)
Singapore	English	Chionh & Fraser (2009)
Taiwan	Mandarin	Aldridge & Fraser (2000) Aldridge, Fraser & Huang (1999)
Turkey	Turkish	Okan (2008) den Brok, Telli, Cakirogu, Taconis & Tekkaya (2010)
United Arab Emirates	Arabic	MacLeod & Fraser (2010) Afari, Aldridge, Fraser & Khine (2013)
United States	English	Ogbuehi & Fraser (2007) Allen & Fraser (2007) Wolf & Fraser (2008)
Uganda	English	Opolot-Okurut (2010)

In the Middle East, MacLeod & Fraser (2010) used a modified version of the WIHIC, translated into Arabic, with a sample of 763 college students in 82 classes in the United Arab Emirates. In this study, the modified WIHIC exhibited sound factorial validity and internal consistency reliability for both its actual and preferred forms, and the actual form differentiated between the perceptions of students in different classrooms. Comparison of students' scores on actual and preferred forms of the questionnaires revealed that students preferred a more positive classroom environment on all scales.

The use of the WIHIC questionnaire has also been prevalent in the United States. Ogbuehi & Fraser (2007) used a sample of 661 students from 22 classrooms in four inner city schools to examine the effectiveness of using innovative teaching

strategies for enhancing the classroom environment. Data analyses supported the factor structure, internal consistency reliability, discriminant validity and the ability to distinguish between different classes for the modified version of WIHIC when used with middle-school mathematics students in California. The effectiveness of the innovative instructional strategy was evaluated in terms of classroom environment and attitudes to mathematics for the whole sample, as well as for mathematics achievement for a subgroup of 101 students. A comparison of an experimental group, which experienced the innovative strategy with a control group, supported the efficacy of the innovative teaching methods in terms of learning environment.

In South Florida, Allen and Fraser (2007) conducted research that was distinctive in that parents' perceptions were utilised in conjunction with students' perceptions in investigating the science classroom learning environments of Grade 4 and 5 students in South Florida. The WIHIC questionnaire was modified to suit the reading age of young students and their parents and administered to 520 students and 120 parents. Data analyses supported the WIHIC's factorial validity, internal consistency reliability and ability to differentiate between the perceptions of students in different classrooms. Both students and parents preferred a more positive classroom environment than the one perceived to be actually present, but effect sizes for actual-preferred differences were larger for parents than for students. Associations were found between some learning environment dimensions (especially task orientation) and student outcomes (especially attitudes). Qualitative methods suggested that students and parents were generally satisfied with the classroom environment but that students would prefer more investigation, whilst parents would prefer more teacher support. This study provides a pioneering look at how parents and students perceive the science learning environment and opens the way for further learning environment studies involving both parents and students.

In New York and seven other states, Wolf and Fraser (2008) used the WIHIC to compare inquiry and non-inquiry laboratory teaching. For the sample of 1,434 students in 71 classes, the WIHIC was found to be valid and reliable. The results reported for a subsample of 165 students in 8 classes, indicated that inquiry instruction promoted more student cohesiveness than non-inquiry instruction and

inquiry-based laboratory activities were found to be differentially effective for male and female students.

Of interest to the present study, which was carried out in Jordan, the WIHIC questionnaire has been used in a number of cross-national studies. Table 2.3 provides an overview of the cross-national studies that have involved the WIHIC and the following paragraphs summarise each of the studies.

Table 2.3 Cross-national Research using WIHIC

Country	Author
Australia, Taiwan	Aldridge & Fraser (2000), Aldridge, Fraser & Huang (1999)
Australia, Canada, UK	Dorman (2003)
Australia, Indonesia	Fraser, Aldridge & Adolphe (2010)
Canada, Australia	Zandvleit & Fraser (2004)

Aldridge and Fraser (2000) described their cross-national research as distinctive, as it not only provided an example of one of the few cross-cultural studies in science education, but it also used multiple research methods from different paradigms in exploring classroom learning environments in Taiwan and Australia. This study reported the validation and use of English and Mandarin versions of the WIHIC when used with 1081 students in 50 classes in Australia and 1879 students in 50 classes in Taiwan. Data analysis supported the reliability and factorial validity of the questionnaire (Aldridge & Fraser, 2000; Aldridge, Fraser & Huang, 1999).

As described earlier, Dorman (2003) reported the cross-cultural study involving 3980 high school students from Australia, Canada and the United Kingdom. The WIHIC questionnaire was validated cross-nationally. Confirmatory factor analysis supported the seven-scale *a priori* structure of the instrument. Fit statistics indicated a good fit of the model to the data. While all items loaded strongly on their *a priori* factor, model fit indices revealed a degree of scale overlap. The use of multi-sample analyses within structural equation modelling substantiated invariant factor structures for three grouping variables: country, grade level and student gender. This study

supported the wide international applicability of the WIHIC as a valid measure of classroom psychosocial environment.

Recently, Fraser, Aldridge and Adolphe (2010) reported a cross-national study of classroom environments in Australia and Indonesia. A modified version of the WIHIC was used simultaneously in the two countries. Analysis of data collected from 1,161 students (594 students from 18 classes in Indonesia and 567 students from 18 classes in Australia) supported the reliability and validity of the WIHIC when used in both countries. The results also revealed differences between countries and between sexes in students' perceptions of their classroom environments.

Zandvliet and Fraser (2004) reported an investigation that involved a sample of 1040 students in 81 classrooms. They used the WIHIC to explore how psychosocial factors influenced students' satisfaction with their learning, as well as the interactions between physical and psychosocial variables in these classrooms. The authors noted that results from this study offer insights into new approaches to technology implementation and teaching practice.

The review of the literature indicated that the WIHIC has been used in many different countries to examine a range of findings from all of the research questions. These studies consistently support the reliability and validity of the WIHIC and its usefulness in a range of cultural contexts. Given the robust nature of the WIHIC, when used in a range of settings and languages, and the versatility of the WIHIC when used in different contexts, it was considered to be a suitable choice for the present study.

2.4 Past Research on Learning Environments

Fraser (2012) noted that there are over 12 lines of past research in the field of learning environment including: (1) associations between student outcomes and the learning environment (Dorman 2001; Majeed, Fraser & Aldridge, 2002; Teh & Fraser, 1995); (2) evaluating educational innovations (Khoo & Fraser, 1998; Spinner & Fraser, 2005); (3) differences between students and teacher perceptions (Fisher & Fraser, 1983); (4) whether students perform better in their preferred environment

than actual environment (Dart, Burnett, Boulton-Lewis, Campbell, Smith, & McCrindle, 1999); (5) teachers' use of learning environment perceptions in an attempt to improve classroom learning (Sebela, Fraser & Aldridge, 2004); (6) teacher action research (Aldridge, Bell, Fraser & Dorman, 2012; Bell & Aldridge, in press); (7) combining quantitative and qualitative methods (Aldridge, Fraser & Huang, 1999; Spinner & Fraser, 2005); (8) links between home learning environment and school learning environment (Marjoribank, 1991); (9) cross-national studies (Aldridge, Fraser, Huang, 1999; Aldridge, Fraser, Taylor & Chen, 2000); (10) the transition from primary to high school (Ferguson & Fraser, 1998); (11) incorporating learning environment ideas into school psychology (Burden & Fraser, 1993); and, (12) exploring learning environment ideas into teacher education (Martin-Dunlop & Fraser, 2008).

2.4.1 Outcome - Environment Associations

Of relevance to the present study is the research related to outcome-environment associations, particularly those studies that have involved the WIHIC. Past research provides evidence of strong and consistent relationships between the learning environment and a range of cognitive and affective outcomes (Fraser, 2012). For example, Dorman (2001) studied associations between psychosocial environment and academic efficacy. In his study, it was found that classroom environment relates positively with academic efficacy. Past research has shown that learning environment factors could influence outcomes among university students in Indonesia.

In 2001, Dorman (2001) used the WIHIC questionnaire to explore associations between classroom environment and academic efficacy with 1055 students, across nine Australian secondary schools from Grades 8, 10 and 12 participating in the study. Simple and multiple correlation analyses revealed statistically significant correlations between these classroom environment dimensions and academic efficacy. Results showed that classroom environment relates positively with academic efficacy.

In Brunei, Khine and Fisher (2001) investigated associations between students' perceptions of science classrooms learning environment, their attitudinal outcomes

and the cultural backgrounds of their teachers. A sample of 1,188 students from 54 science classes in ten secondary schools in Brunei responded to the questionnaire, What Is Happening In this Class? (WIHIC) and two scales of the, Test of Science Related Attitudes (TOSRA). Statistical analysis supported the reliability of the instruments when used in this context. The study reported statistically significant associations between students' perceptions of classroom environment as assessed by the WIHIC and cultural background of teachers for most of the scales. The results indicated that students generally perceived more favourable learning environments in the classes of the Western teachers. Students also perceived that in the science classes of Western teachers, there was more task orientation, cohesiveness, cooperation among students and equity.

Koul and Fisher (2005) examined whether associations exist between students' cultural background, their teacher's interpersonal behaviour and the classroom learning environment. The study was conducted in Jammu, India, with a sample of 1021 students from 31 classes, in seven co-educational private schools that involved four cultural groups that speak different languages, namely Hindi, Kashmiri, Dogri and Punjabi. The participants completed the Questionnaire on Teacher Interaction (QTI), the WIHIC and a question related to cultural background. Statistical analyses indicated that the Kashmiri group of students perceived their classroom environment and teacher interaction more positively than those from the other cultural groups.

In Korea, Kim, Fisher and Fraser (2000) used the WIHIC questionnaire, along with the QTI, to investigate associations between students' attitude to science and their perceptions of the classroom environment. The questionnaires were administered to 543 students in 12 Korean schools. The results indicated positive relationships between both the classroom environment and teachers' interpersonal teacher behaviour and students' attitudinal outcome. The results suggest that teachers' wishing to encourage students to take an interest in their own learning be more helpful/friendly and understanding.

In Singapore, Chionh and Fraser (2009) conducted a comprehensive study that involved the use of the WIHIC questionnaire with 2310 Singaporean Grade 10 students (aged 15 years) in 75 geography and mathematics classes in 38 schools to

investigate associations between classroom environment and several student outcomes. Their results revealed that better examination scores were found in classrooms with more student cohesiveness, whereas self-esteem and attitudes were more favourable in classrooms with more teacher support, task orientation and equity. Differences between the classroom environments of geography and mathematics classes were small relative to the large differences between students' actual and preferred classroom environments.

The present study built on and extended these studies by using, for the first time, a learning environment instrument to examine determinants of English learning at the university level in Jordan and how these impacted students' motivation and self-regulation.

2.4.2 Studies in Language Learning Environments

Because the field of learning environments has its origins in science classrooms, much research has been carried out in this domain. My review of literature indicates that, to date, few studies within the field of learning environments have involved language classes. One such study was carried out by Chua, Wong and Chen (2011), who explored the nature of Chinese language classroom learning environments in Singapore secondary schools with a sample of 1,460 Grade 9 secondary students from 50 Chinese Language classes in 25 government schools. The Chinese Language Classroom Environment Inventory, involving six of the seven WIHIC scales: Student Cohesiveness; Teacher Support; Involvement; Cooperation; Task Orientation; and, Equity; was used to investigate teachers' and students' perceptions of their Chinese Language classrooms. The findings indicate that, although both the Chinese Language teachers and the students perceived their present classroom learning environments positively, they would both like improvements in all the six dimensions.

In another study, Khalil and Saar (2009) used the Classroom Learning Environment of Elementary Students (CLEES) questionnaire in Arab elementary schools. The sample included 261 students from Grades 5 and 6. The questionnaire was developed at an Arab college of teacher education by 16, fourth-year student teachers, who were

completing a Bachelor of Education. The questionnaire consists of 32 items in four scales: Teacher's Image; Group Work; Students' Participation; and, Order and Organisation. The items were evaluated for content validity in relation to the Arab school culture, language, teachers' teaching, students' learning styles, teacher-student relations, order and organisation, discipline and behaviours. The results indicated statistically significant differences for all CLEES scales for Grade 5 and 6 students. The authors concluded that all of the teachers, regardless of their experience, might greatly benefit from using action research to promote continuous improvement in the classroom learning environment.

In a study in Turkey, Okan (2008) examined computing laboratory classes as language learning environments using translated versions of the WIHIC and the Attitude to Computers and Computing Courses (ACCC) questionnaire. A total of 152 university students undertaking a one-year compulsory education course in English took part in the study. The results supported the cross-cultural validity of the WIHIC when translated into the Turkish language and paved the way for further learning environment studies involving both students and teachers in Turkish schools.

Webster and Hazari (2009) developed a questionnaire to assess the language learning environment within the science classroom to promote the learning of language in the science curriculum and in the learning strategies with learners of English as a foreign language. This study involved a sample of 240 secondary school students who attended an international school in Hong Kong. The study revealed significant differences in the dimensions of the language learning environment between what the students perceived to be occurring and what they would prefer. The study suggested that it was possible to assess students' perceptions of the language-learning environment in the secondary science classes.

Wei, den Brok and Zhau (2009) used the Questionnaire on Teacher Interaction (QTI) to investigate the relationship teacher interpersonal behaviour and student achievement in English as a Foreign Language classrooms in China. The QTI was translated and used (in English as Foreign Language classrooms) with a sample of 160 students from four classes in southwest China. The results supported the reliability of the Chinese version of the QTI and indicated that teacher uncertainty

was negatively correlated with student achievement. In addition the degree of teacher cooperation with students was the only significant predictor for student achievement, but its effect disappeared when student background variables were taken into account. The results also indicated a discrepancy between students' perceptions of preferred and actual teacher interpersonal behaviour. The tolerant-authoritative profile was the most common interpersonal style based on Chinese students' perceptions.

Although learning environment research was conducted originally in science classrooms, these studies indicate that it is possible to extend the field to language classrooms. These studies have been carried out in a range of countries and languages, including Chinese, Arabic and English. The nature of these studies has, for the most part, involved students' perceptions of the classroom climate but did not examine student motivation. This study has built on previous research and extends it to include the motivational factors of goal orientation, task value, self-efficacy and self-regulation and their relationship to learning environments.

2.5 Motivation and Self-Regulation

Motivation and self-regulation in learning has been the subject of interest for educators and psychologists over the past three decades. It is widely recognised that motivation affects personal development and that self-regulation contributes to both the success and failure in education and study (Boekhaerts, 2010; Dumont, Istance & Benavides, 2010). According to Britner and Pajares (2001), teachers have a responsibility to motivate students and to guide them to become self-regulated learners.

In their study, Brookhart, Walsh and Zientarski (2006) assert that motivation is a complex concept, closely aligned with 'the will to learn' and encompasses self-esteem, self-efficacy, effort, self-regulation, locus of control and goal orientation. Often motivational variables add to the prediction of students' achievements. They note that self-esteem and self-efficacy are both strong predictors of achievement measurements.

Dweck (1986) hypothesised that motivational processes influence a student's acquisition, transfer and use of knowledge and skills and yet educationally relevant conceptions of motivation have not been clearly defined. According to Dweck's (1986) research-based model of motivation processes, it is possible to provide motivation-related interventions to prevent achievement problems among students.

In considering motivational beliefs, values and goals, Eccles and Wigfield (2002) focused on four related theories. These theories are related to expectancies for success (self-efficacy theory and control theory), task value (intrinsic motivation, self-determination, interest), integration of expectancies and values (attribution theory), and theories that integrate motivation and cognition. The authors proposed the need to integrate theories of self-regulation and expectancy-value models in future research.

Glynn, Taasoobshirazi and Brickman (2009) developed a survey to measure science motivation among non-science majors. According to them, motivation is the internal state that arouses, directs, and sustains goal-orientated behaviour. In particular, the motivation to learn refers to the disposition of students to find academic activities relevant and worthwhile and to try to derive the intended benefits from them. They state that, in studying the motivation to learn, it is important to examine why students strive to learn, how intensively they strive, and what beliefs, feelings and emotions characterise them in this process. It was noted that there are motivational components that influence self-regulatory learning.

For educators, predicting the achievement of students is an important issue. Kuyper, Werf and Lubbers (2000) propose three different approaches that are used in education: educational sociology; educational psychology; and, educational theory. According to Kuyper, Werf and Lubbers (2000), educational sociology is primarily interested in the relationships of social class, gender and ethnicity, whereas educational psychology focuses on the influence of student aptitudes and affective, cognitive and meta-cognitive variables on learning processes and performance. They purport that motivation, meta-cognition and self-regulation all are predictors of long-term educational attainment.

For Meece, Anderman and Anderman (2006) achievement goal theory is important for motivation. They point out that students are more likely to show positive motivation and learning patterns when their school settings emphasise mastery, understanding and improving skills and knowledge. These studies all agree that motivation, goal orientation and self-regulation contribute to students' motivation to learning. My study examined whether the learning environment, created in university-level English language classrooms, influences students' motivation. Drawing on the findings of this past research, four constructs, related to motivation, were considered important and are described below.

2.5.1 Learning Goal Orientation

When explaining the reasons for students' engagement in a task, the notion of goal orientation provides important theoretical perspectives (Pintrich, 2000). According to Elliot and Murayama (2008, p. 614), "a goal is conceptualised as an aim one is committed to that serves as a guide for future behaviour". Over the past twenty years, achievement goal theory has been recognised as an important predictor of student motivation (Kaplan & Maehr, 2007; Midgley, 2002; Wigfield & Cambria, 2010). Furthermore, this theory provides a framework within which researchers have attempted to understand and enhance students' learning engagement (Kaplan & Maehr, 2007).

There are, according to achievement goal theory, two major types of goal orientation. First, learning goal orientation, refers to the purpose of developing competence and focuses on students' learning, understanding, and mastery of tasks. Second, performance goal orientation refers to the purpose of demonstrating competence, especially in managing the impressions of others (Ames, 1992). In learning goal orientation, students are likely to pose questions such as "How will I do this task?" and "What will I learn?" to reflect this orientation. Whereas performance goal orientation is likely to evoke questions such as, "Am I doing this task better than my friend?" and "Does completing this task make me look smarter than others?" (Wigfield & Cambria, 2010).

Teachers often believe that performance goal orientation is a necessary tool in motivating performance and achievement in education (Wigfield & Cambria, 2010). However, according to Kaplan and Maehr (2007), it is likely that performance goal orientation is detrimental (particularly if students are concerned with failure and believe that they lack the competence to perform effectively). As performance goal orientation has the potential to undermine both student motivation and achievement (Urduan & Schoenfelder, 2006) this construct was not included in this study.

On the other hand, there is considerable evidence from past research to suggest that students' learning goal orientation influences a range of positive learning outcomes, including student achievement (Brookhart, Walsh & Zientarski, 2006; Kaplan & Maehr, 1999, 2007). In addition, students who perceive the teacher as emphasising learning goals are more inclined to use adaptive cognitive, emotional and behavioural regulatory strategies (Ames & Archer, 1988; Kaplan & Midgley, 1999; Newman, 1998; Ryan, Gheen & Midgley, 1998; Urduan & Midgley, 2003).

Experimental, correlational and qualitative research methods have been used to examine the influence of learning goal orientation on students' affective and cognitive outcomes (Kaplan & Maehr, 2007). Findings suggest that learning goal orientation is strongly associated with positive coping, positive emotions and persistence (Elliott & Dweck, 1988), use of problem solving strategies and achievement (Bereby-Meyer & Kaplan, 2005) and positive social attitude towards others (Kaplan, 2004). Longitudinal studies report that students' learning goal orientation is a significant predictor of students' interest and choice of courses (Cury, Elliot, Da Fonseca & Moller, 2006; Harackiewicz, Barron, Tauer, Carter & Elliot, 2000). The results of correlational studies support the relationship between learning goal orientation and a range of students' positive learning outcomes including effort and persistence (Elliot, McGregor & Gable, 1999), employment of deep learning strategies (Elliot, McGregor, & Gable, 1999; Kaplan & Midgley, 1997), retention of information learned (Elliot & McGregor, 1999), self-efficacy (Kaplan & Maehr, 1999), positive emotions (Roeser, Midgley & Urduan, 1996) and general well-being (Dykman, 1998).

Ames (1992) contends that the inherent characteristics of students are not the only source of their goal orientation but, rather, they are also a result of classroom learning environment. Anderman and Young (1994) provided evidence to suggest that teachers' instructional practices and procedures influence the goals that students pursue. Therefore, goal orientation theory implies that changes in classroom goal structures could enhance or inhibit the motivation of all students who participate in that classroom (Anderman & Young, 1994). Kaplan and Maehr (2007) reiterate that goal orientation is dependent on the quality of the student's learning and emotional experiences in school. The implication is that "goal orientations are more a product of context rather than the person" (Wigfield & Cambria, 2010, p. 7). My review of literature found that few studies that have examined the impact of goal-orientated motivation on learning English as a second language and that none have been carried out in Jordan. Since the influence of students' perceptions of the English classroom environment on students' learning goal orientation has not been systematically researched, this gap in research was bridged by this study.

2.5.2 Task Value

One of the major frameworks for achievement motivation, the expectancy-value theory, highlights the role of students' belief about the value of an academic task in structuring students' motivation to learn (Eccles, 1983, 2005; Wigfield & Cambria, 2010). The term 'task value' involves the qualities of different tasks and how those qualities influence students' desire to do the tasks (Eccles, 2005; Eccles, Adler, Futterman, Goff, Kaczala, Meece & Midgley, 1983; Wigfield & Eccles, 1992). This definition emphasises the motivational feature of task value (Higgins, 2007; Wigfield & Cambria, 2010). Eccles and Wigfield's (2002) version of the modern expectancy-value theory emphasised the integral role that task value played in students' achievement-related choices and performance.

Strong and consistent findings have indicated that the value of a task, held by a student, is related to his or her cognitive and affective learning outcomes. Wigfield and Cambria's (2010) recent review on research related to the expectancy-value theory concluded that students' task value predicts their decision to persist in learning activities. The results of both longitudinal and cross-sectional studies, in a

range of subject areas, suggest that task value influences students' academic choices, persistence, performance and achievement (Bong, 2001; Denissen, Zarrett & Eccles, 2007; Durik, Vida & Eccles, 2006; Eccles, 1993; Marsh, Köller, Trautwein, Lüdtke & Baumert, 2005; Meece, Wigfield & Eccles, 1990; Pekrun, 1993, 2009; Simpkins, Davis-Kean & Eccles, 2006; Xiang, McBride & Bruene, 2004).

Eccles and her colleagues proposed that task value is influenced by a range of factors, including psychological, social, contextual and cultural influences (Eccles, 1987, 1993, 2005; Eccles & Wigfield, 1995; Meece et al., 1990; Wigfield, 1994; Wigfield & Eccles, 1992, 2000, 2002). Wigfield, Eccles and Rodriguez (1998) suggested that the contextual organisation of classrooms and schools (in particular, the reward structures, type of achievement tasks, nature of emphasised outcomes and opportunities for collaboration and decision making) can influence the development of students' task value. However, Wigfield and Cambria (2010), acknowledged that there is a lack of research on how these and other classroom environment factors influence task values. This study investigated the influence of the students' perceptions of the learning environment on task value.

2.5.3 Self-Efficacy

In Bandura's (1977) self-efficacy theory, a potent influence on student behaviour is the beliefs that they hold about their capabilities. Self-efficacy is defined as the belief in one's capabilities to achieve a goal or an outcome. A person's self-efficacy can determine how people feel, think, motivate themselves and behave (Bandura, 1997). According to Bandura's (1986) social cognitive theory, students are more likely to have an incentive to learn if they believe that they can produce the desired outcomes.

According to Pajares (1996), students with high self-efficacy regard difficult tasks as challenges that need to be mastered. Once students have established the challenging goals, they attempt to accomplish them by using a range of strategies. It has been proposed by Britner and Pajares (2006, p. 486) that students with high levels of self-efficacy were more likely to "select challenging tasks, work hard to complete them successfully, persevere in the face of difficulty, and be guided by physiological indexes that promote confidence as they meet obstacles". Students with low self-

efficacy, on the other hand, were inclined to give up more easily when faced with difficult tasks and were more likely to avoid the tasks. Hence, self-efficacy beliefs are considered to be powerful predictors of the choices that students make, the effort that they expend and their persistence in facing difficulties (Bandura, 1997; Britner & Pajares, 2001; Zeldin & Pajares, 2000).

The findings of past research provide evidence that students' self-efficacy beliefs are related to positive cognitive and affective outcomes. For example, self-efficacy is positively related to persistence (Lyman, Prentice-Dunn, Wilson & Bonfilio, 1984), academic performance (Schunk, 1989) and meaningful cognitive engagement (Walker, Greene & Mansell, 2006). In their meta-analysis of self-efficacy studies Multon, Brown and Lent (1991), found that students' academic efficacy is a strong positive predictor of academic achievement. Self-efficacy beliefs are also positively related to students' motivational beliefs such as academic motivation (Schunk & Hanson, 1985), learning goal orientation (Urdan, 1997), adaptive causal attributions (Stajkovic & Sommer, 2000) and self-concept (Bong & Skaalvik, 2003).

According to Shaughnessy (2004), teachers who wish to help students to increase their self-efficacy should first attend to the sources underlying these beliefs. Bandura (1997) suggested that students formed their self-efficacy beliefs by interpreting information from four sources, these being, mastery experiences (students' interpretation of their own previous attainments), vicarious experiences (students' interpretation of their own capabilities in relation to the performance of others), verbal persuasion (encouragement or discouragement from parents, teachers, and peers whom students trust which could boost or lower students' confidence in their academic capabilities) and physiological and affective states (strong emotional reactions to school-related tasks). Dorman (2001, p. 246) argued that invariably these sources can be related directly to the psychosocial elements in students' learning environments and to this end he stated, "Indeed it is striking that academic efficacy theory has not recognised the potential of psychosocial environment in explaining academic efficacy."

Initially, the lack of research on the influence of classroom environment on academic efficacy was brought to the attention of learning environment researchers by

Lorsbach and Jinks (1999) who called for the convergence of these two fields. When Dorman (2001) and Dorman and Adams (2004) took up this challenge, multiple regression analyses of data from mathematics classes indicated that classroom environment related positively with academic efficacy. My study differed in that it examined the influence of classroom learning environment on students' self-efficacy in English as a second language classes in Jordan.

2.5.4 Self-Regulation

Self-regulated learning is the “active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behaviour, guided and constrained by their goals and the contextual features in the environment” (Pintrich, 2000, p. 453). Therefore, self-regulation refers to the ability of a person to control their conduct to achieve a set goal (Schunk & Zimmerman, 2008). According to Boekaerts and Cascallar (2006), the key feature of self-regulated learning is that the student directs his or her cognitive and motivation processes to achieve learning goals.

There are both general and domain-specific components of self-regulation which include cognitive, meta-cognitive, motivational and behavioural strategies that are used by students to control or modify their learning (Butler & Winne, 1995; Zimmerman, 1989). Pintrich and De Groot (1990) identified three components of self-regulated learning that can be considered to be relevant to classroom performance: students' meta-cognitive strategies (planning, monitoring, and modifying their cognition); use of cognitive strategies; and, management and control of effort.

Self-regulated learning, according to Zimmerman (2008), involves the degree to which students meta-cognitively, motivationally and behaviourally participate in the learning process. Behaviourally, self-regulation refers to a student's engagement in a particular activity and the degree of intensity of effort and persistence in that activity (Pintrich & Schrauben, 1992).

According to Corno 1994, p. 229), students' self-regulation is the "tendency to maintain focus and effort towards goals despite potential distraction". The core requirements of a student who is self-regulated include personal initiative, perseverance, and adaptive skills (Zimmerman, 2008). That is, a self-regulated learner is not only motivated (through assigning goals and values to a particular learning activity), but also able to sustain effort until a task is completed (Boekaerts & Cascallar, 2006). It is contended by Alderman (1999) that effort regulation is the key element required for building students' learning skills as well as helping them stay focused and to handle the numerous distractions that they face both in and out of the classroom.

Research has suggested that self-regulation is not only an important outcome of the schooling process but also a key determinant of academic success (Wolters, 2010). Research findings suggest that students who are self-regulated are likely to gain greater academic achievement (Baker, Chard, Kettlerlin-Geller, Apichatabutra & Doabler, 2009; Dignath, Buettner & Langfeldt, 2008; Guthrie, McRae & Klauda, 2007). Wolters and Pintrich (1998) suggest that the self-regulatory strategies used by students predict their achievement in mathematics, social studies and English. In summary, higher achieving students are likely to show a greater degree of self-regulated learning when compared to lower achieving students (VanderStoep, Pintrich & Fagerlin, 1996; Zimmerman & Martinez-Pons, 1990). Given the importance of self-regulation on students' academic success, this construct was included in the present study as a component of students' learning engagement in English language learning. The next sections examine past research related to self-regulation and the classroom environment (Section 2.6.4.1) and self-regulation and motivation (section 2.6.4.2).

2.5.4.1 Self-Regulation and Classroom Environment

A review of past research was used to examine which classroom practices might facilitate or impede the quality of students' engagement in the classroom (Boekaerts, De Koning & Vedder, 2006). This review summarised the components of instruction and teacher behaviour that are likely to influence students' self-regulation which include: clarity and pace of instruction; the amount of structure provided; autonomy

granted; teacher enthusiasm; humour; fairness' and, teacher expectations of students' capacity. According to Boekaerts and Cascallar (2006), students' perceptions of the classroom learning environment are likely to affect both their conscious and subconscious choices with respect to completing learning activities in the classroom.

Boekaerts and Corno (2005) argued that it would be valuable if research related to self-regulation examined relationships between students' self-regulation in the classroom and their perceptions and interpretations of the beneficial and detrimental cues that are present in the learning environment. Boekaerts and Cascallar (2006, p. 202) further recommend that "researchers and teachers focus simultaneously on the students' self-regulation of the learning and motivation process, as well as on the environmental triggers that affect these processes". Furthermore, Zimmerman (2008) states that the effects of the learning environment on students' self-regulated learning should be studied further. There has not been previous research that has examined the influence of classroom learning environments on students' self-regulation in university-level English language classes in Jordan, therefore, this study took up this challenge and filled the research gap.

2.5.4.2 Influence of Self-Regulation on Motivation

It is widely agreed that motivation strongly influences a students' self-regulation (Schunk & Zimmerman, 2008; Wolters, 2010). Boekaerts and Cascallar (2006), in their review of self-regulation theory, found that, in most models of self-regulation, students' motivational beliefs play an important role in ensuring their engagement and self-regulated learning. Zimmerman (2000) emphasised that self-regulatory skills are of little value if students are unable to motivate themselves to use them. Furthermore, in a review of research, Pintrich (2003) suggests that students who are academically motivated show higher self-regulation in learning.

In their analysis of goal orientation theory, Kaplan and Maehr (2007) found that learning goal orientation is a key predictor of students' motivated behaviour, including persistence and effort. Results from past research indicates that students who perceive the teacher as emphasising learning goals are more inclined to use self-regulatory strategies in their learning (Ames & Archer, 1988; Kaplan & Midgley,

1999; Newman, 1998; Ryan et al., 1998; Urdan & Midgley, 2003). This study predicted that learning goal orientation would have a positive influence on students' self-regulation in English language learning.

Wolters and Rosenthal (2000) suggest that, theoretically, students who are convinced that their learning activity is important, interesting and useful are more inclined to expend greater effort and persist longer towards completing an activity. Empirical research has consistently supported these theoretical claims about the association between students' perception of task value and their choice to participate and sustain effort in academic tasks (Schunk, Pintrich & Meece, 2008; Simpkins et al., 2006). Studies by Pintrich and De Groot (1990), Wolters, Yu and Pintrich (1996) and Velayutham and Aldridge (2013) found that task value is strongly associated with students' self-regulatory strategies. In particular, students who believed that the learning activity was interesting and important were more likely to be cognitively engaged in trying to learn and comprehend the materials presented to them. My study examined the influence of task value on students' self-regulation in learning English a second language.

Past research indicates a positive relationship between students' self-efficacy beliefs and their self-regulation in learning (Pajares, 2002; Zimmerman, 2000; Zimmerman & Bandura, 1994) with students with high efficacy being more likely to expend effort to complete tasks, evaluate their progress and apply cognitive and meta-cognitive self-regulatory strategies (Schunk & Pajares, 2005). Sungur (2007) suggested that self-efficacy beliefs significantly predicted students' meta-cognitive strategy use. Additionally, a study by Greene, Miller, Crowson, Duke and Akey (2004) reported that self-efficacy had a positive influence on students' use of self-regulatory strategies. This study hypothesised that self-efficacy in English language learning would have a positive influence on students' self-regulation.

There has been no previous study that has specifically examined the influence of a student's motivational beliefs (learning goal orientation task value and self-efficacy) on university-level students' self-regulation in learning English as a second language. Therefore, this study filled this research gap by investigating the influential role of these motivational beliefs as predictors of students' self-regulation.

2.6 Past Instruments that Assess Student Motivation

The role of motivation in student success and the importance of investigating students' motivation in content learning have been a major focus of research in education. Although the majority of research related to student motivation has focused on general learning, research has been carried out to examine student motivation in specific domains including science and language learning. This section reviews four instruments that have been used to assess students' motivation: Motivated Strategies for Learning Questionnaire (MSLQ, Section 2.9.1); Motivation and Engagement Scale (MES, Section 2.9.2); English Language Learner Motivation Scale (ELLMS, Section 2.9.3); and, Students' Adaptive Learning Engagement in Science Questionnaire (SALES, Section 2.9.4). A summary of these different questionnaires, including the number of items per scale, the names of the scales included and a reference for each of these instruments is provided in Table 2.4.

2.6.1 *Motivated Strategies for Learning Questionnaire (MSLQ)*

One of the earlier and more widely-used instruments used to assess students' motivation is the Motivated Strategies for Learning Questionnaire (MSLQ) which was developed by Prinrich, Smith, Garcia and McKeachie (1991). The instrument assesses: intrinsic goal orientation; extrinsic goal orientation; task value; control learning beliefs; self-efficacy for learning; performance and test anxiety aspects; and, students' general motivational orientations. The theoretical framework for conceptualising student motivation is an adaptation of a general expectancy-value model of motivation.

The MSLQ consisted of two parts, a motivation section, and a learning strategies section and is comprised of 81 items. The motivation section consists of 31 items that assess students' goals and value beliefs, their beliefs about their skills to succeed in a course and their anxiety about tests in a course. The learning strategy section includes 50 questions, 31 items regarding students' use of different cognitive and metacognitive strategies and 19 items concerning student management of different learning resources. The questionnaire was validated with 356 college students in the US. The alpha coefficient ranged from 0.52 to 0.90, internal consistency reliability of

the MSLQ. The general theoretical framework is consistent with the results of confirmatory factor analysis (Printrich, Smith, Garcia and McKeachie, 1993).

Table 2.4 Overview of student motivation scales used in four instruments

Instrument	Item per scale	Scales	Reference
Motivated Strategies for Learning Questionnaire (MSLQ)	4-8	Intrinsic goal orientation Extrinsic goal orientation Task value Control learning beliefs Self-efficacy for learning Performance Test anxiety	Printrich, Smith, Garcia & McKeachie (1991)
Motivation and Engagement Scale (MES)	4	Self-efficacy Valuing Mastery orientation Planning Task management Persistence Anxiety Failure avoidance Uncertain control Self-handicapping Disengagement	Liem & Martin (2012)
English Language Learner Motivation Scale (ELLMS)	2-6	External regulation Introjected regulation Intrinsic motivation	Ardasheva, Tong & Tretter (2012)
Students' Adaptive Learning Engagement in Science (SALES)	8	Self-efficacy Task value Self-regulation Learning goal orientation	Velayutham, Aldridge & Fraser (2011)

2.6.2 *Motivation and Engagement Scale (MES)*

The Motivation and Engagement Scale (MES) was based on a multidimensional conceptual framework that used the Motivation and Engagement Wheel (Martin, 2010). This wheel provides four dimensions in motivation and engagement: adaptive cognitive dimensions; adaptive behavioural dimensions; maladaptive behavioural dimensions; and, impeding cognitive dimensions. The MES consists of eleven

motivation and engagement subscales congruent with the eleven first-order factors in the wheel: self-efficacy; valuing; mastery orientation; planning; task management; persistence; anxiety; failure avoidance; uncertain control; self-handicapping; and, disengagement.

The eleven subscales, each comprising of four items, can be separated into four major groups representing the four higher-order motivation and engagement factors. Each of the eleven MES subscales comprises four items. To respond to the MES, a 7-point Likert-type scale, ranging from 1, 'strongly disagree' to 7 'strongly agree', is used.

Liem and Martin (2012) report their findings on the reliability and validity of Motivation and Engagement Scale (MES), which are consistent with a number of studies, reporting a Cronbach's alpha reliability that ranged from 0.77 to 0.79.

2.6.3 English Language Learner Motivation Scale (ELLMS)

Noels, Pelletier, Clément and Vallerand (2000) presented a theory of motivational orientation and self-determination in foreign language learning and developed the 21-item Language Learning Orientation Scale – Intrinsic motivation, Extrinsic motivation and motivation subscales (LLOS-IEA). The psychometric properties of the scale were determined with 159 students in English psychology classes at a French-English bilingual university in Canada. The analysis of the data revealed as acceptable internal consistency ranging from 0.67 to 0.88. The exploratory factor analysis also supported two factors, namely intrinsic and extrinsic motivation.

Ardasheva, Tong and Tretter (2012) modified the LLOS-IEA and devised a new instrument called English Language Learner Motivation Scale (ELLMS). The ELLMS instrument was validated with 1057 English language learners in 38 elementary, middle and high schools. The overall Cronbach's alpha coefficient was 0.80 and subscales alpha ranging from 0.58 to 0.74. The factorial structure of the ELLMS was examined using exploratory factor analysis with 528 students and confirmatory factor analysis was conducted with a sample of 529 students. The results indicate that data were best explained by a three-factor solution (intrinsic

motivation, introjected regulation and external regulation). The authors concluded that ELLMS was a reliable and valid instrument to measure language learning motivational orientations and the instrument might usefully serve the English language learning classrooms.

2.6.4 Students' Adaptive Learning Engagement in Science Questionnaire (SALES)

Based on the theories of motivation and learning goal orientation, Velayutham, Aldridge and Fraser (2011) developed and validated the Students' Adaptive Learning Engagement in Science questionnaire (SALES). The theoretical background of this instrument is based on self-regulation as the ability of an individual to control his or her conduct to achieve a set goal (Schunk & Zimmerman, 2008). In the analysis of goal orientation theory, it was also found that learning goal orientation is a key predictor of student motivated behaviour.

The questionnaire measures four constructs (each with eight items) found, in past research, to be pivotal to motivation, these being, learning goal orientation, task value, self-efficacy and self-regulation. The questionnaire was administered to 1360 students comprising 719 boys and 641 girls from grades 8, 9 and 10 across 78 classes from five public schools in Australia. The results showed the Cronbach alpha coefficient for each factor to be above 0.90, indicating the reliability of the constructs. Principal component analysis of the 32 items extracted the four sets of factors of learning goal orientation, task value, self-efficacy and self-regulation. The results of the factor analysis and Cronbach alpha coefficients supported the validity of the questionnaire, thereby attesting the reliability of the constructs (Velayutham, Aldridge and Fraser, 2013). As this survey was selected for use in the present study, more details are provided in Chapter 3.

2.7 Gender Differences

The present study examined gender differences in students' self-reports of motivation and self-regulation and their perceptions of the learning environments in English language classes. It was considered pertinent, therefore, to examine gender

differences in motivation (Section 2.8.1) and gender differences in English language learning (Section 2.8.2).

2.7.1 Gender Differences in Motivation

Meece et al. (2006), in their review of research on gender differences in students' task value, summarised that there are perceptible differences in the value that children and adolescents attach to tasks in different academic domains. Unlike learning goal orientation, the patterns in these gender differences were consistent with gender norms and stereotypes. For example, Eccles et al. (1993), in a longitudinal study of students from first grade to fourth grade, found that boys placed a higher value on sports activities than girls, whilst girls placed a higher value on musical and reading activities than boys. The study also revealed that, for elementary students, gender differences were not apparent in the value students attached to mathematics. Wigfield, Eccles, Mac Iver, Rueman and Midgley (1991) reported that, when students were transitioned from primary to junior high school, their perceptions of the value of mathematics, reading, and sports tasks declined. Their study also indicated that girls had a greater value on English than did boys.

Jacobs, Lanza, Osgood, Eccles and Wigfield (2002) examined changes in students' value perceptions beginning from the first grade to the twelfth grade in three academic domains. Their findings revealed that students' value perceptions about mathematics, language arts and sports declined over the years, with the value of mathematics declining most rapidly in high school. The study concluded that the gender patterns have mirrored previous studies' that report that boys placed a higher value on sports activities, girls placed higher value on language arts and there were no gender differences for mathematics task value. However, Watt (2004, 2008), in a longitudinal study, involving 1,323 students spanning from grades 7 to 11, reported that, gender differences in intrinsic value for English favoured girls, which is consistent with existing gender stereotypes.

Research on gender differences in students' self-efficacy beliefs has invariably focused on the domains of mathematics and science which have traditionally been stereotyped as either male or female prerogatives (Meece & Painter, 2008). These

studies have consistently documented that boys are inclined to be more positive about their ability in mathematics and science than girls (Anderman & Young, 1994; Pajares, 1996; Pintrich & De Groot, 1990; Zimmerman & Martinez-Pons, 1990). Whitley (1997), in a meta-analysis of gender differences studies in computer-related attitudes and behaviour, revealed that boys exhibited higher computer self-efficacy than girls. In the subject of writing, gender differences were reversed with girls reporting higher writing self-efficacy beliefs than boys, even though there was no gender difference in their performance (Pajares & Valiante, 1997, 2001). Gender differences in foreign language learning attitudes – in particular learning English – indicate that female students' attitudes were more positive (Casewit, 1989; Chou, 2005; Hsiao & Chiang, 2011; Kobayashi, 2002). However, Britner & Pajares (2001) and Pajares, Britner and Valiante (2000) reported that, among middle school students, girls had higher science grades and stronger self-efficacy than do boys. The studies explained that this may be a function of girls' greater facility with language.

Past research also indicates that gender differences in students' self-efficacy beliefs are likely to be linked to their age or grade level (Schunk & Pajares, 2002), with larger differences emerging at the beginning of high school (Bandura, Barbaranelli, Vittorio Caprara & Pastorelli, 2001; Wigfield et al., 1996). These differences often are attributed to adolescent's increased anxiety to conform to gender stereotype roles (Hill & Lynch, 1983; Pajares, 2006; Wigfield et al., 1996). Generally, students perceive the domain of mathematics, science and technology as male domains (Eisenberg, Martin & Fabes, 1996). Hence, successes in these areas are believed to be a masculine imperative (Eccles, 1987). Conversely, success in language arts is associated with a feminine orientation, as writing is typically viewed as a female domain.

Gender differences associated with students' self-regulation in learning have been reported across various academic domains and academic tasks (Meece & Painter, 2008). The general consensus is that girls display more self-regulatory strategies than boys. Girls tend to be more disciplined and more often display the ability to delay gratification than boys (Duckworth & Seligman, 2006). Research by Bembenuity (2007) examined gender differences among 364 college students with respect to their use of self-regulation strategies. The findings showed that females report higher

effort regulation and use of self-regulatory strategies of rehearsal and organisation when compared to males.

Nevgi (2002) and Niemi, Nevgi and Virtanen (2003) investigated gender differences in higher education students' use of self-regulated learning strategies. Both Nevgi (2002) and Niemi et al. (2003) reported that females used more self-regulated learning strategies. For example, females were able to use keywords, apply advance organisers and connect new knowledge actively to previous knowledge while studying more often than males. In summary, past research indicates that gender differences are evident in students' self-regulation with girls reporting higher effort regulation and higher use of cognitive and meta-cognitive strategies.

2.7.2 Gender Differences in English Language Learning

In subjects such as mathematics and science, it has been acknowledged that gender differences in students' achievement, motivation, and self-regulation in learning are not due to gender per se but a function of gender stereotype beliefs and gender socialisation (Pajares & Valiante, 2001). That is, in general, students view science as being a male domain and success in science as a masculine imperative (Pajares, 2002), with girls being more inclined to conform to these gender stereotype roles (Wigfield, Eccles & Pintrich, 1996). Research related to learning English as a foreign language, indicates that gender differences are neither predictable nor universal (Cameron, 1990; Coates, 1993; Freed, 1995; Holmes, 1991). However, the question about which sex is better at language learning has dominated the study of gender and language education for some time. Despite the lack of research evidence to support any clear cut patterns of differences in achievement, there is a widespread stereotypical belief that females do better than males in language learning (Sunderland 2000).

There have been a number of studies that have examined the effect of learning strategies used in foreign language learning on different genders (Khalil, 2005; Leyla, 2004; Phakiti, 2003). The results for these studies have differed. Khalil's (2005) study, involving 378 students, carried out in Palestine found that female students were better at planning and evaluating their learning than their male

counterparts. Conversely, a study by Tercanlioglu (2004), involving 184 university students in Turkey, found that males were more likely to use strategies that enhanced organisation and evaluation than females. Whereas Phakiti's (2003) study, involving 520 university students, found no gender differences in either their performance or their use of cognitive strategies.

2.8 Chapter Summary

The present study drew on and extended the field of learning environments. The field provides numerous models that were used to assist in the investigation reported in this thesis. Over the past 40 years, numerous reliable and robust instruments have been developed for specific learning environments. This chapter reviewed surveys to assess students' perceptions of a range of traditional and contemporary classroom settings.

Past research evidence consistently demonstrated associations between perceptions of the learning environment and student outcomes. These studies have involved a range of cognitive (e.g. student achievement) and affective (e.g. student attitudes and self-efficacy) outcomes. Although the majority of these studies were conducted in classrooms that involved mathematics and science teaching, there is growing research evidence that there are strong and consistent links between learning environments and student outcomes in other learning environments. Past research carried out in language learning environments in China, Saudi Arabia, Turkey and Hong Kong all have provided important information upon which this study has drawn.

Given that my research focused on the learning environments of classes teaching English as a second language and their impact on students' motivation, I have relied heavily on past learning environments research and incorporated many of the principles and ideas from this field. As such, the present study also drew upon well-developed theory related to motivation and engagement. Past research has involved defining, conceptualising and assessing motivational constructs. Instruments have been developed to investigate students' motivation and this chapter reviewed four important surveys that have been developed in the field.

It has been widely accepted that male and female students differ in line with traditional gender role stereotypes, with boys indicating higher ability, beliefs and interest in science and mathematics and girls indicating higher ability and interest in English language learning. Although past studies did not reveal a clear pattern of gender differences with respect to male and female students' motivation and self-regulation in English language learning, it would appear that girls' have higher self-efficacy beliefs in the area of English language learning.

CHAPTER 3

RESEARCH METHODS

3.1 Introduction

Whereas Chapter 2 provided a review of pertinent literature, this chapter details the research methods used in the present study. The primary goal of this study was to assess the language learning environments at the university level in Jordan and to determine whether this learning environment influenced student motivation and self-regulation.

The research methods that were used in this research are described under the following headings:

- Specific Research Questions (Section 3.2);
- Research Design (Section 3.3);
- Sample for the Study (Section 3.4);
- Data Collection (Section 3.5);
- Data Analyses (Section 3.6);
- Ethical Considerations (Section 3.7); and
- Chapter Summary (Section 3.8).

3.2 Specific Research Questions

As described in Chapter 1, this study investigated the learning environment and whether it influences student engagement and self-regulation in English language learning at the university level in Jordan. The questions that were addressed in this research, described in Chapter 1, are reiterated below.

Research Question One

Is there a relationship between the nature of the classroom learning environment and students' motivation and self-regulation in learning English as a second language at the university level in Jordan?

Research Question Two

Is there a relationship between students' self-reports of their motivation and their self-regulation in learning English as a second language at the university level in Jordan?

Research Question Three

Do differences exist for male and female students in classes teaching English as a second language at the university level in Jordan, with respect to:

- i. Perceptions of the classroom learning environment; and,*
- ii. Engagement and self-regulation in language learning?*

3.3 Research Design

According to Willis (2007, p. 8) a paradigm is “a comprehensive belief system, worldview or framework that guides research and practice in a field”. Although there are numerous paradigms that guide research, the widely accepted list always includes positivism (Guba, 1990). In addition, the basic tenets of behavioural science are founded on positivism (Willis, 2007). Hessler (1992) articulated that the positivist's fundamental belief is that any scientific concept or idea can be measured or observed. Therefore, positivists are interested in the discovery of a universal truth that can be applied to all (Guba, 1990).

The focus of this research was to create an understanding of the measurable and observable aspects of the classroom learning environment that are likely to influence students' motivation and self-regulation in English language classes. This

exploratory study adopted the positivist assumption that all meaningful problems can be framed in clear-cut frameworks, characterised by precise hypotheses and well-defined methods. The ontological position of this study was that reality is objective and can be found.

Fraser (2012) described three common approaches to studying classroom environments: systematic observations; case studies; and, assessing student and teacher perceptions of the learning environment with the use of self-report questionnaires. The present study was primarily a quantitative one using the survey method. Students' perceptual measures of the classroom environment were employed because past research has reported that there is significant merit in engaging the students to report as milieu inhabitants.

It is generally recognised that there are five major strengths of using the perceptual measure approach (Fraser & Walberg, 1981): firstly, paper-and-pencil instruments are more economical than classroom observation techniques that involve the expense of training outside observers; secondly, perceptual measures are based on students' observation of several lessons over time, whilst observation data is generally limited to a few lessons from a small number of observations; thirdly, perceptual measures pool the observations of all of the students in the class, whereas observation techniques generally involve one perspective; fourthly, as students' perceptions are the determinants of student behaviour, these can be more important than what the observer perceives as the real situation; and, finally, perceptual measures of classroom environment have been found to account for more variance in student learning outcomes than variables that are directly observed.

The present study involved a number of phases and the following five phases of the research process have been detailed in the preceding sections:

- 1) The first phase involved a review of relevant literature and the identification of the research questions, outlined in the previous chapter.
- 2) The second phase involved selecting a suitable sample for the study, including the selection of a university (described in Section 3.5).

- 3) The third phase involved the selection, modification and translation of the two questionnaires: one to assess students' perceptions of their learning environment; and, another to assess students' engagement and self-regulation. As the questionnaires both originated in Western countries and were written in English, it was necessary to modify these to ensure their suitability to the Jordanian context and to translate them into Arabic (described Section 3.6).
- 4) The fourth phase involved the collection of data and included two stages: a pilot study to ensure the suitability of the instruments to the Jordanian context; and, the administration of questionnaires for the collection of data for the main study. Details regarding the pilot study and the administration of the surveys have been provided in Section 3.6.
- 5) The fifth phase involved the analysis of the data, and the procedures used to analyse the data to answer research questions, are outlined in section 3.7.

3.4 Sample for the Study

This section details the selection of the university (Section 3.5.1); the sample for the pilot study (Section 3.5.2); and the sample for the main study (Section 3.5.3).

3.4.1 Selection of the University

The sample for the present study was drawn from one university in Jordan, the history of which was described earlier in Chapter 1. The Jordan University of Science and Technology, commonly referred to as JUST, is a comprehensive, state-supported university located on the outskirts of Irbid, in northern Jordan. The University's mission is to provide undergraduate and graduate students with a broad and rigorous education, professional skills, basic and applied research, and knowledge that meets the needs of the labour market and enable graduates to compete nationally, regionally and internationally. There is an emphasis to promote and foster a multicultural community to attract more Arabic and international

students. The vision of the university is to become a world-class university distinguished through high quality teaching and research.

According to the Statistical, Economic and Social Research and Training Centre for Islamic Countries, JUST is amongst the top 3% of universities in the Islamic world (Statistical, Economic and Social Research and Training Centre for Islamic Countries, 2012). The university aims to produce capable scientists, engineers and professionals in health sciences, including medical practitioners and nurses. As much of the knowledge and latest advances in these respective fields are available in English, competency in the English language is a requirement to attend this university. Internationalisation is also considered to be an essential element of JUST. To advance its internationalisation and interaction with communities around the world, proficiency in the English language is a key element required by students (JUST, 2011). The university was selected as the preferred site for this study due to its pragmatic approach to higher education, progressive nature and emphasis on the English language as the medium of instruction.

3.4.2 Sample for the Pilot Study

The pilot study involved both a quantitative and a qualitative component. For the quantitative component, 50 students were randomly selected from the population from which the main study's sample was to be drawn. All of the students who were selected were enrolled in English classes in the first semester of their first year at the University, regardless of their major studies. For the qualitative component, 10 of the 50 students were randomly identified and asked to be involved in two focus-group interviews (Patton, 2002) each made up of 5 students. These focus-group interviews involved a semi-structured format that enabled the researcher to ask questions related to individual items in the surveys to ensure clarity, readability and freedom from ambiguity.

3.4.3 Sample for the Main Study

As described in Section 3.4.1, the main sample was drawn from the Jordan University of Science and Technology (JUST). The sample involved a total of 994 students drawn from three faculties, these being, Humanities ($n=260$), Science and Engineering ($n=398$) and Health Sciences ($n=336$). These faculties were chosen because the medium of instruction for all of the courses offered was in English. In total, 13 schools from these 3 faculties were involved. Of the 994 students, 308 were males and 686 female. The age of the sample ranged from 19 to 26 years, with the majority of students being aged between 21 and 22 years (53%). A breakdown of the student numbers, male and female, in each faculty and school, is provided in Table 3.1.

Table 3.1 Sample Description Including Distribution of Male and Female Students

Faculty	School	Number of Students		
		Males	Females	Total
Humanities	English as Special Purpose	48	212	260
Science and Engineering	Agriculture	11	44	55
	Engineering	43	35	78
	Computer Science	10	10	20
	Biotechnology	28	92	120
	Chemistry	9	18	27
	Mathematics	22	55	77
	Physics	6	15	21
Health Sciences	Applied Medical Sciences	47	82	129
	Medicine	5	12	17
	Forensic	36	14	50
	Nursing	27	62	89
	Pharmacy	17	34	51
Total		308	686	994

3.5 Instruments Used to Collect Data

This section describes the two instruments used to gather data for the present study: the What Is Happening In this Class? questionnaire (Section 3.5.1); and the Engagement in English Language Learning and Self-Regulation survey (Section 5.5.2). Also included in this section is a description of the process used to modify and translate the instruments to make them suitable for the use at the university level in Jordan (Section 3.5.3).

3.5.1 *What Is Happening In This Class? (WIHIC)*

To assess students' perceptions of the psychosocial aspects of the learning environment the What is Happening in this Class? (WIHIC) questionnaire was used. A review of literature, related to the WIHIC, is presented in Chapter 2, including its development and use in past research. The WIHIC was developed by Fraser, McRobbie and Fisher (1996) to bring parsimony to the field of learning environments by combining the most salient scales from existing questionnaires with new dimensions of contemporary relevance to science education. In the original version, there were nine scales with 10 items in each. This version was later refined by Aldridge, Fraser and Huang (1999) to include 56 items with eight items in each of seven scales.

As discussed in Chapter 2, the validity and usefulness of the WIHIC has been demonstrated in various studies from around the world: in Singapore with 2,310 secondary four students in 75 classes from 38 schools (Chionh & Fraser, 2009); in Brunei with 1,188 form 5 students in 54 classes (Khine & Fisher, 2001); in Indonesia with 1,056 third year computer students in 33 university classes (Margianti, Aldridge & Fraser, 2004); in Korea with 543 students in 12 schools (Kim, Fisher & Fraser, 2000); in India with 1,021 students in 32 classes in seven schools (Koul & Fisher, 2005); in the USA with 1,434 students in 71 classes in New York (Wolf & Fraser, 2008), with 520 Grade 4 and 5 students in South Florida (Allen & Fraser, 2007), with 364 Grade 9 and 10 students in North Carolina (Moss, 2003), with 661 students from 22 classes in California (Ogbuehi & Fraser, 2007) and with 761 students in 25 classes in Southeastern USA (Lightburn & Fraser, 2007).

In the Middle-East two recent researches have involved the use of WIHIC to assess students' perceptions of the learning environments. Afari, Aldridge and Fraser (2012) used an Arabic translation of the WIHIC to examine the effectiveness of using games in tertiary-level mathematics classrooms. The reliability and validity of the Arabic version of the WIHIC was supported with a sample of 90 students in the United Arab Emirates (Afari, Aldridge & Fraser (2012)).

In another study, MacLeod and Fraser (2010) used a modified Arabic version of WIHIC to measure the actual and preferred classroom environments in Dubai in the United Arab Emirates. When parallel Arabic and English versions of this questionnaire were field tested with a sample of 763 college students in 82 classes, the WIHIC was found to have sound factorial validity and internal consistency reliability for both the actual and preferred forms.

Given the robust nature and sound psychometric properties found in much past research in countries around the world and when translated into different languages the WIHIC was considered to be a suitable choice for the present study. Also the WIHIC stood out as being parsimonious (Fraser, McRobbie & Fisher, 1996), thereby providing a reasonably comprehensive and clear indication of the state of the psychosocial learning environment.

The items of the WIHIC were considered to be 'non-threatening' to both the teachers and the students as they do not directly assess performance, personality or character. It is human nature that people will not want to subject themselves to direct scrutiny and assessment. Given the nature of the items, it was considered more likely, that the WIHIC would receive endorsement from the general population of teachers and students in Jordan.

The WIHIC questionnaire was also considered to provide an efficacious and economical instrument for teachers who are keen on improving their classroom environments (Bell & Aldridge, in press). Therefore, use of the WIHIC in the present study might pave the way for teachers and researchers in Jordan to use this questionnaire in the future.

Finally the dimensions of the WIHIC were considered to be appropriate for this study. According to Tobin and Fraser (1998), because some learning environment dimensions are more salient than others in a particular classroom, specific learning environment scales should be chosen after researchers have had some experience in the classes. The learning environment scales, chosen for the study reported in this thesis were, therefore, guided by past research, personal experience as a teacher of English and discussions with learning environment researchers.

The present study involved the modification of the 56-item version that was refined by Aldridge, Fraser and Huang (1999). The version used for the present study has eight items in each of seven scales, namely, Student Cohesiveness, Teacher Support, Involvement, Investigation, Task Orientation, Cooperation and Equity. Table 3.2 provides a brief description and sample item for each WIHIC scale.

As discussed in Chapter 2, there are two forms of the WIHIC questionnaire, the class form and a personal form. The present study involved the use of the personal form of the WIHIC because one of the research questions involved examining whether differences exist for different groups (males and females) within the same learning environment. Given that the personal form elicits how a student views the learning environment from their personal standpoint, using the personal form was considered to be appropriate.

Participants responded to the items of the WIHIC using a frequency response format using the five alternatives of Almost Never, Seldom, Sometimes, Often and Almost Always. Prior to using the WIHIC, it was important to ensure its suitability for use at the university level in Jordan and to translate it into Arabic. Section 3.5.3 provides a description of each.

Table 3.2 Description and Sample Item for Each Scale in the What Is Happening In this Class? (WIHIC) Questionnaire

Scale	Description	Sample Item
	The extent to which ...	
Student Cohesiveness	... students are friendly and supportive of each other.	I make friends among students in this class.
Teacher Support	... the teacher helps, befriends and is interested in students.	The teacher helps me when I have trouble with the work.
Involvement	... students have attentive interest, participate in discussions and enjoy the class.	I explain my ideas to other students.
Investigation	...there is emphasis on the skills and of inquiry and their use in problem-solving and investigation	I carry out investigations to test my ideas.
Task Orientation	... it is important to complete planned activities and stay on the subject matter.	Getting a certain amount of work done is important.
Cooperation	... students cooperate with each other during activities.	When I work in groups in this class, there is teamwork.
Equity	... the teacher treats students equally, including distributing praise, questions and opportunities to be included in discussions.	The teacher gives as much attention to my questions as to other students' questions.

3.5.2 Engagement in English Language Learning and Self-Regulation (EELLS)

To assess students' engagement and self-regulation in English language learning I modified the Student Adaptive Learning Engagement Survey (originally developed by Velayutham, Aldridge and Fraser, 2011, for use in science classes) to form the Engagement in English Learning and Self-Regulation (EELLS) survey. The original SALES used a comprehensive construct validity framework to support the face validity of the individual items when used in a Western country and was based on a strong theoretical framework (Velayutham, Aldridge & Fraser, 2011). The SALES included four scales considered to be important to the engagement of students, these being: Learning Goal Orientation; Task Value; Self-Efficacy; and, Self-Regulation. Table 3.4 provides a brief description and sample items for each EELLS scale.

Table 3.4 Scale description and sample item for each EELLS scale

Scale	Description	Sample Item
	The degree to which the student...	
Learning Goal Orientation	... perceives him/herself to be participating in a language classroom for the purpose of learning, understanding and mastering language concepts, as well as improving language skills.	In this language class, it is important for me to learn the language content that is taught.
Task Value	... perceives the language learning tasks in terms of interest, importance and utility.	In this language class, what I learn can be used in my daily life.
Self-Efficacy	... is confident and believes in his/her own ability in successfully performing language-learning tasks.	In this language class, even if the work is hard, I can learn it.
Self-Regulation	controls and regulates his/her effort in language learning tasks.	In this language class, even when tasks are uninteresting, I keep working.

As the SALES was developed to assess engagement and self-regulation in Western science classrooms, items were reworded to ensure their suitability for use in: 1) Jordan; 2) English language classrooms; and 3) the university level in Jordanian English language classrooms. The original four scales of the SALES were considered to be suitable and were retained. However, individual items within the survey were reworded. These modifications made to produce the new EELLS are described in the next section. Items of the EELLS were responded to using a five-point Likert-type scale that ranged from ‘Strongly Disagree’ to ‘Strongly Agree’.

3.5.3 *Ensuring the Suitability of the Instruments for Use in Jordan*

The translation of learning environment questionnaires and the development of new instruments in languages other than English has provided useful tools for researchers in many parts of the world (MacLeod & Fraser, 2010). The WIHIC has been translated and validated into many different languages, namely, Chinese (Aldridge et al., 1999; Aldridge & Fraser, 2000; Yang et al., 2002), Indonesian (Fraser et al., 2010), Korean (Kim et al., 2000), Arabic (Afari et al., 2013; MacLeod & Fraser,

2010) and IsiZulu (Aldridge et al., 2009). Although the WIHIC has been previously translated into Arabic for use in the United Arab Emirates, both studies involved a modified version of the WIHIC. In addition, translations that were made for use in the UAE were unlikely to take into consideration the nuances and cultural norms considered to be relevant to Jordan.

Given that the two instruments, selected for use in the present study, were developed in English for use in Western countries, this section describes the steps taken to modify the instruments to ensure their suitability to the Jordanian context (Section 3.6.4.1) and to translate them into Arabic (Section 3.6.4.2)

3.5.3.1 Modifying the Instruments to Ensure Suitability to the Jordanian Context

As a first step, the scales of both the WIHIC and SALES (renamed EELLS after modification) were inspected to ensure their relevance to English language classes. The next step used to modify the WIHIC and EELLS to make them suitable for use in university-level English language classes in Jordan involved scrutinising each item to ensure that it was meaningful. Modifications, in terms of language and phrasing, were made to both instruments, leading to slightly refined versions in both cases. For example, an item in the ‘Teacher Support’ scale of the WIHIC, “The teacher takes a personal interest in me” was changed to, “The teacher is interested in my problems”, to ensure that students did not misinterpret the intent of the statement. In the EELLS, the word “language” replaced the word “science” in the original items of SALES. For example, Item 2 of the original SALES read, “One of my goals is to learn new science skills” and was changed to read, “One of my goals is to master new language skills”.

3.5.3.2 Translating the Instruments into Arabic

Given that the two questionnaires, WIHIC and EELLS, were to be administered to students in Jordan it was necessary to translate them into Arabic. The English versions of the two questionnaires were translated into Arabic at a government authorised translation centre. It is common practice, in Jordan, for the translation of documents into Arabic to be carried out by an official translator. Such translations

take into consideration the peculiarities of the Arabic language when used by Jordanians as well as other cultural aspects that are related to the language. The Arabic version was then translated back into English by an independent professional translator. To ensure that the translation process was not a literary translation, and that contextualised colloquial and important meanings were not lost, the back translations were checked by the researcher who is fluent in both languages. This process, recommended by Brislin (1970, 1976, 1980; Brislin, Lonner & Thorndike, 1973), took into consideration a range of possible translation problems at the lexical, grammatical and textual levels. This process involved three iterations before the Arabic version was considered to be accurate.

Once the translation process was complete an additional check was made, involving two faculty members at the JUST University, both fluent in English and Arabic and teaching English language at the University. These two faculty members checked the accuracy and fidelity of the translated version to ensure that the Arabic version had maintained the concepts and meanings in the original versions. A copy of the items in the English and Arabic version of the WIHIC and the EELLS, used in my study, can be found in Appendix B and C, respectively.

3.5.4 Data Collection

This section details the data collection methods used during the two stages of my study: the pilot study (Section 3.5.5.1) and the main study (Section 3.5.5.2).

3.5.4.1 Pilot Study

The pilot study involved the collection of both quantitative and qualitative data. Both the WIHIC and the EELLS were administered to 50 students (described in Section 3.4.1). Focus-group interviews with students were then conducted with 10 of the 50 students. The decision to use focus groups was made to provide a setting in which students felt comfortable and, therefore, more likely to express their opinions about the questionnaire (Patton, 2002). The pilot study was used to examine the readability of the individual items, whether students interpreted the items in ways intended by

the researcher and whether they were able to use the response format to respond to the items appropriately. The results of the pilot study are presented in Chapter 4.

3.5.4.2 Data Collection for the Main Sample

Before the study was conducted, the researcher sought permission from the University administration. When the University granted permission, an official letter was sent to the Deans of the faculties requesting them to allow the researcher to have access to the students and to provide assistance, if required, during the collection of data. Prior to the commencement of data collection, the researcher visited all of the participating faculties and met with the respective Deans to explain the study and to establish mutually agreeable procedures for the administration of the questionnaires.

The class teachers agreed to allocate one period of English for the administration of the questionnaires. The dates and times for each school were then fixed and the researcher herself administered the questionnaires to the 994 students. The questionnaires were administered in the third quarter of the academic year, thus allowing the students' time to get to know their respective teachers and for a stable learning environment to be established.

Data collection for the main study involved the administration of the two instruments to 1100 students from three faculties. The surveys were administered during an English class by the supervisor of that class. Students were provided with information about the research and were informed that their participation was voluntary. The teachers, supervising the English class, emphasised that the students' responses would remain confidential and that any feedback provided to the University would be in the form of aggregated scores.

Before the students responded to the survey, the researcher gave directions as to how they should respond to the items. Further explanations were also made with respect to items that were found to be difficult to understand during the pilot test. The survey was administered to 1100 students.

3.6 Data Analyses

Prior to data analysis, the data were screened to ensure that there no missing or unengaged responses. During this process, 106 cases (9.6%) were removed, providing a sample of 994 students. This data were analysed in various ways to answer the research question. The analysis carried out is described below.

3.6.1 Research Question One

Prior to data analysis, the data were screened to ensure that there no missing or unengaged responses. During this process, 106 cases (9.6%) were removed as there were missing responses for these students. This provided a total sample of 994 students. Before the data were analysed to answer the research questions (described below) it was important to ensure that the two surveys (modified for use in Jordanian universities and translated into Arabic) were valid and reliable when used with university students. Data from the sample of 994 first-year university students were analysed to provide an indication of the level of confidence with which the results could be interpreted.

As a first step, principal axis factoring with oblique rotation and Kaiser Normalisation was conducted to examine the strength of the relationship between an item and a construct. The stronger that an item loads onto a factor or construct, the more that item defines the factor. For this study, oblique rotation was used to provide maximum distinction between the factors (Hinton, 2004). The criteria for an item to be retained was that it must have a factor loading of at least 0.40 on its own scale and less than 0.40 on all other scales (a conventionally accepted cut off recommended by Kline, 1994, and Thompson, 2004). The removal of items not meeting these criteria was carried out to improve the internal consistency and factorial validity of the instrument.

The degree to which the items that make up a scale are measuring the same underlying attribute is found by checking the internal consistency of the instrument. In my study, the Cronbach alpha coefficient was used to provide a convenient index of internal consistency. The magnitude of the alpha coefficient depends on the

number of items and on the strength of the correlations among the items. Alpha coefficient values range from 0 to 1, with higher values indicating greater reliability (Nunnally & Bernstein, 1998).

To further determine the reliability of the two surveys (WIHIC and EELLS) the concurrent validity, or the ability to distinguish between the groups that it is expected to distinguish, between was examined. The ability of each scale in both the questionnaires to differentiate between different schools was investigated using ANOVA. The η^2 statistic, based on the ratio of the between-group effect to the total amount of variance in the data (Field, 2009), was calculated to provide information about the amount of variance attributed to school membership.

Whereas the items of a particular construct should be highly correlated to each other (convergent validity), it is important that the items from different constructs are not highly correlated to each other (discriminant validity). In my study, the component correlation matrix, obtained from oblique rotation, was used to determine whether the correlation values met the requirements of discriminant validity. Brown (2006) and Field (2009) explained that oblique rotation in exploratory factor analysis provides realistic representation of how factors are interrelated. According to Field (2009), there should be a moderately strong relationship between factors based on theoretical grounds. However, factor correlations above 0.80 imply overlap of concepts and point towards poor discriminant validity (Brown, 2006). Therefore, the correlation matrix was used to ensure this condition was met.

3.6.2 Research Questions One and Two

The first and second research questions sought to investigate whether relationships exist between: students' perceptions of the learning environment and their motivation (task value, learning goal orientation and self-efficacy) and self-regulation; and students' self-report of motivation and self-regulation. Simple correlation and multiple regressions were used to examine the relationships between each of the seven learning environment scales and the four outcomes. Simple correlations were performed to provide information about the bivariate association between each learning environment scale and each outcome.

Multiple regression analysis was used to provide a more complete picture of the joint influence of the environment dimensions on engagement outcomes and to reduce the Type I error rate associated with the simple correlation analysis. For the regression analysis, the set of seven learning environment scales constituted in the independent variable. To interpret which individual learning environment scales made the largest contribution to explaining variance in engagement outcomes, the regression weights were examined to determine which ones were significantly greater than zero ($p < 0.05$). The regression weights describe the effect of a particular environment variable on an outcome when all other environment variables in the regression analysis were mutually controlled.

3.6.3 Research Question Three

Research Question Three examined whether male and female students differed in terms of their perceptions of the learning environment and engagement in English classes. As a first step, testing of preliminary assumptions was conducted to check for violations of normality, linearity and homogeneity of variance-covariance matrices. Once the conditions were satisfied, a one-way multivariate analysis of variance (MANOVA) was performed to investigate differences in students' perceptions of the learning environment and self-reports of motivation. Wilks' Lambda was checked to ensure that there was a statistically significant difference in terms of the whole set of learning environment and engagement scales, prior to interpreting the one-way ANOVA for between-group differences for each individual scale. In addition, effect sizes were used to indicate the magnitude of the differences between the two courses expressed in terms of the number of standard deviations (as recommended by Thompson, 2001).

3.7 Ethical Considerations

A fundamental ethical consideration was to ensure that the participants were informed of the nature and purpose of the research, its risk and benefits, and that they consented to their participation without coercion. Anderson (1998) refers to the codes of ethics and control that are in place to protect people participating in the

research process, particularly in the area of social research. He stresses that it is the responsibility of the researcher to adhere to universally acceptable ethical practice.

Mason (1996) notes ethical concerns should be high on the agenda of the researcher and should be built into the initial design stage. To satisfy ethical concerns, confidentiality was maintained for all parties in the present study. A coding method was used to track the questionnaires, thereby avoiding the need to specify the names of the participants.

This study followed strict ethical procedures in conducting the research to ensure and enhance the protection of the rights and welfare of the participants. (See Appendix D for the copy of ethics approval from Curtin University.) In doing so, the following areas were highlighted to the participants prior to asking for their consent: the purpose of study, to improve the teaching and learning of English in this University was made clear to the participants: the participants (faculty staff and students) were informed, both verbally and in writing, that participation in the study was entirely voluntary; students were told that, if they decided to participate, they would be asked to complete two questionnaires: the What Is Happening In This Class? (WIHIC) questionnaire; and, the Engagement in English Language Learning and Self-Regulation (EELLS) survey. (See Appendix E for a copy of the information sheet provided to participants.)

Care was taken at each stage of the study to ensure that there were no foreseeable risks or discomfort to the participants, whether physical, psychological or social. It was felt that the research would not affect their study at the University, as the questionnaire administration was conducted in a short period of time. Furthermore, the items in questionnaire did not criticise, approve or disapprove the current learning situation.

Participants were told that the results, obtained from this study, could help to improve the teaching and learning in the University, specifically in English language. They were informed that the results would be shared with the students and lecturers concerned.

Participations were ensured that information from individuals would be kept confidential. The questionnaires did not require information that could enable the identity of the participants, ensuring that the responses would remain anonymous. Participants were assured that the information collected during the study would not negatively impact those students involved.

Before the data was collected, students were asked whether they wanted to take part in the study. Those who agreed to participate were required to complete a consent form. The consent form used in the study is provided in Appendix F.

3.8 Chapter Summary

This chapter described the research design, research questions, sample, research instruments employed and methods of analysis of data used for the present study. The study employed a quantitative approach that involved the collection of survey data. The sample for the present study was drawn from the Jordan University of Science and Technology (JUST). The Jordan University of Science and Technology, is a comprehensive, state-supported university located on the outskirts of Irbid, in northern Jordan. The sample of the study was drawn from three faculties, namely Humanities, Science and Engineering and Health Sciences. These faculties were chosen because the medium of instruction for all of the courses offered is in English. In total, 13 different schools from these three faculties were involved.

The study involved the administration of the What Is Happening In this Class (WIHIC) questionnaire, to assess students' perceptions of English language classrooms and the Engagement in English Language Learning and Self-Regulation (EELLS) survey, to assess students' motivation and self-regulation in English language classes. The WIHIC questionnaire was originally developed by Fraser, Fisher and McRobbie (1996). The WIHIC is the product of combining salient scales from a wide range of existing questionnaires with additional scales that accommodate contemporary educational concerns, such as equity and constructivism (Fraser, McRobbie, & Fisher, 1996). The original version of the WIHIC contained nine scales, each with ten items: Student Cohesiveness; Teacher Support; Involvement; Autonomy/Independence; Investigation; Task Orientation;

Cooperation; Equity; and, Understanding. In a more recent study, involving samples from Taiwan and Australia, a refined 56-item version, with eight items in each of seven scales was developed (Aldridge, Fraser & Huang, 1999). The seven scales included: Student Cohesiveness; Teacher Support; Involvement; Investigation; Task Orientation; Cooperation; and, Equity. The WIHIC questionnaire has also been used in cross-cultural research in Australia, Taiwan, Canada, UK and Indonesia. The findings suggested that the WIHIC was useful across a range of subjects in different cultural contexts.

To assess students' engagement and self-regulation in English language the Engagement in English Language Learning and Self-Regulation (EELLS) survey was used. The EELLS was adapted from the Student Adaptive Learning Engagement Survey (SALES), which was originally developed by Velayutham, Aldridge and Fraser (2011) to assess students' engagement and self-regulation in science classes. The EELLS includes four scales considered to be important to the engagement of students in English language classes: Learning Goal Orientation; Self-Efficacy; Task Value; and Self-Regulation. Participants responded to items in the EELLS using a five-point Likert-type scale.

The WIHIC and the EELLS, were both modified to ensure their suitability in English language classes and the relevance of items in the Jordanian context. Careful modifications to items in each of the surveys were made to ensure that they were suitable for use at the university level in the Jordanian context. The surveys were both translated into Arabic for use in Jordan using the rigorous process of back translation. The original translation and back translations were carried out by two different official translators to ensure that cultural, grammatical and lexical aspects were considered.

Once modified and translated, the two surveys were pilot tested with a randomly selected sample of 50 students. 10 of these students were randomly selected and asked to be involved in focus group interviews. The pilot study sought to examine the readability of the surveys and to ensure that participants interpreted the items in ways that were intended by the research. Further the pilot study was used to ensure that there were no technical issues related to the administration of the two surveys

and that students were able to respond appropriately using the two different response formats.

Once satisfied with the results of the pilot test, the surveys were administered to 1100 students studying in three faculties at the Jordan University of Technology (JUST). Data screening for missing data and unengaged responses resulted in the deletion of 106 cases, providing a total sample of 994 students. These data were analysed in various ways using appropriate statistical methods to answer each research question. Before answering the research questions, I sought to determine whether the two surveys (modified for use in Jordanian universities and translated into Arabic) were valid and reliable when used with university students. To determine the reliability and validity of the two instruments, I examined the factor structure, internal consistency reliability, ability to differentiate between faculties and discriminant validity. The first research and second questions sought to investigate whether relationships exist between 1) students' perceptions of the learning environment and the engagement, task value, learning goal orientation, self-efficacy and self-regulation, and 2) students' goal orientation, task value, self-efficacy and self-regulation. To examine whether relationships exist, I analysed the data from 994 student using simple correlation and multiple regression. The third research question examined whether male and female students differed in terms of their perceptions of the learning environment and engagement in English language learning. One-way multivariate analysis of variance (MANOVA) was used to determine whether the gender differences were statistically significant. In addition, effect sizes were calculated to provide an estimate of the magnitude of those differences.

At all stages of the research, ethical issues were considered and addressed. The researcher made clear to the participants that their involvement was voluntary and that they had the right to withdraw at any time and without penalty. To minimise disruption to the study, the surveys were kept to a minimum and administered at a time convenient to the teacher. Participants were assured of their anonymity and the confidentiality of the results. To ensure anonymity all identifying information was removed at data entry and codes, available only to other researcher and her supervisor, were used.

The following chapter reports the results of the study.

CHAPTER 4

ANALYSES AND RESULTS

4.1 Introduction

Whereas the previous chapter described the research methods used in the present study, this chapter reports the analysis and results. The data, gathered from 994 students studying at the Jordan University of Science and Technology (JUST), were analysed in various ways to answer the research questions. This chapter organises the analysis and results under the following headings:

- Reliability and validity of the instruments (Section 4.2);
- Associations between learning environment perceptions and motivation and self-regulation (Section 4.3);
- Associations between motivation and self-regulation (Section 4.4); and,
- Gender differences in learning environment perceptions and attitudes (Section 4.5).

4.2 Validity and Reliability of the Learning Environment and Motivation and Self-Regulation Scales

Data collection for the present study involved the administration of two instruments: the What Is Happening In This Class? (WIHIC) questionnaire (to assess the students' perceptions of their English classroom learning environment) and the Student Adaptive learning Engagement in Science, which was modified to become the Engagement in English Language Learning and Self-Regulation (EELLS) survey (to assess the self-regulation and motivation towards learning English as a second language). Both of these instruments were modified to ensure their suitability for use in university-level English language classes and the Jordanian setting. This modification required that changes were made to the wording of individual items within the scales. Once modified, the instruments were both translated into Arabic.

(For details pertaining to the modifications and the process involved in translating the survey refer to Section 3.5.2.)

As a first step, a pilot study, involving both the WIHIC and EELLS, was undertaken. The study involved both quantitative and a qualitative methods. For the quantitative component, 50 students were randomly selected (described in Section 3.6.5.1) from a sample of students from which the main study sample was to be drawn. All of the students who were selected were enrolled in English classes in the first semester of their first year in the University, regardless of their major studies. For the qualitative component, 10 of the 50 students were randomly identified and asked to be involved in two focus-group interviews made up of 5 students each. The decision to use focus groups was made to provide a setting in which students felt comfortable and, therefore, express their opinions about the questionnaire with confidence (Patton, 2002). These focus group interviews involved a semi-structured format that enabled the researcher to ask questions related to individual items in the surveys to ensure clarity, readability and freedom from ambiguity. The qualitative data were analysed under three categories:

- Students' understanding of the individual items within a scale and the scale as a whole;
- The administration process and the time it took for students to complete the questionnaire; and,
- Students' understanding of the response format and their ability to use it successfully.

Students' responses during the focus group interviews indicated that the items had all been interpreted consistently. The students generally agreed that the items were easy to read and to understand and, when asked about why they had responded to items in a particular way, their responses indicated that the items were generally interpreted in ways that were intended by the researcher.

Students in both of the focus groups agreed that the administration process was suitable. All of the students who were interviewed also agreed that the response format was easy to use and that the layout of the questionnaire was user-friendly.

There appeared to be no confusion with respect to the use of the different response formats for the two surveys

Once the pilot study had suggested the suitability of the surveys, the main administration was undertaken. The data collected from the 994 students were analysed to examine the criterion-related validity of the WIHIC (reported in Section 4.2.1) and the EELLS (reported in Section 4.2.2).

4.2.1 Reliability and Validity of What Is Happening In this Class? (WIHIC)

The data collected from 994 university-level student in Jordan were analysed in various ways to examine: the factor structure (Section 4.2.1.1); internal consistency reliability (Section 4.2.1.2); discriminant validity (Section 4.2.1.3); and, ability to differentiate between schools (Section 4.2.1.4).

4.2.1.1 Factor Structure

Statistical analyses were conducted to examine the internal structure of the Arabic version of the WIHIC questionnaire used in the present study. Principal axis factor analysis with oblique rotation and Kaiser normalisation was used to generate orthogonal factors. Oblique rotation was considered to be most appropriate for this study because one can assume that the factors within the learning environment are related (Coakes & Steed, 2001). Given that 0.40 is generally considered to be an acceptable cut-off for factor loadings (Field, 1999; Kline, 1994; Stevens, 1992; Thompson, 2004), the two criteria used for retaining any item were that it must have a factor loading of at least 0.40 on its own scale and less than 0.40 on any of the other scales.

Of the original 56 items of the WIHIC, seven items were found not to fulfil these criteria, these being: items 6 and 8 for the Student Cohesiveness scale; item 16 for the Teacher Support scale; and, items 22, 23 and 24 for the Involvement scale. To improve the reliability of the Arabic version of the WIHIC, these items were omitted from all further analysis. After the omission of these seven items, the seven-scale *a priori* factor structure of the final version of the questionnaire was replicated, with all

but one of the 49 items having a factor loading of at least 0.40 on its own scale and on no other scale (see Table 4.1). The exception was for item 9, for the Teacher Support scale, which loaded on the Involvement scale as well as its own scale (reported in Table 4.1).

Whereas the factor loadings indicated how strongly each item was related to a particular factor, the eigenvalues showed the relative importance of each factor and the percentage of variance and cumulative variance was used to check whether a sufficient number of factors had been retained (Field, 2009). The results, reported at the bottom of Table 4.1, shows that the percentage of variance accounted for different scales ranged from 2.91% to 25.10%, with the cumulative variance being 57.37%. Also reported at the bottom of Table 4.1 are the eigenvalues which, for different scales, ranged from 1.43 to 12.30.

The results for the factor analysis with oblique rotation strongly support the factorial validity of the 49-item, seven-scale, Arabic version of the WIHIC when used at the university level in Jordan. These findings were consistent with previous research involving use of the WIHIC when translated into Arabic (Afari et al., 2012, 2013; MacLeod & Fraser, 2010), Mandarin (Aldridge et al., 1999) and IsiZulu, South African (Aldridge et al., 2009).

4.2.1.2 Internal Consistency Reliability

The Cronbach alpha reliability coefficient was used as an index of scale internal consistency for the revised 49-item Arabic version of the WIHIC. These analyses were performed using two units of analysis, namely, the individual student and the school mean. Table 4.2 reports the Cronbach alpha reliability coefficients for each of the seven scales of the WIHIC. Using the individual student as the unit of analysis, the alpha reliability coefficients ranged from 0.79 to 0.91 and using school means as the unit of analysis, the alpha reliability coefficients were generally higher, ranging from 0.71 to 0.96. As the minimum value for internal consistency is specified as 0.70 (Barclay et al., 1995; Nunally, 1978), these results were considered to be acceptable.

Table 4.1 Factor Loadings, Eigenvalues and Percentage of Variance for the Arabic Version of the WIHIC

Item No	Factor Loading						
	Student Cohesiveness	Teacher Support	Involvement	Investigation	Task Orientation	Cooperation	Equity
1	0.74						
2	0.75						
3	0.71						
4	0.75						
5	0.44						
7	0.62						
9		0.44	0.40				
10		0.72					
11		0.82					
12		0.77					
13		0.73					
14		0.71					
15			0.49				
17			0.68				
18			0.72				
19			0.65				
20			0.73				
21			0.64				
25				0.58			
26				0.45			
27				0.68			
28				0.67			
29				0.78			
30				0.76			
31				0.67			
32				0.63			
34					0.54		
35					0.72		
36					0.79		
37					0.81		
38					0.80		
39					0.70		
40					0.41		
41						0.71	
42						0.51	
43						0.79	
44						0.86	
45						0.80	
46						0.82	
47						0.66	
48						0.72	
49							0.62
50							0.81
51							0.55
52							0.83
53							0.81
54							0.81
55							0.81
56							0.79
% Variance	4.22	2.91	9.24	4.95	3.81	25.10	7.14
Eigenvalue	2.07	1.43	4.53	2.42	1.87	12.30	3.50

Factor loadings smaller than 0.40 have been omitted.

N= 994 students from 13 schools in 3 faculties

Note that items 6, 8, 16, 22, 23, 24 and 33 were omitted prior to running this final factor analysis.

4.2.1.3 Ability to Differentiate between Schools

The sample for the present study was drawn from 13 schools, selected from across three faculties (see Section 3.4 for the names of the schools and details about the distribution of the sample across the different faculties). One would expect students in the same school to perceive the learning environment in classes teaching English as a second language in a similar way to each other but differently to students in other schools. A one-way analysis of variance (ANOVA), using school membership as the main effect, was used to determine the ability of each WIHIC scale to differentiate between the perceptions of students in different schools. The η^2 statistic was calculated to provide an estimate of the strength of association between school membership and each WIHIC scale, in order to ascertain whether scale scores varied with school membership.

Table 4.2 Internal Consistency Reliability (Cronbach Alpha Coefficient) for Two Units of Analysis for each WIHIC Scale

Scale	Unit of Analysis	No of Items	Alpha Reliability
Student Cohesiveness	Individual	6	0.79
	School Mean		0.71
Teacher Support	Individual	6	0.86
	School Mean		0.86
Involvement	Individual	6	0.85
	School Mean		0.89
Investigation	Individual	8	0.85
	School Mean		0.96
Task Orientation	Individual	7	0.81
	School Mean		0.73
Cooperation	Individual	8	0.87
	School Mean		0.95
Equity	Individual	8	0.91
	School Mean		0.95

The sample consisted of 994 students from 13 schools.

The ANOVA results, reported in Table 4.3, indicate that each of the seven scales of the WIHIC differentiated significantly ($p < 0.05$) between schools. The amount of variance in scores accounted for by school membership (i.e. η^2) ranged from 0.02 to 0.04. These results were similar to those of other studies that have utilised the WIHIC (Aldridge et al., 2009; Kim et al., 2000; MacLeod & Fraser, 2010).

Table 4.3 Ability to Differentiate Between Faculties (ANOVA Results) for each WIHIC Scale

Scale	ANOVA Eta ²
Student Cohesiveness	0.03**
Teacher Support	0.04**
Involvement	0.03**
Investigation	0.03**
Task Orientation	0.03**
Cooperation	0.02*
Equity	0.02*

** $p < 0.01$ * $p < 0.05$

The sample consisted of 994 students in 13 schools.

The η^2 statistic (which is the ratio of 'between' to 'total' sums of squares) represents the proportion of variance explained by class membership.

4.2.1.4 Discriminant Validity

Brown (2006) and Field (2009) explained that oblique rotation in exploratory factor analysis provides a realistic representation of how factors are interrelated. According to Field (2009), there should be a moderate relationship between factors based on theoretical grounds. However, factor correlations above 0.80 imply overlap of concepts and point towards poor discriminant validity (Brown, 2006). The component correlation matrix obtained from oblique rotation (reported in Table 4.4) indicates that the highest correlation was 0.43, thereby satisfying the criteria recommended by Brown (2006).

Table 4.4 Component Correlation Matrix for the Arabic Version of the WIHIC

	SC	TS	IN	PR	TO	CO	EQ
Student Cohesiveness (SC)	-						
Teacher Support (TS)	0.16	-					
Involvement (IN)	0.33	0.14	-				
Investigation (PR)	0.31	0.29	0.23	-			
Task Orientation (TO)	0.35	0.10	0.19	0.24	-		
Cooperation (CO)	0.37	0.02	0.43	0.30	0.27	-	
Equity (EQ)	0.14	0.41	0.27	0.27	0.09	0.15	-

4.2.2 Reliability and Validity of Engagement in English Language Learning and Self-Regulation (EELLS) Survey

To determine the reliability and validity of the EELLS, the data collected from 994 university-level student in Jordan were analysed to examine: the factor structure (Section 4.2.2.1); internal consistency reliability (Section 4.2.2.2); discriminant validity (Section 4.2.2.3); and, ability to differentiate between schools (Section 4.2.2.4).

4.2.2.1 Factor Analysis

As with the WIHIC, principal axis factor analysis with oblique rotation and Kaiser normalisation was used to examine the internal structure of the Arabic version of the EELLS. As the conventionally acceptable cut-off for factor loadings is 0.40 (as explained earlier) the two criteria for the retention of any item were that it must have a factor loading of at least 0.40 on its own scale and less than 0.40 on all other scales (Field, 1994; Stevens, 1992; Thompson, 2004). Of the original 32 items, seven items were found to be problematic and were removed from all further analysis, these being, item 3 (for Learning Goal Orientation), item 13 (for Task Value), items 19, 21 and 23 (for Self-Efficacy), and items 27 and 30 (for Self-Regulation). For the

remaining 25 items in four scales, the four-scale *a priori* factor structure was replicated (see Table 4.5).

The results, reported at the bottom of Table 4.5, show that the percentage of variance accounted for ranged from 9.46% to 19.73% for the different scales, with the cumulative variance being 63.85%. Also reported at the bottom of Table 4.5 are the eigenvalues which, for different scales, ranged from 2.37 to 4.93.

Table 4.5 Factor Loadings, Percentage of Variance and Eigenvalues for the Arabic Version of the EELLS

Item No	Factor Loading				
	Learning Orientation	Goal	Task Value	Self-Efficacy	Self-Regulation
1	0.73				
2	0.54				
4	0.77				
5	0.74				
6	0.81				
7	0.78				
8	0.71				
9			0.61		
10			0.73		
11			0.75		
12			0.69		
14			0.75		
15			0.77		
16			0.74		
17				0.65	
18				0.69	
20				0.66	
22				0.59	
24				0.51	
25					0.71
26					0.77
28					0.69
29					0.73
31					0.73
32					0.70
% Variance	19.73		18.16	9.46	16.50
Eigenvalue	4.93		4.54	2.37	4.12

Factor loadings smaller than 0.40 have been omitted.

N= 994 students in 13 schools

4.2.2.2 Internal Consistency Reliability

The internal consistency reliability, using Cronbach's alpha coefficient, was calculated for each EELLS scale for two units of analysis, namely, the individual student and the school mean. Table 4.6 shows that, with the student as the unit of analysis, alpha coefficients for the four scales ranged from 0.73 to 0.85. With the school mean as the unit of analysis, alpha coefficients ranged from 0.71 to 0.96. These results, for both the individual and the school mean as the unit of analysis were all above 0.70, the cut-off point for reliability coefficients that is considered to be 'acceptable' in most social science research situations (Streiner & Norman, 2003).

Table 4.6 Internal Consistency Reliability (Cronbach Alpha Coefficient) for Two Units of Analysis for each EELLS Scale

Scale	Unit of Analysis	No of Items	Alpha Reliability
Learning Goal Orientation	Individual	7	0.77
	School Mean		0.96
Task Value	Individual	7	0.77
	School Mean		0.83
Self-Efficacy	Individual	5	0.73
	School Mean		0.71
Self-Regulation	Individual	6	0.85
	School Mean		0.62

The sample consisted of 994 students in 13 schools

4.2.2.3 Ability to Differentiate between Schools

To examine the ability of each scale of the Arabic version of the EELLS to differentiate between perceptions of students in different schools, an analysis of variance (ANOVA) with school membership as the main effect was used. Table 4.7 reports the ANOVA results, which indicate the extent to which students in the same school have similar self-reports of motivation while self-reports vary from school to school. The analysis revealed statistically significant differences ($p < 0.05$) for three of

the four EELLS scales, the exception being for Self-Regulation. The η^2 statistic represents the proportion of variance in a scale score accounted for by school membership which ranged from 0.02 to 0.03 for the different EELLS scales. These results were similar to studies that have utilised the SALES, from which the EELLS was developed (Velayutham, Aldridge & Fraser, 2011).

Table 4.7 Ability to Differentiate Between Faculties (ANOVA Results) for each EELLS Scale

Scale	ANOVA Eta ²
Learning Goal Orientation	0.03**
Task Value	0.03**
Self-Efficacy	0.03**
Self-Regulation	0.02

** $p < 0.01$

The sample consisted of 994 students in 13 schools

The η^2 statistic (which is the ratio of 'between' to 'total' sums of squares) represents the proportion of variance explained by class membership.

4.2.2.4 Discriminant Validity

Finally, the component correlation matrix, generated during oblique rotation was used to determine the discriminant validity of each of the four scales. Discriminant validity is a measure of the extent to which scales that should not be related to each other, actually are not related. Table 4.8 reports the results of these analyses. The highest correlation was 0.62, thereby meeting Brown's (2006) recommended cut off criteria of 0.80.

Table 4.8 Component Correlation Matrix for the EELLS

	Learning Goal Orientation	Task Value	Self- Efficacy	Self- Regulation
Learning Goal Orientation	–			
Task Value	0.40	–		
Self-Efficacy	0.62	0.44	–	
Self-Regulation	0.42	0.46	0.37	–

These results strongly support the factorial validity of the revised four-scale, Arabic version of the EELLS when used with university-level students in Jordan. These findings are consistent with previous research involving use of the SALES, from which the EELLS was adapted (Velayutham, Aldridge & Fraser, 2011). Furthermore, these reports suggest that the results generated to answer the research questions can be interpreted with confidence.

4.3 Associations between Students' Perceptions of the Learning Environment and their Motivation and Self-Regulation

A strong tradition in past learning environment research has involved investigating associations between students' outcomes (e.g., achievement and attitudes) and their perceptions of classroom environment. Based on my review of literature, I hypothesised that the learning environment that students were exposed to in English language classes would influence their motivation and self-regulation in English language learning. Therefore, the first research question sought to investigate whether there is an association between the nature of the classroom learning environment and students' motivation and self-regulation in English language learning, and asked: *Is there a relationship between the nature of the classroom learning environment and students' motivation and self-regulation in learning English as a second language at the university level in Jordan?*

Both simple and multiple correlation analyses were used to investigate whether relationships exist between students' perceptions of their learning environment and self-reports of motivation and self-regulation, using the individual as the unit of analysis. As described in Chapter 3, simple correlation (r) was used to examine the

bivariate relationships between the scales of the WIHIC and the EELLS and multiple regression analysis was then used to provide a more complete picture of the joint influence of the environment dimensions on engagement outcomes. This analysis served also to reduce the Type I error rate associated with simple correlation analysis.

The standardised regression weights were examined to determine which of the learning environment scales influenced student motivation when all of the other environment variables were mutually controlled. For the regression analysis, the set of seven learning environment scales constituted the independent variable and the set of EELLS scales constituted the dependent variables. To interpret which individual learning environment scales made the largest contribution to explaining variance in engagement outcomes, I examined which relationships were statistically significant ($p < 0.05$). The results are reported separately for each EELLS scale of: Learning Goal Orientation (Section 4.3.1.1); Task Value (Section 4.3.1.2); Self-Efficacy (Section 4.3.1.2); and, Self-Regulation (Section 4.3.1.3).

4.3.1 Learning Goal Orientation

The results of the simple correlation analysis, reported in Table 4.9, show that all seven of the WIHIC scales were statistically significantly ($p < 0.05$) related to Learning Goal Orientation. Furthermore, all of these correlations were positive in direction and ranged from 0.07 for the Involvement scale to 0.26 for the Cooperation scale.

Analyses and Results

Table 4.9 Simple Correlation and Multiple Regression Analysis for Associations between Motivation and Self-Regulation and Classroom Environment Using the Individual as the Unit of Analysis

Scale	Motivation-Environment Associations							
	Learning Goal Orientation		Task Value		Self-Efficacy		Self-Regulation	
	<i>r</i>	β	<i>R</i>	β	<i>r</i>	β	<i>r</i>	β
Student Cohesiveness	0.25**	0.24**	0.26**	0.08*	0.17**	0.20**	0.22**	0.10**
Teacher Support	0.08*	-0.03	0.08*	0.01	0.11**	0.08*	0.16**	0.08*
Involvement	0.07*	-0.10**	0.07*	-0.03	0.17**	-0.05	0.13**	0.12**
Investigation	0.17**	-0.03	0.17**	0.13**	0.21**	0.16**	0.28**	0.16**
Task Orientation	0.33**	0.19**	0.33**	0.24**	0.18**	0.15**	0.38**	0.20**
Cooperation	0.26**	0.01	0.26**	0.01	-0.03	0.02	0.24**	0.02
Equity	0.24**	0.19**	0.30**	0.14**	-0.14**	0.23**	0.30**	0.11**
Multiple Regression (R)		0.44**		0.41**		0.40**		0.33**

* $p < 0.05$ ** $p < 0.01$ N=994 students in 13 schools

The multiple correlation (R) (reported in Table 4.9) for the seven scales was 0.44 and was statistically significant ($p < 0.01$). To identify which classroom environment scales contribute to variance in Learning Goal Orientation, the standardised regression weights (β) were examined. The results, reported in Table 4.9, show that the four WIHIC scales of Student Cohesiveness, Involvement, Task Orientation, and, Equity were statistically significantly ($p < 0.05$) related to Learning Goal Orientation. It is notable that, for one of the learning environment scales, Involvement, the direction of the correlation was negative, suggesting that the more involved the students in English classes, the lower their self-report of Learning Goal Orientation.

4.3.2 *Task Value*

The results of the simple correlation, reported in Table 4.9, show that all seven learning environment scales were statistically significantly correlated ($p < 0.05$) to Task Value. The correlations for those scales with a statistical significance ranged from 0.07 for the Involvement scale to 0.33 for the Task Orientation scale.

The multiple correlation (R), used to examine the joint influence of the seven WIHIC scales on Task value was 0.41 and was statistically significant ($p < 0.01$). The standardised regression weights (β) were examined to identify which of the learning environment scales were most likely to contribute to variance in Task Value. The four learning environment scales of Student Cohesiveness, Investigation, Task Orientation and Equity were found to be statistically significantly and positively correlated ($p < 0.05$) to Task Value.

4.3.3 *Self-Efficacy*

The results of the simple correlation analysis between the seven WIHIC scales and four EELLS scales, reported in Table 4.9, shows that, six of the seven WIHIC scales were statistically significantly correlated ($p < 0.05$) to Self-Efficacy, with the exception being the Cooperation scale. The correlations for those scales with a statistical significance ranged from 0.18 for the Task Orientation scale and 0.23 for the Equity scale. All of the statistically significant correlations were positive in direction.

The multiple correlation (R) for the seven WIHIC scales with Self-Efficacy was 0.40 and was statistically significant ($p < 0.01$). Examination of the standardised regression weight (β) suggest that six of the seven learning environment scales individually account for statistically significant ($p < 0.01$) amounts of variance in students' self-efficacy, the exception being the Cooperation scale.

4.3.4 Self-Regulation

The results of the simple correlation analysis indicated that all seven WIHIC scales were statistically significantly ($p < 0.01$) and positively correlated to the Self-Regulation scale. The correlations ranged from 0.13 for the Involvement scale to 0.38 for the Task Orientation scale.

The multiple correlation (R) between the learning environment scales and Self-Regulation was 0.33 and was statistically significant ($p < 0.01$). The standardised regression weights indicate that six of the seven WIHIC scales statistically significantly ($p < 0.05$) account for appreciable amounts of variance in Self-Regulation, these being: Students Cohesiveness; Teacher Support; Involvement; Investigation; Task Orientation; and, Equity; with the exception being Cooperation.

4.4 Associations between Students' Motivation (Learning Goal Orientation, Task Value and Self-Efficacy) and their Self-regulation

My second research question investigates whether relationships exist between students' motivation (in terms of Learning Goal Orientation, Task Value and Self-Efficacy) and their Self-Regulation in English language learning, and asked: *Is there a relationship between students' self-reports of their motivation and their self-regulation in learning English as a second language at the university level in Jordan?*

As with the analysis for Research Question One, both simple and multiple correlation analyses were used to investigate whether relationships exist between students' self-reports of motivation (Learning Goal Orientation, Task Value and Self-Efficacy) and Self-Regulation. Whereas simple correlation (r) was used to examine the bivariate

relationships, multiple regression analysis was used to provide a more complete picture of the joint contribution of the motivation dimensions on Self-Regulation. For the regression analysis, the set of three motivation scales constituted the independent variable and the Self-Regulation scale constituted the dependent variable.

The results of the simple correlation analysis, reported in Table 4.10, indicated that all three motivation scales were statistically significantly ($p < 0.01$) and positively correlated to the Self-Regulation scale. The correlations ranged from 0.11 for the Self-Efficacy scale to 0.51 for the Task Value Scale.

The multiple correlation (R) between the three motivation scales and Self-Regulation was 0.52 and was statistically significant ($p < 0.01$). The standardised regression weights, reported in Table 4.10, indicate that two of the motivation scales, namely, Learning Goal Orientation and Task Value, statistically significantly ($p < 0.05$) account for appreciable amounts of variance in Self-Regulation.

Table 4.10 Simple Correlation and Multiple Regression Analysis for Associations between Motivation and Self-Regulation Using the Individual as the Unit of Analysis

Scale	Motivation-Self-Regulation Associations Self Regulation	
	r	β
Learning Goal Orientation	0.44**	0.18**
Task Value	0.51**	0.39**
Self-Efficacy	0.11**	0.33
Multiple Regression (R)		0.52**

** $p < 0.01$ N=994 students in 13 schools

4.5 Gender Differences between Male and Females Students' Perceptions of Learning Environment and their Motivation and Self-Regulation

To examine the differences between the perceptions of male and female students (Research Question 3), one-way multivariate analysis of variance (MANOVA) was used. Because the multivariate test yielded significant results overall for the set of seven WIHIC scales and four EELLS scales as dependent variables using Wilks' lambda criterion, the univariate ANOVA was interpreted separately for each of the scales.

Whereas MANOVA was used to investigate the statistical significance of the differences between male and female responses, effect sizes were used to describe the magnitude or educational importance of those differences, as recommended by Thompson (1998) and Cohen (1977). The effect size, which was calculated by dividing the difference between means by the pooled standard deviation, expresses the difference in standard deviation units.

The ANOVA results, reported in the right hand column of Table 4.11, indicate that there was a statistically significant ($p < 0.05$) difference between male and female students' perceptions of the learning environment for five of the seven scales, these being, Student Cohesiveness, Teacher Support, Involvement, Task Orientation and Cooperation. An examination of the means, reported in Table 4.11, indicates that, for three of the WIHIC scales with a statistically significant difference, male students scored higher than their female counterparts, these being, Teacher Support, Involvement and Investigation. For the other two WIHIC scales with a statistically significant difference, Student Cohesiveness and Cooperation, females scored higher than their male counterparts.

The effect sizes for those scales with a statistically significant difference ranged from 0.07 standard deviations, for the Student Cohesiveness scale, to 0.14 standard deviations for the Teacher Support scale. According to Cohen's (1988) criteria, the magnitudes of these differences fall in the small to medium range.

Table 4.11 Average Item Mean, Average Item Standard Deviation, Effect Size and MANOVA Results for Differences between Scores for Male and Female

Scale	Average Item Mean		Average Item Standard Deviation		Difference	
	Male	Female	Male	Female	Effect Size	F
Learning Environment						
Student Cohesiveness	3.56	3.66	0.75	0.76	0.07	3.72*
Teacher Support	2.95	2.69	0.92	0.93	-0.14	15.43**
Involvement	2.77	2.55	0.81	0.88	-0.13	14.67**
Investigation	2.95	2.89	0.78	0.81	-0.04	0.88
Task Orientation	3.61	3.82	0.79	0.86	0.13	14.52**
Cooperation	3.36	3.54	0.91	0.87	0.10	8.39**
Equity	3.59	3.59	0.84	0.87	0.00	0.00
Motivation and Engagement						
Learning Goal Orientation	3.95	4.17	0.86	0.77	0.13	15.43**
Task Value	3.88	4.1	0.85	0.81	0.13	13.29**
Self-Efficacy	2.52	2.28	0.98	0.89	-0.13	13.06**
Self-Regulation	3.71	3.85	0.75	0.79	0.09	7.18**

Effect size was calculated using formula of $d = M_1 - M_2 / \sqrt{[(\sigma_1^2 + \sigma_2^2) / 2]}$

$N = 306$ male students and 681 female students in 13 schools

* $p < 0.05$ ** $p < 0.01$

The MANOVA results, reported in the second part of Table 4.11, show that male and female students' self-reports of motivation and self-regulation were statistically significantly ($p < 0.01$) different for all four EELLS scales (Learning Goal Orientation, Task Value, Self-Efficacy, and, Self-Regulation). The average item means, reported in Table 4.11, indicate that for three of the four EELLS scales, female students scored more positively than their male counterparts, these being, Learning Goal Orientation, Task Value, and Self-Regulation. Conversely, for Self-Efficacy, male students scored more positively than their female counterparts. These results suggest that, although females tend to be more learning goal oriented, value the tasks provided in English language learning and employ Self-Regulated strategies

more often than their male counter-parts, the male students hold stronger beliefs about their ability to do well in English language learning than did the female students.

4.6 Chapter Summary

The study reported in this thesis sought to examine students' perceptions of their learning environment and their motivation and self-regulation in English language classes. Given that the two surveys used in the present study (WIHIC and EELLS) were developed for use in a Western context it was necessary to modify and translate them both to make them suitable for use at the university level in Jordan. The Arabic versions of the two surveys (one to assess students' perceptions of their learning environment and the other to assess students' motivation and self-regulation) were pilot tested with a sample of 50 students. Ten of these students' also were involved in focus group interviews to ensure the face validity of the instruments. These data were used to ensure the readability of the items and to ensure that the administration process was appropriate in terms of length of time involved and students' ability to understand the response format. The results of the pilot study indicated that the questionnaires were acceptable.

Data collected from 994 students were used to determine the factor structure, internal consistency reliability, ability to differentiate between schools (ANOVA) and discriminant validity of the WIHIC and EELLS. For the Arabic version of the WIHIC, principal axis factoring followed by oblique rotation led to the removal of seven items. The remaining 49 items all had a factor loading of at least 0.40 on their *a priori* scale and no other scale (with the exception of one item). The total variance for the WIHIC scales was 57.37% ranging from 2.91% to 25.90% for different scales. The eigenvalues were all above 1 and ranged from 1.43 to 12.30.

The alpha coefficient for different WIHIC scales ranged from 0.79 to 0.91 with the individual as the unit of analysis and from 0.71 to 0.96 with the school as the unit of analysis. The ANOVA results indicated that all of the WIHIC scales were able to differentiate between the perceptions of students' in different schools. The

correlation matrix, obtained from oblique rotation, indicated that all scales of the WIHIC satisfied the discriminant validity criteria.

For the EELLS, principal axis factoring followed by oblique rotation led to the removal of seven items. The remaining 25 items all had a loading of 0.40 on their *a priori* scale and no other scale. The percentage of variance varied from 9.46% to 19.73% for different scales, with the total variance accounted for being 63.85%. The eigenvalue varied from 2.37 to 4.93. The alpha reliability ranged from 0.73 to 0.85 with the individual as the unit of analysis and from 0.71 to 0.96 with the school mean as the unit of analysis. The ANOVA results indicated that three of the four EELLS scales could differentiate between the motivations of students in different schools, with the exception being for Self-Regulation. The results generated from the component correlation matrix met the criteria for discriminant validity.

To investigate whether associations existed between the learning environments created in the university-level English language classes and students' motivation (Learning Goal Orientation, Task Value and Self-Efficacy) and Self-Regulation, simple correlations and multiple regression analysis were undertaken. The multiple correlations between the learning environment scales and each of the motivation outcomes were statistically significant for all four scales. Overall, the results suggest strong and positive associations between students' perceptions of the learning environment and students' motivation and engagement.

Similarly, the results for the simple correlation and multiple regression analysis to investigate associations between students' motivation and self-regulation suggested that Learning Goal Orientation and Task Value were likely to explain students' Self-Regulation in English language learning. The results of the simple correlation analysis showed that all three motivation scales were statistically significantly ($p < 0.05$) and positively related to students' Self-Regulation. The multiple correlation (R) was statistically significant and the results of the multiple regression show that two of the three motivation scales account for significant amounts of variation in Self-Regulation, these being, Learning Goal Orientation and Task Value.

When comparing males and females in terms of their perceptions of the learning environment, there were statistically significant differences for five of the seven WIHIC scales. Males were found to have statistically significantly higher scores for Teacher Support, Involvement and Investigation than their female counterparts and females had statistically significantly higher scores for Teacher Support and Cooperation than their male counterparts. The effect sizes (calculated to determine the magnitude of the differences in standard deviations) were small to medium in magnitude (ranging from 0.07 to 0.14 standard deviations) for those WIHIC scales with a statistically significant difference. In terms of motivation and self-regulation, for three of the four EELLS scales, female students scored more positively than their male counterparts (Learning Goal Orientation, Task Value and Self-Regulation) and male students scored more positively than their female counterparts for Self-Efficacy.

The next chapter discusses these results in terms of teaching and learning in English language classes in Jordan.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 Introduction

This study investigated students' perceptions of the learning environment and their motivation and self-regulation in classrooms teaching English as a second language at the university level in Jordan. The sample involved 994 students, who were studying in 13 schools, across three faculties, at the Jordan University of Science and Technology (JUST) in Jordan. Data collection involved the administration of two instruments, one to assess students' perceptions of their learning environment (the What is Happening In this Class? questionnaire) and another to assess students' engagement in classrooms teaching English as a second language and self-efficacy (Engagement in English Language Learning and Self-Regulation survey).

This chapter concludes the thesis and is organised under the following headings:

- Summary and Discussion of the Major Findings (Section 5.2);
- Constraints and Limitation of the Study (Section 5.4);
- Contributions of the Study (Section 5.5);
- Suggestions for the Future Research (Section 5.6); and,
- Concluding Remarks (Section 5.7).

5.2 Summary of the Major Findings of the Study

This section summarises the reliability and validity of the instruments and each of the research questions. Also included in this section is a discussion of the results.

5.2.1 *Research Question One: Reliability and Validity of the Instruments*

To provide confidence in the findings of subsequent research questions, it was important to establish the reliability and validity of the instruments. To examine the reliability and validity of the questionnaires when modified and translated into Arabic and used in university-level English language classrooms in Jordan, the data collected from 994 students were analysed in various ways, the results of which are summarised below for the What Is Happening In this Class? questionnaire (Section 5.2.1.1) and the Engagement in English Language Learning and Self-Regulation survey (section 5.2.1.2).

5.2.1.1 *Validity of the What is Happening In this Class? (WIHIC) Questionnaire*

The results of the exploratory factor analysis using principal axis factoring with oblique rotation confirmed the *a priori* factor structure of the original seven scales of the WIHIC, namely: Student Cohesiveness; Teacher Support; Involvement; Investigation; Task Orientation; Cooperation; and, Equity. The internal consistency reliability ranged from 0.79 to 0.91 with the individual as the unit of analysis and from 0.71 to 0.96 with the school mean as the unit of analysis.

The ability of each scale to differentiate between the perceptions of students in different schools was investigated using a one-way analysis of variance (ANOVA). The η^2 statistic was interpreted to provide a measure of the degree of association between school membership and the dependent variable for each of the learning environment scales. The results indicated that each of the seven WIHIC scales differentiated significantly ($p < 0.05$) between schools and the η^2 ranged from 0.02 to 0.04 for the sample.

Finally, the discriminant validity of the WIHIC was examined using the component correlation matrix generated during oblique rotation. The highest inter-scale correlation was 0.43, thereby satisfying the criteria for satisfactory discriminant validity.

The results of these analyses indicated that the Arabic version of the WIHIC had strong factorial validity and that each of the seven scales had high internal consistency reliability. Furthermore, for each scale, the mean perceptions of students within schools were similar to other students in the same school but different to the perceptions of students in other schools. Finally, the scales of the WIHIC satisfied the criteria with respect to discriminant validity.

For the first time, the widely-used WIHIC questionnaire was translated into Arabic and validated for use in Jordan at the university level. The WIHIC has never been used in Jordan, although the reliability and validity of the WIHIC has been confirmed across numerous studies around the world, including recent studies in: Australia (Dorman & Knightley, 2006) (Zandvliet & Fraser, 2005); India (Koul & Fisher, 2005); Indonesia (Fraser et al., 2010; Wahyudi & Treagust, 2004); New Zealand (Saunders & Fisher, 2006); Singapore (Chionh & Fraser, 2009; Khoo & Fraser, 2008); Turkey (Telli et. al, 2006); United Arab Emirates (Afari et al., 2013; MacLeod & Fraser, 2010); and, the US (Allen & Fraser, 2007; Martin-Dunlop & Fraser, 2008; Ogbuehi & Fraser, 2007; Rita & Martin-Dunlop, 2011; Wolf & Fraser, 2008). This Arabic version of the WIHIC underwent rigorous validity analyses to concomitantly determine convergent, discriminant and concurrent validity. The results provide strong support for the reliability and validity of this Arabic version of the WIHIC, making available a convenient tool that can be used by researchers and teachers to gather information about students' perceptions of their learning environment in university-level English classes in Jordan. These findings imply that the results of subsequent research questions can be interpreted with confidence.

5.2.1.2 *Validity of the Engagement in English Language Learning and Self-Regulation (EELLS) Survey*

The Students' Adaptive Learning Engagement in Science (SALES), originally developed for use in high school science classes by Velayutham, Aldridge and Fraser (2012), was modified to make it suitable for use in university-level English language classes in Jordan. Criterion-related validity for the EELLS was established by examining the factor structure, internal consistency reliability, ability to differentiate between schools and discriminant validity. The results of the exploratory factor analysis (principal axis factoring with oblique rotation) indicated that seven of the 32 items were problematic and, after their removal, all of the remaining items loaded on their *a priori* scale and no other scale. The internal consistency reliability values for each of the scales ranged from 0.77 to 0.85 for the individual as the unit of analysis and from 0.71 to 0.96 for the school as the unit of analysis.

The ability of each of the EELLS' scales to differentiate between the perceptions of students in the 13 schools was investigated using ANOVA, with school as the main effect. The statistically significant ($p < 0.05$) results suggest that three of the four EELLS' scales, the exception being for Self-Regulation, were able to distinguish between the motivation of students in different schools. The η^2 statistic, which represents the proportion of variance in a scale score accounted for by school membership, ranged from 0.02 to 0.03. It is possible that the inability of the Self-Regulation scale to differentiate between students' in different schools, might be because student self-regulation is explained by pressures from a range of sources, such as parental influence, that fall outside of what happens within university classrooms.

Finally, the correlation matrix obtained through principal components analysis using oblique rotation indicated that each scale distinctively measures a different facet of student motivation and self-regulation. The highest correlation was 0.62, which meets the recommended cut-off, thereby supporting the discriminant validity of the scales within the EELLS.

Overall, the results of the analysis strongly support the reliability and validity of the EELLS and fulfilled the requirements of criterion-related validity when used in university-level English language classes in Jordan.

5.2.2 Research Question One: Influence of Learning Environment on Students' Motivation and Self-Regulation

To examine the impact of students' perceptions of the learning environments in university English classes, on their motivation and self-regulation, Research Question One asked: *Is there a relationship between the nature of the classroom learning environment and students' motivation and self-regulation in learning English as a second language at the university level in Jordan?*

Simple correlation and multiple regression analyses, involving the data from 994 university-level English students, in 13 schools, across three faculties, were used to determine whether associations exist between the seven scales of the WIHIC and the four scales of the EELLS, namely, Learning Goal Orientation, Task Value, Self-Efficacy and Self-Regulation.

The results of the simple correlation suggest that all seven aspects of the psychosocial environment were likely to influence students' Learning Goal Orientation, Task Value and Self-Regulation in learning English as a second language and six of the seven learning environment aspects, the exception being that Cooperation was likely to influence Self-Efficacy.

The multiple correlation (R) for the seven scales of the WIHIC was statistically significant ($p < 0.01$) for all four outcomes: Learning Goal Orientation; Task Value; Self-Efficacy; and, Self-Regulation. The multiple regression (β) results suggest that four WIHIC scales were significant ($p < 0.05$) independent predictors of Learning Goal Orientation these being: Student Cohesiveness; Involvement; Task Orientation; and, Equity. Four of the scales were also significant independent predictors of Task Value these being: Student Cohesiveness; Investigation; Task Orientation; and Equity. The negative relationship between students' perception of Involvement and Learning Goal Orientation is notable, and suggests that those students in classrooms

that promote discussions and other interactive activities are less likely to have a learning goal orientation. Five of the seven WIHIC scales were significant ($p < 0.05$) and positive independent predictors for Self-Efficacy these being: Student Cohesiveness; Teacher Support; Investigation; Task Orientation; and Equity. Six of the seven WIHIC scales were found to be significant ($p < 0.05$) and positive independent predictors of Self-Regulation, the exception being Cooperation.

Overall the results showed a consistently strong and positive relationship between students' perceptions of the learning environments and their motivation and self-regulation. In particular the following three learning environment scales were statistically significant and related to all four motivation and self-regulation scales: (i) Task Orientation; (ii) Student Cohesiveness; and, (iii) Equity. The implications of these statistically significant relationships between the learning environment and student motivation and self-regulation in learning English as a second language are discussed below.

5.2.3 Research Question Two: Influence of Motivation on Self-Regulation

The subject of how students become self-regulated as learners has become a topic of interest for researchers in past decades (Zimmerman, 2008). To examine the influence of the students' motivation in English language learning at the university level in Jordan on self-regulation, Research Question Two asked: *Is there a relationship between students' self-reports of their motivation and their self-regulation in learning English as a second language at the university level in Jordan?*

As with Research Question One, the data gathered from 994 university level English students, drawn from 13 schools, across three faculties, were analysed using simple correlation and multiple regression analyses to determine whether associations exist between the students' self-regulation and the three motivation factors, namely, Learning Goal Orientation, Task Value and Self-Efficacy. The results of the simple correlation analyses suggested that all three motivation scales were likely to influence students' Self-Regulation in English language learning. Further, the multiple correlation (R) was found to be statistically significant ($p < 0.01$).

The results of the multiple regression analysis suggest that two of the three motivation scales, Learning Goal Orientation and Task Value, were statistically significant ($p < 0.05$) and positive independent predictors of Self-Regulation. The implications of these statistically significant relationships between motivation and self-regulation in English learning are discussed below.

Learning Goal Orientation was found to be a positive and significant independent predictor of Self-Regulation. According to Kaplan and Maehrer (2007), goal orientation theory has emerged as an important theoretical perspective in students' motivation in the past decades and, according to Ames and Archer (1988), students' learning goal orientation is a major predictor for motivated behaviour. The results of my study, with respect to the influence of learning goal orientation on students self-regulatory practice, replicates past research by Anderman and Midgley (1997) and Archer (1994) who found that promoting students' self-regulation in English language learning will be more successful if the teacher guides the students to focus on goal orientation. These findings suggest that teachers wishing to promote self-regulatory practices should design activities that remind the students to centre on goal orientation in the learning process.

My results also found that Task Value is significantly and positively related to student self-regulation, suggesting that students' perceptions about their learning tasks can affect their effort in completing the tasks. My findings were also similar to previous studies about the influence of task value and students' effort in academic tasks (Artino & Stephen, 2009; Hulleman et al, 2008; Wolters & Rosenthal, 2000). In particular, Wolters and Rosenthal (2000), purport that those students who believed that a learning activity was important and useful were more likely to make an effort to completing the learning activity.

It is noted, by Kitsantas, Winsler and Huie (2008), that by equipping students with self-regulatory strategies and positive motivation beliefs, teachers will help to prepare them for more demanding tasks in their academic journey. My findings indicate that students' goal orientation and task value in learning English as a second language are likely to influence their self-regulation. By better understanding the influence of motivation on self-regulatory practices, in particular learning goal

orientation and task value, teachers can plan and implement intervention strategies to encourage struggling students to persist and complete their learning task, promote healthy self-efficacy beliefs and design authentic learning tasks that have real-life applications.

5.2.4 Research Question Three: Differences between Males and Females

To examine whether differences exist for males and female in learning English as a second language, in terms of the learning environment and motivation and self-regulation, Research Question Three asked: *Do differences exist for male and female students in classes teaching English as a second language at the university level in Jordan, with respect to: perceptions of the classroom learning environment; and, engagement and self-regulation in language learning?*

Of the 994 students involved in the present study, 308 (approximately 30%) were male and 686 (approximately 70%) were female. To examine gender differences in terms of perceptions of the learning environment and motivation and self-regulation, one-way multivariate analysis of variance (MANOVA) was used. The results indicated that there was a statistically significant difference for five of the seven learning environment scales. For the scales with a statistically significant difference, female perceived more Student Cohesiveness, Task Orientation and Cooperation and less Teacher Support and Involvement than their male counterparts. These results are consistent with a number of past studies related to gender differences in perceptions of the learning environment as described below.

My results replicated those of Kim, Fisher and Fraser (2000), who found that female students perceived that their classes have greater levels of cohesiveness and more cooperation and less teacher support and involvement in the learning activities than their male counterparts. Similarly Khoo and Fraser (2008), in their evaluation of adult computer application courses in Singapore, reported that male students perceived that they received more teacher support and were more involved in the learning activities, whereas female students perceived that they are more task oriented.

In another study of gender differences, conducted by Wolf and Fraser (2008), significant gender differences were found for: Student Cohesiveness; Teacher Support; Investigation; and, Cooperation. Relative to males, females perceived more Student Cohesiveness and Cooperation and less Teacher Support and Investigation. Similarly, a study by Wahyudi and Treagust (2004) found that males perceived more teacher support than did females and female students perceived that the class to be more task orientated and that there was more cooperation between students. The results of my study replicated these findings.

The results of my study also indicated that there was a statistically significant difference between the motivation and self-regulation of male and female students for all four scales. The results indicated that females scored higher for the Learning Goal Orientation, Task Value and Self-Regulation scales, whilst male students scored higher for Self-Efficacy.

These findings are similar to those reported by Bembenutty (2007) who examined self-regulation in learning and the academic delay of gratification among college students. Bembenutty (2007) reported that male students, regardless of ethnicity, held higher self-efficacy beliefs than females. Pajares (2002) notes the importance of self-efficacy beliefs and self-regulated learning in improving the learning and academic success. In his study it was found that boys consistently rated themselves as more efficacious than did girls. Conversely, girls displayed more goal-setting and planning strategies and self-monitoring, than did boys. My findings also replicated those of Velayutham, Aldridge and Fraser (2012, 2013) whose results indicated gender differences in student motivation and self-regulated learning.

5.3 Practical Implications

The results of my study have practical implications for teachers in university-level English language classrooms in Jordan. The findings suggest that three aspects of the psychosocial learning environment (Student Cohesiveness, Task Orientation and Equity) were likely to influence students' Learning Goal Orientation, Task Value, Self-Efficacy and Self-Regulation in English language learning. The findings also indicated that Teacher Support was likely to influence both Self-Efficacy and Self-

Regulation. Additionally, the Involvement scale had a statistically significant influence on students' Learning Goal Orientation and Self-Regulation. The implications of these statistically significant relationships between the learning environment dimensions and student motivation and self-regulation in English language learning are discussed below.

The statistically significant relationship between Student Cohesiveness and all four outcomes, suggest that students are likely to have higher levels of motivation and self-regulation in classes where they have opportunities to form friendships and are supportive of one another. A study by Urdan and Schoenfelder (2006) indicated that peer relationships are an important dimension in the classroom. They suggest that when the teacher creates learning environments in which students are given opportunities to work together and to interact, they get to know each other well and establish social bonds. According to Ryan and Patrick (2001), such cohesiveness can lead to increased motivation and self-regulation in their learning. They note the positive relationship between social interactions among students and engagement to the learning task and that successful peer relationships and student cohesiveness are also important for academic achievement.

To create a cohesive learning environment, teachers could increase opportunities for student to use their language skills in direct communication with their peers in real-life situations. Ryan and Patrick (2001) suggest that, when students believe they are encouraged to know, interact with and help with classmates during lessons and when they view their classroom as one where their ideas are respected, they tend to engage in adaptive patterns of learning. If students are provided with opportunities to interact and work together so that they get to know each other well and to build positive social bonds during English language lessons, they are more likely to become cohesive and to experience increased motivation and self-regulation in their English language learning.

The strong and consistent link between the Task Orientation scale and all four motivation and self-regulation scales suggest that teachers wishing to improve the motivation and self-regulation of their students would benefit from encouraging students to focus on and complete planned activities and to stay on the subject

matter. It is widely recognised that the provision of clear goals, both short-term and long-term, is likely to give students' a sense of motivation and purpose (Killen, 2000). Therefore, to improve student motivation and self-regulation in English language classes, teachers might point out, to the students, the goals of each activity and ensure that students understand what they are required to accomplish in each task (Aldridge, Fraser, Bell & Dorman, 2012; Seifert, 2004). If these goals are clear and relevant, then students are more likely to be engaged in their learning. Coupled with the need to have meaningful goals is the need to have clear expectations and frequent feedback to ensure that students' time-on-task is optimised. Findings from this study support previous research that reports positive and statistically significant associations between task orientation and a range of student attitudes scales (Aldridge & Fraser, 2008; Chionh & Fraser, 2009; Fraser, 2007; Ogbuehi & Fraser, 2007). Specifically, my findings support the research conducted by Friesen (2011), Velayutham, Aldridge and Fraser (2013) and Aldridge, Fraser, Dorman and Bell (2012), which suggest that, for students to improve student motivation in academic tasks, teachers need to help them to set goals and to reinforce these with planned activities.

The strong, positive relationships between Equity and the four motivation and self-regulation outcomes indicate that students who perceive themselves to be treated equally by the teacher are more likely to be motivated and involve the use of self-regulatory practices in learning English as a second language. These findings suggest that, to improve students' motivation and self-regulation in English language classrooms, teachers should ensure that their students are given equitable opportunities to participate, regardless of their gender and level of progress. It would appear, from past research that the notion of equity and student cohesiveness are, to some extent, inter-related in the language learning classroom. For example, in one study, Chizhik (2001) reports that, during collaborative group work, equity influences individuals' participation in the learning process and students were found to be more task-orientated. The influence of the psychological processes involved in language learning and the importance of cooperation and group dynamics and students' motivation on student outcomes has been widely reported in the literature (Clement, Dörnyei & Noels, 1994; Dörnyei, 2007).

The results showed statistical significant relationships between teachers support and self-efficacy and self-regulation. Past research indicates that a supportive teacher can provide students with the confidence that they need to tackle new problems, take risks in their learning and to work on and complete challenging tasks (Loukas & Robinson, 2004; Wentzel, 1994; 1997). Students who perceive their teachers to be supportive are more likely to be engaged (Hughes, Zhang & Hill, 2006; Patrick, Ryan & Kaplan, 2007) and to seek help when they encounter difficulties (Marchand & Skinner, 2007). Meece (1991) suggested that teacher's provide support to students when they promote meaningful learning by facilitating collaboration among students and making learning materials relevant and interesting to students. Therefore, English Language teachers could improve their supportive roles by developing activities and materials that help students to value English language tasks, thereby encouraging them to focus on learning, understanding and mastering these tasks. Further, teachers could provide teaching activities that require collaboration between students to further promote teacher support.

The results indicated that Involvement had a statistically significant influence on students' Learning Goal Orientation and Self-Regulation in English language learning. This finding made sense given that classrooms which seek to maximise student involvement can help to focus the responsibility of learning on both the teacher and the learner as well providing an additional resource, the student themselves, as the vehicle for teaching and learning (Black & Wiliam, 2009). Students who are involved in classroom activities that encourage them to ask questions, explain ideas, give opinions and make use of students' ideas and suggestions in classroom discussions are more likely to be engaged in their English language learning. It also was noted that, the influence of involvement on self-regulation suggests that teachers who provide opportunities for students to take part in peer and class discussions are likely to elevate their students' willingness to engage in tasks. To promote students' involvement in English language classes, the teacher could craft activities and create situations where they can use the language for genuine communication in meaningful and motivating ways. The activities should also encourage intrinsic interest including arousal of curiosity and challenge.

According to Dörnyei (2008) motivation is a key factor in second language learning. Motivation provides the primary impetus to initiate learning and the driving force to sustain the continuing learning process which includes learning goal orientation and self-regulation. Therefore, examining ways in which students' motivation can be improved is important. English language classrooms in Jordan, at both the school and university levels, continue to be dominated by the traditional teaching methods with teacher-centred classes and repetitive drills. During the course of their study students spend most of their time listening to explanations of the structure of the language (Al-Jamal, 2004, 2008). Given the relative importance of motivation on students' outcomes, to be more effective and improve the learning outcome, teachers would do well to carefully examine the classroom environment that they are creating. More specifically teacher should focus on facilitating student cohesiveness, task orientation, equity, teacher support and involvement among students.

5.4 Limitations of the Study

Although important qualitative data was collected during the piloting of the surveys, this research was largely quantitative. Therefore, the study had several limitations shared by most survey research.

First, although the sample was drawn from a university with a large enrolment of over 22,000 students and involved the careful selection of students to ensure a range of faculties and schools, it is uncertain as to whether these findings are general to other universities or locations within Jordan. To examine whether these findings are indeed replicated in other institutions and faculties, it is recommended that future studies include samples across other universities in Jordan.

Second, although past research suggests that the context in which learning takes place is likely to affect students' motivation and self-regulatory practices, it is also possible that students' motivation and self-regulatory practices will affect the ability of teachers to maintain a positive learning environment. Therefore, to help to examine these effects further and to provide conclusions with respect to the direction of the effect, it would be useful to include longitudinal data and classroom-change interventions.

To examine relationships between the variables, simple correlations were used. When interpreting these results, it is acknowledged that the use of simple correlations may cause a distortion of the results since, when the elements of the WIHIC questionnaire are related to one of the elements of the EELLS questionnaire, the other elements in the EELLS questionnaire are not controlled. Given this limitation, it is recommended that future research involve correlations and partial correlations to overcome this limitation.

Finally, although this correlational study contributed to the understanding of how the learning environments created at the university level might explain students' motivation and self-regulation with regards to learning English as a second language, it was not possible to provide causal explanations for these results. It is recommended, therefore, that future studies involve the gathering of qualitative information, including the manipulation of the classroom environment dimensions, to provide causation information.

5.5 Contributions of the Study

The present study made an important contribution to the field of learning environment research that both reinforces and complements the recent research conducted in Middle-Eastern countries (MacLeod & Fraser, 2010; Zeidan, 2010; Afari, Aldridge, Fraser & Khine, 2013).

Although there have been a number of previous studies of classroom environments in the Middle-East (MacLeod & Fraser, 2010; Zeidan, 2010; Afari, Aldridge, Fraser & Khine, 2013), to date there have been no attempts to examine the psychosocial features of the learning environment in Jordan. Therefore, this study has made important contributions to the field of learning environments. As the first study within the field of learning environments to be carried out in Jordan at the university level, this study could guide future research into learning environments and students' engagement and self-regulation toward language learning in other Arab countries.

A major contribution of the present study was the modification and translation of two instruments that can be used at the university level in Jordan. The careful

modification and translation of the both the WIHIC and EELLS have provided valid and reliable instruments that can be used by researchers and educators in the future.

Numerous correlational studies, involving the learning environment and a range of student outcomes, have been carried out in the past. To date, however, only a handful, have been carried out in Arab countries (Khalil & Saar, 2009) and none at the university level in Jordan. As such, the results have the potential to assist current and future educators and researchers in gaining more insight into the language classroom environments at the university level.

It is anticipated that the findings from this study will have practical applications for the English language teachers in Jordan. In the context of the growing demand for acquiring English as a second language, the results could prove useful in terms of tailoring environments that improve students' motivation and self-regulation. The results of the study, which found strong, consistent and positive associations between the classroom environment and motivation and self-regulation in English language learning, can be used to enhance the learning environment.

5.6 Suggestions for Future Research

This exploratory study, as one of the first to be carried out in the field of learning environments in Jordan, paves the way for future research involving students' perceptions of learning environment and motivation and self-regulation in language learning. Given that the two questionnaires used in the present study were found to be valid, economical and parsimonious, they can be used with confidence in future studies in Jordan. Future research, involving the use of these instruments, could be carried out with other subject disciplines, besides English language learning.

Given that the surveys were administered to students in a single institution, it would also be illuminating for future researchers to conduct studies using larger and more diverse samples from a wider range of disciplines in more post-secondary institutions. This step would improve the generalisability of the findings.

In this study, students' perceptions of their preferred or ideal classroom environments were not considered. Given the availability of a valid instrument to assess the actual, modifications to the WHIC in future studies could provide important person-environment fit information. This information could then be used to examine how close actual classrooms are to the ideal or preferred classrooms, as perceived by the students.

The survey used in this study to assess motivation in language learning and self-regulation, EELLS, covers the four constructs of Learning Goal Orientation, Task Value, Self-Efficacy and Self-Regulation. It may be possible that learning goal orientation can further differentiate intrinsic and extrinsic motivation when learning English as a second language. It is also possible to explore how the perceptions of the classroom environment influence the motivational factors (Strayer, 2012).

Finally, future research should incorporate qualitative information from such sources as interviews and classroom observations. A combination of quantitative and qualitative methods would provide causal explanations for the data obtained from the questionnaires and surveys. Future research can also be conducted using interpretive approach as suggested by Tal (2001).

5.7 Concluding Remark

Whilst my findings might, in many respects, seem obvious, it would appear that many university level teachers in Jordan do not act accordingly. The current trend, which involves teaching in a traditional, didactic manner and a focus on academic achievement, at the exclusion of students' motivation and self-regulation, is of concern and the findings, reported in this thesis, suggest that a focus on changing elements of the learning environment could have a significant impact on outcomes in learning English as a second language.

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APPENDIX A

MAP OF JORDAN AND SURROUNDING COUNTRIES

Source: <http://www.wordtravels.com/travelguide/countries/Jordan/map>



APPENDIX B

DIRECTIONS AND ITEMS IN THE ARABIC VERSION OF THE WHAT IS HAPPENING IN THE CLASS? (WIHIC)

Scales modified from WIHIC (Aldridge, Fraser & Huang, 1999) and used with permission from the authors

Directions الإرشادات

These questionnaires contain statements about practices which could take place in this class. You will be asked how often each practice takes place.

يحتوي هذا الاستبيان على بيانات حول ممارسات يمكن ان تحدث في الصف المدرسي . سوف تسال كم مرة تحدث تلك الممارسة .

There are no 'right' or 'wrong' answers. Your opinion is what is wanted. Think about how well each statement describes what this class is like for you.

لا يوجد هناك اجابات بنعم او لا . رايك هو الشيء المطلوب . فكر كيف تصف كل من هذه البيانات وضع الصف بالنسبة لك .

Be sure to give an answer for all questions. If you change your mind about an answer, just cross it out and circle another.

تاكد من الاجابة على كل الاسئلة . اذا غيرت رايك في أي من الاجابات اشطبه وضع دائرة على الاجابة التي تريدها .

Some statements in this questionnaire are fairly similar to other statements. Don't worry about this. Simply give your opinion about all statements.

بعض البيانات في هذا الاستبيان شبيهة بالآخرى فلا تقلق من هذا ببساطة اطرح رايك في كافة البيانات .

1 I make friendships among students in this class.

أكون صداقاتي من بين طلاب هذا الصف

2 I know other students in this class.

اعرف طلابا آخرين في هذا الصف

3 I am friendly to members of this class.

إنني ودود تجاه طلاب هذا الصف

4 Members of this class are my friends.

طلاب هذا الصف أصدقائي

5 I work well with other class members.

اعمل جيدا مع طلاب الصفوف الأخرى

6 I help other class members who are having trouble with their work.

اساعد طلاب الصفوف الاخرين الذين لديهم مشكلات في عملهم .

- 7 Students in this class like me.
الطلاب في هذا الصف يشبهوني
- 8 In this class, I get help from other students.
في هذا الصف اتلقى مساعدة من طلاب اخرين
- 9 The teacher takes a personal interest in me.
يهتم المعلم شخصيا بي
- 10 The teacher goes out of his/her way to help me.
يبذل المعلم قصارى جهده لمساعدتي
- 11 The teacher considers my feelings.
يراعي المعلم مشاعري
- 12 The teacher helps me when I have trouble with the work.
يساعدني المعلم عندما واجه مشكلة في عملي
- 13 The teacher talks with me.
يتحدث المعلم الي
- 14 The teacher is interested in my problems.
يهتم المعلم بمشاكلي
- 15 The teacher moves about the class to talk with me.
يبحث المعلم عني في الصف ليتحدث الي .
- 16 The teacher's questions help me to understand.
اسئلة المعلم تساعدني كثيرا على الفهم
- 17 I discuss ideas in class.
اناقش افكارا معينة داخل الصف
- 18 I give my opinion during class discussion.
اعطي رأي خلال المناقشات في الصف
- 19 The teacher asks me questions.
يطرح المعلم اسئلة علي
- 20 My ideas and suggestions are used during classroom discussions.
تستخدم افكاري واقتراحاتي خلال المناقشات الصفية
- 21 I ask the teacher questions.
اطرح على المعلم اسئلة
- 22 I explain my ideas to other students.
اقوم بشرح افكاري للطلاب الاخرين
- 23 Students discuss with me how to go about solving

problems.

يناقش الطلاب مع طرق حل المشكلات

- 24 I am asked to explain how I solve problems.
يتم سؤالي كيف قمت بحل المشاكل
- 25 I carry out investigations to test my ideas.
اقوم بفحوص لاختبار افكاري
- 26 I am asked to think about the evidence for statements.
يتم سؤالي للتفكير في الدليل على الاقرارات
- 27 I carry out investigations to answer questions coming from discussions.
اقوم بفحوص للاجابة على اسئلة تنشأ عن المناقشات
- 28 I explain the meaning of statements, diagrams and graphs.
- 29 I carry out investigations to answer questions which puzzle me.
اقوم بفحوص للاجابة على الاسئلة التي تحيرني
- 30 I carry out investigations to answer teacher's questions.
اقوم بفحوص للاجابة على اسئلة المعلم
- 31 I find out answers to questions by doing investigation.
احصل على اجوبة على الاسئلة من خلال البحث
- 32 I solve problems by using information obtained from my own investigations.
اقوم بحل الاسئلة باستخدام معلومات احصل عليها من بحثي الخاص
- 33 Getting a certain amount of work done is important to me.
الحصول على مقدار معين من العمل المنجز مهم لي
- 34 I do as much as I set out to do.
اعمل بالقدر الذي اعدت فيه نفسي للعمل
- 35 I know the goals for this class.
اعرف اهداف هذا الصف
- 36 I am ready to start this class on time.
انني مستعد للبدء في هذا الصف في الوقت المحدد .
- 37 I know what I can accomplish in this class.
اعرف ما يمكنني ان انجزه في هذا الصف
- 38 I pay attention during this class.
انتبه اثناء هذا الصف
- 39 I try to understand the work in this class.

احاول فهم العمل في هذا الصف

- 40 I know how much work I have to do.
اعرف حجم العمل الذي يتوجب علي القيام به
- 41 I cooperate with other students when doing assignment work.
اتعاون مع الطلاب الاخرين لانجاز الواجبات المدرسية
- 42 I share my books and resources with other students when doing assignment.
اسمح لزملائي في استخدام كتبي ومصادري لانجاز الواجبات
- 43 When I work in groups in this class, there is teamwork.
عندما اعمل بصورة جماعية في هذا الصف يكون هناك فريق عمل
- 44 I work with other students on projects in this class.
اشارك زملائي في المشاريع في الصف
- 45 I learn from other students in this class.
اتعلم من زملائي في هذا الصف
- 46 I work with other students in this class.
اعمل مع زملائي في هذا الصف
- 47 I cooperate with other students on class activities.
اتعاون مع الطلاب الاخرين لانجاز الانشطة الصفية
- 48 Students work with me to achieve class goals.
يعمل الطلاب معي لانجاز الاهداف الصفية
- 49 The teacher gives me as much attention to my questions as to other students' questions.
يعير المعلم اسئلتي نفس الاهتمام الذي يعيره لاسئلة الطلاب الاخرين
- 50 I get the same amount of help from the teacher as do other students.
احصل على نفس المقدار من الاهتمام الذي يعطيه المعلم للطلاب الاخرين .
- 51 I have the same amount of say in this class as other students.
لدي نفس المقدار من الكلام في هذا الصف مثل الطلاب الاخرين
- 52 I am treated the same as other students in this class.
يتم معاملتي بنفس الطريقة مثل الطلاب الاخرين في الصف
- 53 I receive the same amount of encouragement from the teacher as other students do.
اتلقى نفس القدر من التشجيع الذي يتلقاه الطلاب الاخرين من المعلم

54 I get the same opportunity to contribute to class discussions as other students.

تتاح لي نفس الفرص للمشاركة في المناقشات الصفية مثل الطلاب الاخرين

55 My work receives as much praise as other students' work.

يتلقى عملي تقريبا بنفس القدر مثل عمل الطلاب الاخرين

56 I get the same opportunity to answer questions as other students

تتاح لي نفس الفرص للاجابة على الاسئلة مثل الطلاب الاخرين

APPENDIX C

ITEMS IN THE ARABIC VERSION OF THE ENGAGEMENT IN ENGLISH LANGUAGE LEARNING AND SELF-REGULATION (EELLS)

Scales modified form Students' Adaptive Learning Engagement in Science (SCALES) developed by Velayutham, Aldridge, & Fraser (2011). Used with permission from the authors.

Engagement in English Language Learning and Self-Regulation

القسم الرابع – الانخراط في تعلم اللغة الانجليزية والتنظيم الذاتي

توجيه أهداف التعلم Learning goal orientation

- 1 One of my goals is to learn as much as I can.
احد أهدافي هو التعلم بقدر ما أستطيع
- 2 One of my goals is to learn new language contents.
احد أهدافي هو تعلم محتويات لغوية أخرى
- 3 One of my goals is to master new language skills.
احد أهدافي هو التفوق في مهارات لغة جديدة
- 4 It is important that I understand my work.
من المهم فهم عملي
- 5 It is important for me to learn the language content that is taught.
من المهم لي تعلم محتوى اللغة الذي تم تدريسه لي
- 6 It is important to me that I improve my language skills.
من المهم لي تطوير مهاراتي اللغوية
- 7 It is important that I understand what is being taught to me.
من المهم لي فهم ما تم تدريسه لي.
- 8 Understanding language ideas is important to me.
فهم الأفكار اللغوية مهم لي

قيمة الواجب Task value

- 9 What I learn can be used in my daily life.
ما أتعلمه يمكن استخدامه في الحياة اليومية
- 10 What I learn is interesting.
ما أتعلمه ممتع
- 11 What I learn is useful for me to know.
ما أتعلمه مفيد إن أعرفه
- 12 What I learn is helpful to me.
ما أتعلمه مفيد لي
- 13 What I learn is relevant to me.
ما أتعلمه وثيق الصلة بي
- 14 What I learn is of practical value.

ما اتعلمه له قيمة عملية كبيرة

15 What I learn satisfies my curiosity.

ما اتعلمه يرضي فضولي

16 What I learn encourages me to think.

ما اتعلمه يشجعني على التفكير

Self-efficacy الكفاءة الذاتية

17 I can master the skills that are taught.

استطيع التفوق في المهارات التي تم تدريسها لي

18 I can figure out how to do difficult work.

استطيع ان احدد كيف يمكنني انجاز عمل صعب

19 Even if the language work is hard, I can learn it.

حتى لو كان درس اللغة صعبا يمكنني تعلمه

20 I can complete difficult work if I try.

استطيع اكمال العمل الصعب اذا حاولت

21 I will receive good grades.

ساحصل على درجات جيدة

22 I can learn the work we do.

استطيع تعلم العمل الذي اقوم به

23 I can understand the contents taught.

استطيع فهم المحتويات التي اتعلمها

24 I am good at this subject.

انني جيد في هذا الموضوع

Self-regulation التنظيم الذاتي

25 Even when tasks are uninteresting, I keep working.

حتى عندما تكون الواجبات غير ممتعة فانني اواصل العمل .

26 I work hard even if I do not like what I am doing.

انني ابذل اقصى الجهود حتى لو كنت لا احب ما اقوم به

27 I continue working even if there are better things to do.

استمر في العمل حتى لو كان هناك اشياء افضل للقيام بها

28 I concentrate so that I won't miss important points.

اركز بحيث لا تضيع مني النقاط المهمة

- 29 I finish my work and assignments on time.
أقوم بانجاز عملي وواجباتي في الوقت المحدد
- 30 I don't give up even when the work is difficult.
لا استسلم حتى عندما يكون العمل صعبا
- 31 I concentrate in class.
اركز في الصف
- 32 I keep working until I finish what I am supposed to do.
استمر في العمل حتى انجز ما يتوجب علي ان انجزه

Thank you for your cooperation in completing this questionnaire
شكرا على تعاونك في ملء هذا الاستبيان

APPENDIX D

LETTER CONFIRMING ETHICS APPROVAL

Memorandum

To	Eman Al Zaibudi, SMEC
From	Pauline Howat, Administrator, Human Research Ethics Science and Mathematics Education Centre
Subject	Protocol Approval SMEC-104-11
Date	11 January 2012
Copy	Jill Aldridge, SMEC

Office of Research and Development

Human Research Ethics Committee

Telephone 9266 2784

Facsimile 9266 3793

Email hrec@curtin.edu.au

Thank you for your "Form C Application for Approval of Research with Low Risk (Ethical Requirements)" for the project titled "*Investigating the learning environment, student motivation and self-regulation in second language learning at the university level in Jordan*". On behalf of the Human Research Ethics Committee, I am authorised to inform you that the project is approved.

Approval of this project is for a period of twelve months **19th December 2011 to 18th December 2012**.

The approval number for your project is **SMEC-104-11**. *Please quote this number in any future correspondence.* If at any time during the twelve months changes/amendments occur, or if a serious or unexpected adverse event occurs, please advise me immediately.



PAULINE HOWAT
 Administrator
 Human Research Ethics
 Science and Mathematics Education Centre

Please Note: The following standard statement must be included in the information sheet to participants:
This study has been approved by the Curtin University Human Research Ethics Committee (Approval Number SMEC-104-11). If needed, verification of approval can be obtained either by writing to the Curtin University Human Research Ethics Committee, c/- Office of Research and Development, Curtin University of Technology, GPO Box U1987, Perth, 6845 or by telephoning 9266 2784 or hrec@curtin.edu.au

APPENDIX E

PARTICIPANT INFORMATION SHEET

Participant Information Sheet

My name is Eman Al Zubaidi. I am currently completing research for my PhD in education at Curtin University, Australia. The title of my research topic is “Motivation, Self-Regulation and Learning Environment Perceptions: Learning English as a Second Language at the University Level in Jordan”.

Purpose of Research

The purpose of my research is to investigate whether learning English as a second language, at the university level, is different in terms of students’ perceptions of the learning environment as well as their motivation, self regulation and attitudes towards English language learning.

Your Role

My research will involve asking you, the students, to complete a set of questionnaires related to the learning environment in your English classes, your attitudes towards learning English as a second language and how you rate your engagement and self-regulation in English language learning. Your teacher has already been contacted and agreed, in principle, to the project. The questionnaire that will be administered will take between 30 and 40 minutes to complete. Once the study is finished, I will provide you with information related to the findings.

Consent to Participate

Your involvement in the research is entirely voluntary. You have the right to withdraw at any stage without affecting your rights or my responsibilities. When you have signed the consent form I will assume that you have agreed to participate and allow me to use your data in this research.

Confidentiality

The information you provide will be kept separate from your personal details, and only my supervisor and I will have access to this. All paper-based data will be kept in a locked cabinet for at least five years, before a decision is made as to whether it should be destroyed.

Further Information

The Curtin University Human Research Ethics Committee (Approval Number HR99/2011) has approved this study. The Committee is comprised of members of the public, academics, lawyers, doctors and pastoral carers. Its main role is to protect participants. If needed verification of approval can be obtained either by writing to the Curtin University Human Research Ethics Committee, c/ Office of Research and Development, Curtin University, GPO Box U1987, Perth, 6845 or by telephoning 9266 2784 or emailing hrec@curtin.edu.au. If you have any questions related to this research then please feel free to contact either myself Eman Al Zaibudi on alzubaidi@ecae.ac.ae, or my supervisor Jill Aldridge on J.Aldridge@curtin.edu.au.

Thank you very much for your involvement in this research.
Your participation is greatly appreciated.

APPENDIX F

STUDENT CONSENT FORM

STUDENT CONSENT FORM

Investigating the learning environment, student motivation and self regulation in second language learning: A comparative study of two Arab nations

Kindly complete the consent below to acknowledge your willingness to participate in research at your university.

I, from (University) **consent** to participate in the study being conducted by Eman Al Zubaidi. I acknowledge that:

- The study has been explained to me.
- I understand that my participation is entirely voluntary.
- I understand that I am free to discontinue my participation in the study at any time without penalty.
- I understand that the personal information supplied by me in the questionnaire will be treated in strict confidence and that I will remain anonymous. Within these restrictions, results of the study will be made available at my request.
- I understand that the information contained in the questionnaire will be stored securely for a five-year period, and after that period of time the information will be destroyed. I understand that the information will not be given to any other researcher or agency without my written consent.
- I understand that, at my request, I can receive additional explanation of the study at any time.
- I understand that the results of this study will be submitted for publication to national and international journal(s).

Name: _____ Date: _____

Signature: _____