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# A comparison of gifted high, moderate, and low achievers in their motivation, self-regulation, motivational goals, goal orientations, and attitudes toward their school and teachers

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**A COMPARISON OF GIFTED HIGH, MODERATE, AND LOW  
ACHIEVERS IN THEIR MOTIVATION, SELF-REGULATION,  
MOTIVATIONAL GOALS, GOAL ORIENTATIONS, AND  
ATTITUDES TOWARD THEIR SCHOOL AND TEACHERS**

by

**Hanan Al Hmouz**

Submitted to the Faculty of  
Education in fulfillment  
of the requirements for the degree of  
Doctor of Philosophy

University of Wollongong

2008

## **CERTIFICATION**

I, Hanan Al-Hamouz, declare that this thesis, submitted in partial fulfillment of the requirements for the award of Doctor of Philosophy, in the Faculty of Education, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Hanan Al Hmouz

3 October 2008

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## ABSTRACT

Underachievement among gifted students is a perplexing phenomenon since there is no universally agreed definitions of underachievement and giftedness in the literature. Statistics have shown that the problem is common and serious enough to draw researchers' attention to it. The literature suggested that underachievement might be attributed to a combination of several factors, which include school factors, family factors, peer influence, learning disability, and personality characteristics. Personality factors like motivation and self-regulation were considered important variables in gifted achievement.

This study examines the problem of underachievement among gifted high school students. Low achievers were compared to high and moderate achievers on their motivation, self-regulation, motivational goals, goal orientations, and attitudes toward their school and teachers and class. Participants were all highly able students from grades 10 and 11 in two academically selective high schools, one in Amman, Jordan (n=169) and the other in New South Wales, Australia (n=197). Teachers were asked to rank the students into high, moderate, and low achievers in terms of their performance in two subjects, Arabic and Mathematics in Jordan and English and Mathematics in Australia. Participants were asked to respond to three surveys that measured their motivation, self-regulation, motivational goals, goal orientations, and attitudes toward their school and teachers: the School Attitude Assessment Survey-R (SAAS), the Inventory of School Motivation Scale -R (ISM) and the Motivated Strategies for Learning Questionnaire (MSLQ-R). The results indicate that motivation, self-regulation, motivational goals, goal orientations, and attitudes differentiated the three groups of achievers. In addition, the results indicated that there was a significant difference between males and females as well as between tenth and eleventh grade students in the variables measured in this study. Further, culture played an important role in affecting the results of both Jordanian and Australian studies.

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# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Introduction to the problem**

Linking underachievement with gifted students is unusual since it is generally believed that gifted students possess a cognitive ability for success in schools and they are not expected to underachieve. Questions such as what might affect students' achievement and whether gifted high achievers differ from gifted low achievers in personality characteristics are still a concern for many researchers such as McCoach and Siegle (2003a). Researchers such as Freeman (1998) have shown that highly able students are not a homogeneous group whether in terms of learning style, creativity, speed of development, personality or social behavior. Therefore, there is a need to understand the nature of such students; the differences between students who belong to this group; and, whether these differences affect their achievement. The purpose of this study, then, was to investigate the differences between tenth and eleventh grade high achieving, moderate achieving and low achieving gifted students in terms of motivation, self-regulation, motivational goals, goal orientation and their attitudes toward school and teachers. The participants were enrolled in two selective schools for intellectually gifted students, one in Amman Jordan and the other in New South Wales Australia. This chapter is divided into the following areas: background to the study, the purpose of the study, definition of giftedness in Jordan, definition of giftedness in Australia, research questions and hypotheses, the significance of the study, and arrangement of the thesis.

## 1.2 Background to the study

Underachievement is one of the perplexing phenomena associated with gifted students as there is no universally agreed definition of underachievement in the literature of giftedness (Reis & McCoach, 2000). Hoffman, Wasson, and Christianson (1985) reported that an estimated 50% of students with high ability do not achieve well. Seeley (1993) estimated that 15% to 40% of gifted students are at risk of school failure. Recently, Mathews and McBee (2007) investigated the underachievement of gifted students in summer education programs; they found that less than 10% of students could be considered underachievers. They stressed that even though 10% seemed a small percentage of underachievers in comparison with the literature, the problem was common enough and serious enough to draw researchers' attention to it. According to these statistics the problem does exist and might continue to increase if it is not investigated.

Researchers attribute underachievement to a combination of several factors that come together and cause students to underachieve (Baker, Bridger, & Evans, 1998; Clark, 1992; Davis & Rimm, 1998; Emerick, 1992; Pendarvis, Howley, & Howley, 1990; Peters, Grager-Loidle, & Supplee, 2000; Seely, 1993). These factors can be ordered as follows: first, researchers suggested that underachievement might be related to school factors (Baker et al., 1998; Davis & Rimm, 1998; Emerick, 1992; Matthews & McBee, 2007; McCoach & Siegle, 2003a; Rimm, 1997; Seely, 1993; Whitmore, 1980). Second, other researchers emphasized that underachievement might be related to family factors (Baker, et al., 1998; Clark, 1992; Reis & McCoach, 2000; Rimm, 1997). Third, other groups of researchers emphasized that underachievement might be related to more serious physical, cognitive, or emotional issues such as learning disabilities, attention deficits, emotional disturbances, psychological disorders, or other health impairments (Dowdall & Colangelo, 1982; Pendarvis, et al., 1990; Reis & McCoach, 2000). Fourth, underachievement might be related to peer influence (Peters, et al., 2000; Reis & McCoach, 2000). Finally, underachievement might be related to the personality characteristics of gifted students such as low motivation, low self-regulation, and low self-efficacy (McCoach & Siegle, 2003a; Peterson & Colangelo, 1996; Reis & McCoach, 2000). Indeed, personality factors like motivation and self-regulation were considered important variables in gifted achievement for two reasons. First, these variables were emphasized in the definitions of giftedness such as in

Renzulli's (1978) and Sternberg's (1997) definitions. Second, the literature has shown the importance of these variables in differentiating gifted underachievers from achievers (McCoach & Siegle, 2003a).

Although numerous studies have investigated personality factors such as motivation, self-regulation, and goal orientation using a comparison design, most of these studies compared gifted achievers and underachievers (McCoach & Siegle, 2003a), or compared gifted students and non-gifted students (Davis & Connell, 1985; Ford, 1995). In contrast, little research has compared three levels of gifted achievers. Also, most of these studies either focused on one variable such as motivation (Philips & Lindsay, 2006; Valhovick-Stetic, Vidovic, & Arambasic, 1999), self-regulatory strategies (Muir-Broadbent, 1995; Ruban & Reis, 2006), or goal orientations (Dai, 2000; Mattern, 2005) or combined two variables such as motivation and self-regulation (Lau & Chan, 2001b; Yumusak, Sungur, & Cakiroglu, 2006) or self-regulation and goals (Ablard & Lipschultz, 1998; Albaili, 1998). By contrast, little research has compared high achievers and low achievers combining motivation, self-regulation, motivational goals, and goal orientations together and explored how these variables are related to gifted students' achievement. The importance of investigating all these variables together is related to the fact that children's goals affect their self-regulation and motivation and how they engage and respond to academic tasks (Ablard & Lipschultz, 1998; Hidi & Harackiewicz, 2000).

In terms of motivation among gifted students most of the literature has investigated motivation in primary or junior high school children (Davis & Connell, 1985; Neber & Schommer-Aikins, 2002; Vlahovic-Stetic et al, 1999). By contrast, little research has investigated motivation among high school students even though researchers have indicated that it is important to investigate motivation among high school students since their achievement and motivation decreased with age (Eccles & Midgely, 1989; Gottfried, Marcoulides, Gottfried, Oliver, & Guerin, 2007). Further, little research has compared gifted high achievers and low achievers in terms of intrinsic and extrinsic motivation.

In terms of the use of self-regulatory strategies among gifted students, the literature is still inconsistent since some studies showed that self-regulation was related to achievement (Ablard & Lipschultz, 1998; Muir-Broadbent, 1995; Pintrich & De Groot, 1990) while other studies suggested the opposite (Malpass, O'Neil, & Hoyer, 1999; Rao, Moely, & Sachs, 2000). Also, most of this literature has compared gifted

high achievers and low achievers in regular classrooms (Dresel & Haugwitz, 2005; Lau & Chan, 2001b; Muir-Broaddus, 1995). By contrast little research has investigated self-regulatory strategies in selective schools, although the context played an essential role in the gifted students' use of self-regulatory strategies (Dresel & Haugwitz, 2005). In addition, little research has investigated the impact of culture on gifted students' use of self-regulatory strategies, which is important since research has shown that culture also has a great effect on the type of self-regulatory strategies used by gifted students (Lau & Chan, 2001b; Purdie & Hattie, 1996).

Similarly, the literature is also unclear in terms of goal orientations among gifted students since some studies reported that high achievers were more oriented toward mastery goals (Ablard & Lipschultz, 1998; Dweck & Leggett 1988) while other studies suggested that performance goals are likely to relate to achievement only in conjunction with mastery goal orientations (Pintrich, 2000b). Therefore, there is a need to further investigate the use of these goals within their context to understand how these goals are used and how they affect students' achievement. Also, most of these studies have focused on the use of mastery and performance goals and ignored the social goal (Ablard & Lipschultz, 1998; Chessor, 2004; Dweck & Leggett 1988; Ee Moore, & Atputhasamy, 2003).

In terms of the relationship between goals and positive or negative outcomes the literature is still unclear since some studies suggested that mastery goals are linked to positive outcomes such as achievement and self-regulation (Ames & Archer, 1988; Dweck & Leggett, 1988; Pintrich & De Groot, 1990) and performance goals are related to negative outcomes like shallow strategies and withdrawal of effort (Albaili, 2003; Albaili, 1998). By contrast, other studies have showed that performance goals are related to positive outcomes such as cognitive and metacognitive strategies (Bouffard, Cvezeau, & Brodeleau, 1998) and increase in academic performance (Bouffard, et al., 1998; Ee et al, 2003).

In terms of the role of school environment in affecting students' achievement most of the literature has compared gifted high achievers and low achievers in regular classrooms. Little research has compared gifted students' attitudes in a selective program or school, which is important since research has indicated that gifted students' attitudes affect their achievement in regular classrooms. Also, some research has indicated that gifted students' motivation and goals declined in selective programs for gifted and talented students (Chessor, 2004; Craven et al, 2000). Furthermore research

has indicated that students' attitudes toward school declined as they got older (Wigfield & Eccles, 1992).

Finally, in terms of gender most of the literature indicated that males were more likely to have negative outcomes than females in terms of achievement, self-regulation, goal orientation, and attitudes (Coalngelo, Kerr, & Maxy, 1993; Matthews & McBee, 2007; McCall, Beach, & Lau, 2000; Tuss, Zimmer, & Ho, 1995; Whitmore, 1980). Nevertheless, little research has investigated gender differences among gifted students in terms of motivation, self-regulation, goal orientation, and attitudes toward school in selective school environments.

Overall, although the literature has examined motivation, self-regulation and goal orientations among achieving and underachieving gifted students, the literature is still limited, particularly in terms of theory, cross-cultural studies, and in investigating all the motivational variables together. The main purpose of this research, therefore, is to address this gap, and empirically examine whether there are differences between gifted high, moderate, and low secondary school students in terms of motivation, self-regulation, motivational goals, goal orientations, and attitudes toward their selective schools and teachers, and it does so from cultural, gender, grade, achievement in subject-area, and goal theory perspectives. The study took a comparative approach since underachievement has not been looked in Jordan. Also, the literature suggested that there is a cross cultural difference in the use of self-regulatory strategies (Purdie & Hattie, 1996) and the orientations toward task and effort (Tuss, Zimmer, & Ho, 1995). Therefore, a comparative study of an Arabic and western country has the potential to contribute to this literature.

### **1.3 Definition of giftedness in Jordan**

Education is viewed in Jordan as a keystone for development and progress for both individuals and society. Jordan, like many modern countries, has given great attention to gifted education since it is considered very important for society. However, the country has suffered from political, economical and social problems that leave little time for providing for gifted and talented children (Subhi & Maoz, 2000). The schooling system in Jordan consists of three stages: elementary (6-12), preparatory (13-15) and secondary (16-19), with the first two stages being compulsory for boys and girls.

Gifted children are identified in Jordan as those who have demonstrated high ability, high creativity and high task commitment. In addition, they added another criterion, which is high achievement in Mathematics (Subhi & Maoz, 2000). Standardized intelligence tests, creativity and achievement tests measure abilities and task commitment is measured by achievement and rating scales and judgment of teachers and parents (Subhi & Maoz, 2000). Therefore, multiple criteria identification procedures were adopted in Jordan, particularly in the Jubilee School in which the study was undertaken. Many programs are developed to cater and meet the needs of gifted children, including acceleration, grade skipping, enrichment, Friday and summer programs and special schools. Overall, it seems that Renzulli's definition of giftedness has been used in Jordan to identify gifted students.

#### **1.4 Definition of giftedness in Australia**

In Australia, each state has its own department of education and policies concerning the gifted. In NSW there are different provisions to meet the needs of gifted children, which include acceleration, grade skipping and special classes. Yet, NSW is different from the other states in that it provides Agricultural Schools and Secondary Selective Schools. These selective schools are characterized by competitive academic entrance requirements (Braggett & Moltzen, 2000). Gagné's definition has been adopted by the NSW Department of Education (Merrotsy, 2003) and, as mentioned previously, Gagné (1995) differentiated between giftedness and talent and considered the roles of intrapersonal and environmental catalysts, particularly motivation, in the process of talent development.

Overall, although Jordan and Australia have used different definitions of giftedness in their policies, it seems that some of the procedures used to select participants in both selective schools in Jordan and NSW Australia are similar.

#### **1.5 Purpose of the study**

This study aimed to investigate the differences among high achieving, moderate achieving, and low achieving high school students in terms of motivation, self-regulation, motivational goals, goal orientations, and their attitudes toward their selective school and teachers from gender, grade, cultural, achievement in subject-area, and goal theory perspectives.

## **1.6 Research Questions**

Q1: To what extent do high achievers, moderate achievers, and low achievers differ in their motivation, self-regulation, motivational goals, goal orientations, and attitudes toward their school and teachers?

Q2: What is the relationship among motivation, self-regulation, motivational goals, goal orientation, and attitudes and consequently achievement?

## **1.7 Research Hypotheses**

- 1- Males will score lower than females in motivation, self-regulation, motivational goals, goal orientations, and attitudes.
- 2- There will be no differences between tenth and eleventh grade students in terms of motivation, self-regulation, motivational goals, goal orientations, and attitudes.
- 3- There will be no differences between the Jordanian and Australian sample in motivation, self-regulation, motivational goals, goal orientations, and attitudes.

## **1.8 Significance of the study**

The present study will be an important study in the literature on gifted students' education for several reasons. First, it represents an important step toward identifying the differences among high, moderate, and low achievers on motivation, self-regulation, motivational goals, goal orientations, and attitudes toward the school and teachers. Second, the outcomes of this study may help educators to create programs that meet the needs of gifted students. Also, investigating motivation, self-regulation and goal orientations together will help to understand more clearly the picture of gifted students' achievement since all these variables are related and may combine in explaining gifted students' achievement. Third, investigating the feeling of belonging to school and the relationship between teachers and students based on the students' attitudes will help these schools to work on these issues that affect students' achievement. Finally, the cross cultural aspect of the study will help in drawing generalizations about the differences among the three levels of gifted achievers in both Jordan and Australia in terms of motivation, self-regulation, motivational goals, goal orientations, and attitudes toward the school and teachers.

## **1.9 Arrangement of the thesis.**

In the line with the concerns of the present study, the next chapter will review the literature related to gifted achievers' and underachievers' motivation, self-regulation, motivational goals, goal orientations, and attitudes toward the school and teachers and class. Following this, the method and instruments employed in this research will be outlined in chapter 3. Then details of the results will be presented with particular emphasis on the questions of the study in chapter 4. Chapter 5 will discuss and compare in details the results of both studies. Also, it will present the conclusion and recommendations, the limitations of the study, and directions for future research.



# **CHAPTER TWO**

## **LITERATURE REVIEW**

### **Introduction**

Gifted underachievement has been a focus of research for over 35 years, with many researchers pointing to the tremendous waste of human potential, socially as well as personally, that it represents (Emerick, 1992). Statistics have shown that as many as 50% of gifted students underachieve (Heacox, 1991; Hoffman, et al., 1985). Personality factors have been considered one of the significant factors that lead gifted students to underachieve (Reis & McCoach, 2000). Research has shown, for example, that motivation, self-regulation, motivational goals, and goal orientations are important characteristics in differentiating gifted high achievers from low achievers (Ablard & Lipschultz, 1998; Albaili, 2003; Lau & Chan, 2001b; McCoach & Siegle, 2003a). Also, researchers have emphasized that gifted students' attitudes toward their school and teachers might affect achievement and consequently differentiate gifted high achievers from low achievers (McCoach & Siegle, 2003a). This chapter reviews background information related to the definitions of giftedness, definitions of underachievement, methods of identification, and causes of underachievement. This is followed by research pertinent to the main questions raised in this study. These questions focus on, first, differences between gifted achievers and underachievers in terms of motivation, self-regulation, motivational goals, goal orientations and attitudes toward the school and teachers. Second, the questions focus on the relationship among these variables. Finally, this chapter will review the relationship between gender and underachievement in terms of these variables.

## **2.1 Definition of giftedness**

Sternberg and Davidson (1986) emphasized the importance of having a 'useful' definition of giftedness. They stated:

Giftedness is something we invent, not something we discover: it is what one society or another wants it to be, and hence its conceptualization can change over time and place. If the definition of giftedness is a useful one, then it can lead to favorable consequences of many kinds, both for the society and for its individuals. If the definition of giftedness is not useful, valuable talents may be wasted and less valuable ones fostered and encouraged. It is thus important to us all to understand just what it is we, and others, mean by the concept of giftedness. (pp. 3-4)

Similarly, Renzulli (1986) stated:

A definition of giftedness is a formal and explicit statement that might eventually become part of official policies or guidelines. Whether or not it is the writer's intent, such statements will undoubtedly be used to direct identification and programming practices, and therefore we must recognize the consequential nature of this purpose and the pivotal role that definitions play in structuring the entire field. (p. 54)

Defining intelligence and giftedness are considered a challenge for many psychologists and researchers. Through the literature there are many definitions of giftedness. In fact, the definition of giftedness varies from one country to another and even from one state to another (Reis & McCoach, 2000). One recent definition that has influenced the literature on giftedness is the Differentiated Model of Giftedness and Talent by Gagné (1995).

Gagné (1995) proposed a set of aptitudes or gifts which the child develops into talents through interaction with a range of intrapersonal and environmental catalysts. In the intrapersonal catalysts, motivation plays a crucial role in initiating, guiding and sustaining the process of talent development. In the environmental catalysts, school environment and teachers play an integral role in recognizing and developing giftedness (Gagné, 1995). Gagné (1995) describes giftedness as the possession and use of untrained and spontaneously expressed superior natural abilities or aptitudes at levels significantly above average in one or more of the following domains of human ability:

intellectual, creative, social and physical. Gagné (1995) suggested that at least 10% of the population could be considered gifted in the intellectual domain. In contrast, talent is linked to being above average in one or more areas of the following domains of human performance: arts in all forms, business and commerce, caring services, communications, media, science, technology and sport (Gagné, 1995).

Gagné's definition has been adopted for this study for several reasons. First, this definition is widely accepted in many countries and most importantly it is used in the policy of the NSW education system where the study was located. Furthermore, Gagné (1995) highlighted the difference and relationship between giftedness and talent, which are two basic concepts in the field. Moreover, Gagné's model highlighted that there is a gap between potential and performance which is significant for this study, which focuses on achievement (Gagné, 1995). Therefore, this definition provides a key to understanding underachievement, suggesting that gifts that do not develop into talents represent underachievement (Gagné, 1995).

Researchers (Clark, 1992; Davis & Rimm, 1998; Pendarvis, Howley, & Howley, 1990; Renzulli, 1978) stressed that whether a person is judged as gifted depends upon the values of the culture and different cultural groups show different mean levels of performance on intelligence tests. In other words, different cultures perceive giftedness differently due to different values and views of giftedness in these cultures. Therefore, it is important to recognize how giftedness is defined in both Jordan and Australia since the study is cross-cultural as will be presented in the method chapter. Culture, like giftedness, has many definitions, however, in this study culture is related to how particular groups of people perceive giftedness in relation to their values and views at two levels: the macro level (the whole community), and the micro level (the school community).

## **2.2 Definitions of underachievement**

Giftedness and underachievement seem to be mutually exclusive concepts as many writers have observed. Hoover-Schultz (2005) wrote:

Gifted underachievement, at first glance, seems like an oxymoron. How can a gifted student also be an underachiever? By implicit definition gifted students are those who have developed high levels of intelligence and consistently perform at these high levels (Clark, 2002). Underachievement, on the other

hand, is associated with a failure to do well in school. This seeming mismatch of terms is puzzling--giftedness and underachievement do not mesh. Like an oxymoron, they are at opposite ends of the educational spectrum. It is no wonder that the underachievement of gifted students is such a mystery. (p1)

However, as long ago as the nineteen-sixties, Ralph, Goldberg, and Passow (1966) observed that "the intellectually gifted underachiever is an ubiquitous phenomenon, identifiable in all schools at all academic level; but he appears a most significant challenge at the secondary school level" (p. 1).

Reis and McCoach (2000) pointed out the importance of defining giftedness and underachievement before discussing any issues related to gifted underachievement. As mentioned previously, there is no single concise definition of giftedness and definitions differ from state to state and even from school to school (Ford, 1992; Reis & McCoach, 2000). Similar problems exist in defining underachievement. In the literature of giftedness there are many definitions of gifted underachievement, with no universally agreed definition of underachievement.

Some researchers (see, for example, Carr, Borkowski, & Maxwell, 1991) defined underachievers as labels attached to students by researchers and teachers, based on perceptions of inadequate school-based performance. McCall, Evahn, and Kratzer (1992) defined underachievement as performance as judged by either grade or achievement test scores that are significantly below the measured or demonstrated aptitudes or potential for academic achievement. Heacox (1991) stated anywhere from five to fifty percent of students identified as gifted and talented may also be underachievers. Stoeger and Ziegler (2005) chose, as criteria for gifted underachievement, an IQ of 130 or above and a scholastic achievement level at least one standard deviation below this score. Supplee (1990) defined the underachiever as an elementary student with high academic ability and low academic achievement. Clark (1992) defined the gifted underachiever as someone who has performed exceptionally well on a measure of intelligence but does not perform as well as expected for students of the same age on school-related tasks.

Overall, most researchers agreed that underachievement was related to a discrepancy between expected and actual performance (Clark, 1992; Davis & Rimm, 1998, Dowdall & Colangelo, 1982; Emerick, 1992; Lau & Chan, 2001a; McCoach & Siegle, 2003a; Reis & McCoach, 2000; Rimm, 1995, 1997; Seely, 1993; Supplee, 1990; Stoeger & Ziegler, 2005; Whitmore, 1980). The problem in operationalising this

definition of underachievement is related to the complexity of measuring both ability and performance, along with the discrepancy between them (McCall, Beach, & Lau, 2000; Peters, Grager-Loidl, & Supplee, 2000).

In general, there are two methods of defining underachievers: the statistical and nomination method (Lau & Chan, 2001a). In the statistical method, there are three different statistical approaches for selecting underachievers. First, the absolute split approach identifies underachievers as students who score higher than a certain minimum — for example, top 5% on a measure of mental ability — but score lower than a certain maximum — for example, bottom 5% on a measure of academic performance (Lau & Chan, 2001a; McCall et al, 2000). Several studies have used this method (Baslanti & McCoach, 2006; Colangelo, Kerr, & Maxy, 1993; Lau & Chan, 2001a; McCoach & Siegle, 2003a; Muir-Broaddus, 1995; Rayneri, Gerber, & Wiley, 2003; Ruban & Reis, 2006). The limitation of this method is that underachievers with lower levels of mental ability are excluded in the selection. Also, the absolute values of score depend totally on the particular assessment scale or sample, and there is no agreement on what particular splits should be used (Lau & Chan, 2001a).

Second, the simple difference score method may be used to select underachievers within various levels of mental ability (Lau & Chan, 2001a). In this method, researchers make a calculation of the discrepancy score by subtracting the standardized performance score from the standardized ability score. Those students whose discrepancy scores are greater than one are selected as underachievers (Lau & Chan, 2001a). A number of studies have used this method (Carr et al., 1991; Preckel, Holling, & Vock, 2006; Lau & Chan, 2001a; Stoeger & Ziegler, 2005; Tuss, Zimmer, & Ho, 1995). Some researchers stressed that the statistical problem of this method is related to what is called the ‘regression toward the mean’ problem. In other words, individuals who score extremely high on one test are not expected to score quite so high on the other and vice versa (Lau & Chan, 2001a).

The third technique is the regression method, in which researchers usually calculate the regression of the achievement measure on the ability measure and then calculate the deviation of each student’s score from the regression line (Lau & Chan, 2001a). Students with a large negative deviation, usually greater than one standard error of estimate, are identified as underachievers (Lau & Chan, 2001a; McCall et al, 2000). Some studies have used this method (Cheung & Rudowicz, 2003; Lau & Chan, 2001a). This approach can include underachievers with different levels of mental ability, and

has better reliability than the method of simple difference scores (McCall, et al., 2000). Similar to the other two statistical methods, a criticism of the approach is that the use of a cut-off point, such as one standard error, is arbitrary (Lau & Chan, 2001a; McCall et al., 2000). Moreover, the approach will always generate a constant proportion of students as underachieving in any sample since underachievers are defined as students who fall one standard error below the regression of achievement on mental ability score (Lau & Chan, 2001a).

In the nomination method, teachers, parents or peers are asked to nominate who they think is underachieving or who has good potential but performs poorly (Lau & Chan, 2001a). The nomination may occur by completing a checklist or through an interview by the researcher. Following nomination, discrepancies between ability and achievement are calculated for the nominated population to identify underachievers (Lau & Chan, 2001a). Studies which used this method included those by Baum, Renzulli, and Hébert (1995), Carr, Borkowski, and Maxwell (1991), Lau and Chan (2001a), and Street (2001). Nomination is frequently used in practical contexts such as in education and counseling (Lau & Chan, 2001a). Also, it is more subjective than the other statistical methods, therefore, underachievers selected by this method could be very different from those selected by statistical methods (Lau & Chan, 2001a). Nevertheless, Borland (1978) argued that teachers were better identifiers of giftedness if they were asked to rate specific indicators of giftedness rather than general ability, and their assessments correlated better with IQ under those conditions. Further, he commented that teachers were better identifiers of gifted underachievers.

Overall, each method has its own strengths and limitations. Teachers' nomination is used in this study for several reasons. First, teachers in these selective schools are experienced teachers in the field of gifted education, therefore, they are well placed to determine when a student is underachieving. Second, teachers were not asked to pick gifted students from non-gifted students. In this study all participants were high ability students in two selective schools, therefore, nominations from within these selective schools were used where the assumption was that the students would have scored highly on the test given at the end of elementary school. Third, underachievers were identified in terms of two subject areas, Arabic or English and Mathematics, and, as research has shown, teachers were better identifier of giftedness if they were asked to rate specific indicators of giftedness rather than general ability (Borland, 1978). Thus, it

was believed that teachers would be able to identify the underachievers for the purposes of this study.

In summary, although there are differences in definitions and measurement, the most common definition of gifted underachievement was a discrepancy between potential achievement and actual achievement (Clark, 1992; Davis & Rimm, 1998, Dowdall & Colangelo, 1982; Emerick, 1992; Lau & Chan, 2001a; Lau & Chan, 2001b; McCoach & Siegle, 2003a; Reis & McCoach, 2000; Rimm, 1997, 1995; Supplee, 1990; Seely, 1993; Stoeger & Ziegler, 2005; Whitmore 1980). Therefore, this definition is used in this study, with teachers' nominations being the way that the discrepancy was operationalized.

### **2.3 Causes of underachievement**

In the literature, a number of contributing factors to gifted underachievement have been identified. Researchers attribute underachievement to a combination of several factors that come together and cause students to underachieve (Baker, Bridger, & Evans, 1998; Clark, 1992; Davis & Rimm, 1998; Emerick, 1992; Pendarvis, et al., 1990; Peters et al., 2000; Seely, 1993). Therefore, the causes of underachievement can be organized as follows: first, researchers have suggested that underachievement might be related to school factors (Baker, Bridger, & Evans, 1998; Davis & Rimm, 1998; Emerick, 1992; Matthews & McBee, 2007; McCoach & Siegle, 2003a; Rimm, 1997; Seely, 1993; Whitmore, 1980). Second, other researchers argued that underachievement might be related to family factors (Baker, et al., 1998; Clark, 1992; Reis & McCoach, 2000; Rimm, 1997). Third, other groups of researchers indicated that underachievement might be related to more serious physical, cognitive, or emotional issues such as learning disabilities, attention deficits, emotional disturbances, psychological disorders, or other health impairments (Dowdall & Colangelo, 1982; Pendarvis, et al., 1990; Reis & McCoach, 2000). Fourth, underachievement might be related to peer influence (Reis & McCoach, 2000; Peters et al., 2000). Finally, underachievement might be related the personality characteristic of gifted students such as low motivation, low self-regulation, and low self-efficacy (McCoach & Siegle, 2003a; Peterson & Colangelo, 1996; Reis & McCoach, 2000). Therefore, this research seeks to investigate differences between high achieving, moderate achieving and low achieving high school students in terms of motivation, self-regulation, motivational

goals, goal orientations, and their attitudes toward their selective schools and teachers and does so from gender, grade, cultural, achievement in particular subjects, and goal theory perspectives.

## **2.4 Motivation**

Motivation is an important concept in the learning process and relevant to all students (Martin, 2002). Motivation is related to the child's energy and the drive to try hard, study effectively, improve and work according to his or her potential (Ryan & Deci, 2000). In other words, someone who is energized or activated toward an end is considered motivated. Conversely, a person who feels no impetus or inspiration to act is characterized as unmotivated (Ryan & Deci, 2000).

In the literature on gifted education, motivation is also recognized as playing an integral role in achievement. Terman and Oden (1959) stressed that their sample of gifted people did not differ based on intelligence but they differed significantly based on personality and motivational patterns. Feldhusen (1986) considered motivation as an essential component of his definition of giftedness. Silverman (1994) regarded motivation as an important affective factor contributing to the success of intellectually gifted students. Moreover, some authors have included motivation in their definition of giftedness. For example, Renzulli (1978) described motivation as task commitment and saw it as one of three essential components in giftedness. Gagné (1995) included motivation in his model of giftedness and talent as one of the important intrapersonal catalysts, which affects the development of aptitude into talent. Significantly, Gottfried and his colleagues (2005) suggested that gifted motivation is a construct in its own right that contributes uniquely to educational success and is not identical to gifted intellect. Hence, motivation is so important that Gottfried recommended that it should be considered as a criterion in, and of itself to improve selection into programs for gifted and talented (Gottfried, Gottfried, Cook, & Morris, 2005).

### **2.4.1 Theories of Motivation**

There are numerous theories that explain motivation. Schunk, Pintrich, and Meece (2008) divided motivation theories into historical theories and contemporary theories. Historical theories included Freud's Theory, Behavioural Theories, Drive theories, Arousal Theories, Purposive Theories, Cognitive Consistency theories, and



Humanistic theories (Schunk et al., 2008). The contemporary theories of motivation included Expectancy-Value theories of motivation, Attribution theories, Social Cognitive theories, and Goal Orientation Theory (Schunk et al., 2008).

Schunk and his colleagues (2008) emphasized that the difference between historical theories and contemporary theories is that the latter assume that motivation involves cognition, or people's thoughts, beliefs, goals, and self-representation. Second, current theories assume that motivation bears reciprocal relations with other achievement outcomes such as learning, performance, and self-regulation. Thus, according to the contemporary theories, students with higher academic motivation are predicted to learn more, achieve at higher levels, show greater interest in learning, and display better self-regulatory effort directed toward learning (Schunk et al., 2008). Third, contemporary theories assume that motivation is a complex phenomenon which involves a host of personal, social and contextual variables. Fourth, contemporary theories emphasized that motivation changes with human development. This indicates that as students develop from children into adults, the influences on motivation, its manifestation, and the variables it influences, change (Schunk et al., 2008). Finally, contemporary theories assume that motivation reflects individual, group, and cultural differences. Motivation can vary as a function of culture, socioeconomic status, ethnicity, gender, and ability level. This does not mean that generalization can be made about motivation, but it does mean that conclusions must be drawn judiciously with reference to the characteristics of the learners being studied (Schunk et al., 2008).

In short, all of the assumptions of the contemporary theories mentioned above are related to the focus of this study. One of the contemporary theories that exemplifies most of these assumptions is Goal Orientation theory and is used in this study.

#### **2.4.1.1 Goal Orientation Theory**

Goal orientation is considered one of the more prominent theories within motivational research (Ames, 1992; Anderman & Maehr, 1994; Dweck & Leggett, 1988; Schunk et al., 2008). It was developed to explain achievement behaviour, children's learning and performance on academic tasks and in school settings (Schunk et al., 2008).

Goal theory is related to the role of purpose and meaning of an act and situation in determining motivation (Anderman & Maehr, 1994). It was developed within a social cognitive framework, therefore, the focus is on explaining how students' goal

orientations influence how they approach, engage and respond to achievement situations (Ames, 1992; Dweck & Leggett, 1988). There are two major types of goals which have been labeled differently as mastery and performance goals (Ames, 1992), task and ability goals, task involved and ego involved (Maehr & Nicholls, 1980), or learning and performance goals (Dweck & Leggett, 1988). Mastery goals are related to task mastery and learning for purely intrinsic reasons (Ames, 1992; Anderman & Maehr, 1994; Dweck & Leggett, 1988; Linnenbrink & Pintrich, 2002; Smith, 2004; Wolters, 2004). Performance goals are related to interest in demonstrating ability or out-performing others (Ames, 1992; Anderman & Maehr, 1994; Dweck & Leggett, 1988; Linnenbrink & Pintrich, 2002; Smith, 2004; Wolters, 2004). Researchers (McInerney, Hinkely, Dowson, & Van Etten, 1998; Wentzel, 1994, 1989) have suggested that students may hold nonacademic or social goal orientations that influence their academic achievement because classroom evaluation reflects the pursuit of multiple goals, both social and academic. Social goals include the desire to please one's parents, to be important in a peer group, or to preserve one's cultural identity (McInerney et al, 1998; Wentzel, 1994).

Currently, much of the research has been concerned with how goals are associated with the nature and the quality of investment in learning, that is, the positive outcomes (adaptive) or the negative outcomes (maladaptive) that are related to these goals. Many studies have found mastery goals are related to positive outcomes such as cognitive and achievement outcomes (Ames, 1992; Anderman & Maehr, 1994; Dweck & Leggett, 1988; Meece, Blumenfeld, & Hoyle, 1988). On the other hand, performance goals are related to negative outcomes like surface level strategies (Ames, 1992; Anderman & Maehr, 1994; Dweck & Leggett, 1988; Meece et al., 1988). For a summary of the relationship between goals and their outcomes, see Table 2.1.

Researchers make the argument that students who are focused on trying to learn and understand the material and trying to improve their performances will maintain their self-efficacy and free up their cognitive capacity, thereby allowing more cognitive engagement and achievement (Dweck & Leggett, 1988; Linnenbrink & Pintrich, 2002). On the contrary, students motivated by performance goals who are interested in trying their best to get higher grades than others, might experience negative affect such as anxiety, distraction and worrying about how others are doing, rather than focusing on the task; therefore, this will diminish their cognitive ability, task engagement and performance (Dweck & Leggett, 1988; Linnenbrink & Pintrich, 2002).

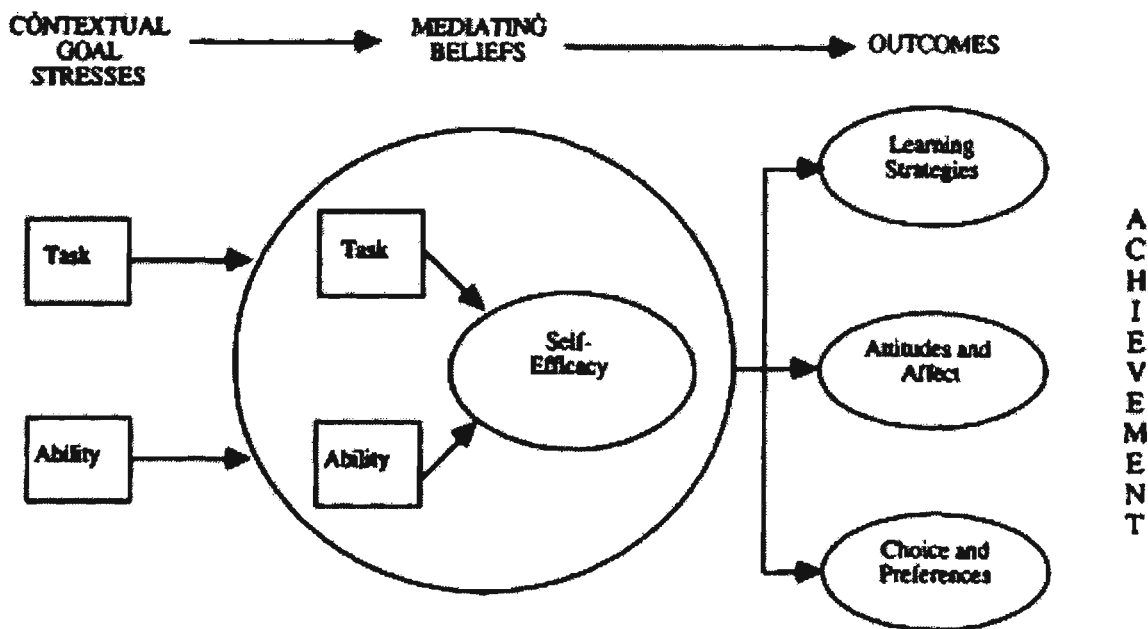
**Table 2.1**  
***Goal Orientation and other Motivational and Cognitive Outcomes***

Definitions/Outcomes	Mastery Goals	Performance Goals
Goal definitions		High grades, better performance than others, higher achievement on standardized tests, wining at all costs
Success defined as	Improvement, progress, mastery, creativity innovation, learning	Avoiding failure
Value placed on	Effort, attempting challenging tasks	Demonstrating one's worth
Reason for effort	Intrinsic and personal meaning of activity	Norms, social comparison with others
Evaluation criteria	Absolute criteria, evidence of progress	Failure, evidence of lack ability or worth
Errors viewed as	Informational, part of learning	
Outcomes associated with different goals		
Attributional patterns	Adoptive, failure attributed to lack of effort, outcome is seen as contingent on personal effort Pride and satisfaction for effortful success Guilt associated with lack of effort Positive attitudes toward learning	Maladaptive, failure attributed to lack of stable ability
Affect	Intrinsic interest in learning	Negative affect following failure
Cognition	Use of "deeper" processing strategies Use of self-regulatory strategies including planning, awareness, and self-monitoring	Use of more surface or rote learning strategies
Behavior	Choice of easier tasks less willing to risks, try new tasks Choice of more personally challenging tasks More risk-taking, open to new tasks More willing to seek adoptive help	Less willing to seek adaptive help
<b>Material drawn from Ames (1992), Anderman and Maehr (1994), Schunk et al., 2008</b>		

Elliot and Harackiewicz (1996) suggested differentiation between two types of performance goals: performance-approach and performance-avoidance orientations. They argued that performance-approach related to the focus on outperforming others, which is considered a positive outcome, while a performance-avoidance approach is characterized by avoidance orientation processes that inevitably lead to negative outcomes such as lack of self-efficacy, or poor engagement with the task. A recent development in goal theory is differentiation between mastery approach and avoidance (Pintrich, 2000a; Wolters, 2004). Pintrich (2000a) explained that the mastery-avoidance goal orientation might be related to the approach ‘perfectionist’ students adopt in order to preserve their high standards or expectations of themselves. However, there is a lack of theoretical development and empirical research that may confirm whether or not a mastery-avoidance goal orientation is possible (Pintrich, 2000a).

Another line of development in goal theory is investigating the assumption that students adopt or pursue many types of goals within any academic setting, with an emphasis on mastery and performance-approach goals (Barron & Harackiewicz, 2001).

Another important point related to the focus of goal theory is the role of the psychological environment in determining goal adoption (Ames, 1992; Ames & Archer, 1988; Anderman & Maehr, 1994; Linnenbrink & Pintrich, 2002; Midgley, Anderman, & Hicks, 1995; Wolters, 2004). Many studies suggested that the psychological environment of the classroom has a strong influence on the goals that students adopt (Ames & Archer, 1988). Researchers (Ames, 1992; Ames & Archer, 1988; Meece, et al., 1988; Midgley, et al., 1995) have indicated that students adopt different goals in different classrooms and that adoption of goals is related to the teachers' instructional practices, including evaluation, the nature of tasks, grouping, and competition. Similarly, school can influence the goals that students adopt, for example a school that appreciates high grades, performance, affiliation, and competition is likely to create an environment that encourages students to focus on grades as the primary focus of learning (Anderman & Maehr, 1994; Midgley et al., 1995) (See Figure 2.1).



**Figure 2.1 Schematic representation of goal theory model. Adapted from Anderman and Maehr, 1994**

Maehr (1991) measured the effect of the psychological environment on students' motivation at the fourth, sixth, eighth, and tenth grades. He found that the psychological

climate of the school accounted for 7% of the variance in motivation at the fourth grade level, 11% at the sixth grade, 14% at the eighth grade level, and 21% at the tenth grade level. These findings suggested the culture of the school as a whole has a great impact on students' motivation particularly when they get into higher grades (Maehr, 1991).

Goal theory is used in this study for several reasons. First, it is a useful theory for understanding motivation of gifted students since motivation is a process that involves goals that provide impetus for and direction to action (Schunk et al., 2008). Also, this theory focuses primarily on describing the importance of two types of goals, mastery and performance goals, in enhancing the students' achievement. This fits with one of the aims of this study, which was to investigate whether high, moderate and low gifted achievers differ in their orientations toward these goals. In addition, this study investigated another type of goal, the social goal, since research has indicated that students may hold nonacademic or social goal orientations that influence their academic achievement because classroom evaluation reflects the pursuit of multiple goals, both social and academic (Wentzel, 1994, 1989).

Moreover, goal theory suggested that there is a relationship among goals, motivation, and self-regulation, that is, the adaptive and maladaptive outcomes related to these goals. This study focuses on investigating the relationship among students' motivation, self-regulation, motivational goals, goal orientations, and their attitudes toward their school and teachers and class. Most importantly, goal theory pointed to the role played by the school environment, which will be important to investigate for two reasons. First, research has indicated the culture of the schools as a whole, has a great impact on students' motivation particularly when they get into higher grades (Maehr, 1991). Second, in this study all the participants are high school students in selective schools. Therefore, understanding the context and the school environment might lead to understanding motivation. The study investigates the school environment in terms of students' attitudes toward their school and teachers and class and whether students' attitudes toward their school and teachers might affect their achievement.

#### **2.4.2 Intrinsic and extrinsic motivation**

Motivation is divided into two types, intrinsic and extrinsic motivation. Intrinsic motivation is perceived as the doing of an activity for its inherent satisfaction, for example, the enjoyment of school learning characterized by an orientation toward mastery, curiosity, persistence, and the learning of challenging difficult and novel tasks

(Gottfried, 1985; Gottfried et al, 2005; Linnenbrink & Pintrich, 2002; McInerney, 2002; Philips & Lindsay, 2006; Ryan & Deci, 2000). On the other hand, extrinsic motivation is related to doing something that leads to a separate outcome. It is associated with winning; therefore, students tend to concentrate more on the prize involved in winning (Cropper, 1998; Philips & Lindsay, 2006; Ryan & Deci, 2000).

A great body of literature has suggested the importance of motivation on learning and achievement (Gottfried et al, 2005; Hoekman, McCormick, Barnett, 2005; McCoach & Siegle, 2003a; Philips & Lindsay, 2006; Street, 2001). The majority of these studies showed the importance of intrinsic motivation in enhancing achievement (Davis & Connell, 1985; Vlahovic-Stetic et al, 1999). Also many of these studies showed that gifted primary school students were more intrinsically motivated. It is important to investigate the effect of motivation, particularly the effect of intrinsic motivation, in differentiating gifted high achievers from low achievers among high school students since many researchers indicated that students' motivation declined when they get older (Eccles & Midgely, 1989; Gottfried, Marcoulides, Gottfried, Oliver, & Guerin, 2007).

Generally, the literature suggests the importance of motivation in achievement. The question that remains is what role motivation plays in differentiating between high achievers and low achievers. Arising from this is whether high achievers and low achievers differ in being intrinsically motivated or extrinsically motivated.

#### **2.4.2.1 What is the role of motivation in differentiating between high achievers and low achievers?**

McCoach and Siegle (2003a) investigated the factors that differentiate gifted achievers and underachievers among high school students in terms of attitudes toward school and teachers, motivation, self-regulation, goal valuation, and academic self-perceptions. They found that the greatest mean difference between gifted achievers and gifted underachievers was in motivation and self-regulation. Another study by Baslanti and McCoach (2006) compared gifted low, moderate, and high achievers among college students in Bogazici University in Istanbul measuring the same variables as in McCoach and Siegle's (2003a) study.

A study by Lau and Chan (2001b) investigated the motivational variables of gifted achievers and underachievers and non-gifted low achievers in Hong Kong. The authors aimed to examine whether gifted underachievers could be distinguished from

the other two groups of students. They found that motivational variables were important factors in discriminating underachievers and high achievers. Underachievers had poorer academic self-concept, lower attainment value on learning and used less effective learning strategies when compared with high achievers. They found that there were no significant differences between gifted underachievers and low achievers. They suggested that the two groups of students had very similar motivational problems and had very similar characteristics. The authors concluded that motivational problems seemed to be closely related to students with poor achievement, regardless of their levels of intellectual ability (Lau & Chan, 2001b).

In short, most of these studies indicated that motivation differentiated between gifted achievers and underachievers. However, most of these studies measured motivation in general and did not distinguish between intrinsic and extrinsic motivation in differentiating between gifted high achievers and low achievers.

#### **2.4.2.2 Do high achievers and low achievers differ in being intrinsically motivated or extrinsically motivated?**

The research on gifted primary school students suggested that gifted students are more intrinsically motivated (Davis & Connell, 1985; Gottfried, 1985; Vlahovic-Stetic et al, 1999) than non-gifted students. Gottfried (1985) investigated the significance of intrinsic motivation among fourth and seventh grade children in terms of school subjects and in terms of school learning in general. He found that academic intrinsic motivation was significantly and positively correlated with children's school achievement in general, and in Mathematics particularly. He explained that Mathematics is perceived as a more difficult and challenging subject area than others. Therefore, children with higher intrinsic motivation in Mathematics may be able to master challenging and difficult Mathematics tasks and show higher academic achievement in this subject. In another study, Gottfried and his colleagues (2007) investigated intrinsic math motivation and Mathematics achievement among secondary school students. They found that achievement is a significant contributor to the developmental decline in intrinsic Mathematics motivation from childhood to adolescence. They also found that intrinsic Mathematics motivation was related to initial and later levels of Mathematics achievement. The authors concluded that these findings explain the contributory role of achievement to motivational decline in Mathematics motivation. Also, Gottfried and his colleagues (2007) argued that these

findings support the theoretical relationships expected between intrinsic motivation and achievement.

In relation to gifted high school students, Street (2001) investigated the role of motivation in academic achievement among secondary gifted students in a number of schools in New South Wales. The author found that both intrinsic and extrinsic motivation contribute to the academic success of gifted secondary students. He found that intrinsic motivation contributed more to academic achievement than did extrinsic motivation, particularly among year 9 students. Further, his data indicated that extrinsically motivated students in year 7 might not continue to exhibit motivated behavior in year 9.

Similarly, Hoekman, McCormick, and Barnett (2005) investigated the relationships between motivational and affective variables, commitment to schoolwork, and satisfaction with schoolwork among 7<sup>th</sup> grade students in four selective high schools in New South Wales. They found that there was a positive relationship between intrinsic and extrinsic motivation and satisfaction with schoolwork. They concluded that intrinsic and extrinsic motivation could coexist.

A study by Craven, Marsh, and Print (2000) compared gifted and talented students in a selective gifted and talented (GAT) program in mixed ability and streamed classes among primary school children in Australia in terms of their self concept and motivation. The results indicated that there was a decline of mastery, cooperative, and intrinsic motivation of gifted and talented students in selective programs in comparison with gifted and talented students in mixed ability and streamed classes. The authors concluded that the selective GAT program did not support the increases in academic self-concept and intrinsic motivation that were expected in the selective Gifted and Talented Program.

Rao, Moley, and Sachs (2000) investigated the relationship between cognitive and motivational variables and their relationship to Mathematics achievement among high-, average-, and low-achievers in a sample of 10<sup>th</sup> and 11<sup>th</sup> grade Hong Kong-Chinese students. The results indicated that low achievers showed decreases in their perceptions of the value of school learning. The authors explained that Chinese culture views academic success as being largely determined by diligence, which may lead them to discount the value of school learning and good examination results and prompt them to exert less effort in academic pursuits. The authors concluded that culture has a great impact on students' motivation and consequently achievement.



Yumusak, Sungur, and Cakiroglu (2007) investigated the contribution of motivational beliefs, and cognitive and metacognitive strategy use, to Turkish high school students' achievement in biology. The results showed that as the level of extrinsic motivation increased, students' achievement scores decreased. The authors explained that this finding could have been due to the fact that items in the achievement test required a higher level of thinking. So, students who studied just to get good scores without trying to understand the content deeply and to learn meaningfully might have experienced difficulty in the test. On the other hand, the results indicate that students who obtained higher scores on the achievement test appeared to perceive biology as more interesting, important, and useful than low achievers. Therefore, the authors concluded that intrinsic goal orientation and task value are among the motivational variables which are adaptive and positively associated with students' academic performance.

In sum, all of these studies suggested that motivation plays an important role in achievement and in differentiating high achievers from low achievers. While some literature has indicated that intrinsic and extrinsic motivation could coexist in enhancing gifted students' achievement (Hoekman, et al., 2005; Street, 2001), most literature emphasized the importance of intrinsic motivation over extrinsic motivation in relation to gifted students' achievement (Street, 2001). The existing research has investigated motivation among primary school children, compared gifted students to non-gifted students, or focused only on high achievers without reference to comparison groups. Researchers have indicated that it is important to investigate motivation among high school students since students' achievement and motivation have been seen to decrease through junior high school (Eccles & Midgely, 1989; Gottfried et al., 2007).

Further, comparatively little research has compared gifted high achievers and low achievers in terms of intrinsic and extrinsic motivation and in terms of achievement in subject areas even though students' motivation and achievement is affected in relation to specific subject areas (Wigfield & Eccles, 1992; Gottfried et al., 2007). Moreover, relatively few studies have investigated the importance of environmental variables, such as selective school placement, that might affect gifted students' motivation and achievement. In fact, research in general has indicated that the culture of the school as a whole has a great impact on students' motivation particularly when they get into higher grades (Maehr, 1991). Also, some research has indicated that a selective GAT program did not support the expected increases in academic self-concept

and intrinsic motivation (Craven et al., 2000). In addition, little research has investigated motivation from a cross-cultural perspective although research with Asian students has shown that culture has a great impact on students' motivation (Rao, et al., 2000). Finally, little research has investigated the motivation of gifted students from goal theory perspective. It is important to do so since motivation is a process that involves goals that provide impetus for, and direction to, action (Schunk et al., 2008).

Accordingly, this study addresses all these areas by comparing gifted high achieving, moderate achieving, and low achieving high school students in terms of their intrinsic and extrinsic motivation in selective schools and from achievement in subject area, goal theory, and cultural perspectives.

## **2.5 Self-Regulation**

The second variable that can play a significant role in the achievement of gifted students is self-regulation. Sternberg (1997), for example, emphasized the importance of self-regulation in the definition of giftedness. According to Sternberg (1997), intellectual giftedness has three aspects: the first is related to context and usually refers to analytical intelligence; the second is about experience and usually refers to creativity; and the third is about the cognitive components of information processing which is often called practical intelligence. These represent the cognitive structures and processes that together produce intelligent behaviour. Accordingly, in this definition Sternberg indicated the importance of metacognitive components, such as the ability to analyze, evaluate, identify the problem, shape or adapt a strategy to a particular situation, all of which are self-regulatory strategies (Risemberg & Zimmerman, 1992; Sternberg & Davidson, 1986).

Self-regulated learners are those who engage in academic tasks for personal interest and satisfaction and are metacognitively, motivationally, and behaviourally active participants in their own learning (Pintrich & De Groot, 1990; Zimmerman & Martinez-Pons, 1988). Self-regulated learners plan, organize, self instruct and self evaluate at various stages of the knowledge acquisition process; they are self-efficacious, autonomous, and intrinsically motivated (Pintrich & De Groot, 1990; Zimmerman & Martinez-Pons, 1988).

Zimmerman (1994) regards self-regulation as self-generated thoughts, feelings, and actions which are oriented toward the achievement of goals. Zimmerman's model

is based on social cognitive theory in which he viewed self-regulation as the cyclical interaction of personal, behavioural, and environmental factors. Pintrich (2004) viewed self-regulation as a framework composed of four phases: forethought, monitoring, control and reflection. Both models were used to investigate students' motivation in relation to their use of learning strategies and academic achievement (Yumusak, Sungur, & Cakiroglu, 2007). Pintrich's model of self-regulation mainly focuses on the role of goal orientations in self-regulation (Yumusak, et al., 2007). Also, Zimmerman's model concentrates on the cyclical nature of the phases: monitoring, control, and reflection, while Pintrich's model emphasizes the regulation of cognition, motivation and affect, behaviour, and context in all phases (Yumusak, et al., 2007).

It is generally believed that self-regulation and metacognitive strategies are significant predictors of academic achievement and that high achievers use self-regulatory strategies (Ablard & Lipschultz, 1998; Him, 2006; Muir- Broaddus, 1995; Pintrich & De Groot, 1990). Therefore, self-regulation and metacognitive strategies are more often used by high achievers than low achievers.

### **2.5.1 Self-regulation among gifted students and non-gifted students**

Zimmerman and Martinez-Pons (1990) found that gifted students compared to non-gifted students, particularly high school students, deploy more self-regulatory strategies. Similarly, Muir-Broaddus (1995) compared high achieving, underachieving gifted, high achieving non-gifted, and average achieving non-gifted middle-school students, in terms of acquisition and transfer of a strategy. The results indicated that high achieving gifted students tended to exceed their peers in spontaneous strategy implementation, strategy acquisition and generalization, and the number of analogies solved. Also, the results indicated that deficits in strategic functioning were one source of underachievement in the gifted population.

Accordingly, the literature indicates that high achieving gifted students use self-regulatory strategies in comparison to non-gifted students. The question needs to be asked is whether the same pattern exists when the comparison is between high achievers and low achievers who are gifted.

### **2.5.2 Self-regulation among gifted high and low achievers**

Ablard and Lipschultz (1998) investigated the relationship between achievement and self-regulated learning among gifted primary school students who

participated in special summer courses for gifted and talented students in the northeastern region of the United States. They found that high achieving students use the full spectrum of self-regulatory learning strategies rather than one particular type. However, the results also indicated that some high achievers did not report the use of self-regulatory strategies. They suggested, however, that some gifted high achievers may have reported a variety of self-regulatory strategies, not because they actually use them, but because they are aware of them. Similarly, some high achievers may not have reported the use of self-regulatory strategies because they may not be aware that they use self-regulatory learning strategies, as the strategies have become an automated process for them.

Pintrich and De Groot (1990) investigated the relationship between achievement and self-regulated learning among seventh grade students from eight science and seven English classes in a small city school district in southeastern Michigan. The results indicated that self-regulation was related to achievement. They also found that students who used rehearsal, elaboration and organization performed better than those who tended not to use them. The authors stressed that their study provided valid empirical evidence that supports the importance of considering both motivation and self-regulation components in models of classroom academic performance.

A study in Hong Kong by Lau and Chan (2001b) compared high achievers and low achievers, aged 12-15 years old, on their motivational characteristics and learning strategies. They found that underachievers had poorer learning strategies, effort management, and time management when compared with high achievers. Consistent with Lau and Chan's study, Him (2006) also investigated the self-regulated learning (SRL) of mathematically gifted students in the 6th to 9th grades who were attending Olympic Mathematics enrichment courses in Hong Kong, using social cognitive theory. The results showed that self-regulatory strategy as well as metacognitive self-regulation and cognitive strategies were related to the academic performance of senior (grade 8 and 9) students, but not for that of the junior students (grade 6). Him (2006) explained that the difference might be attributed to the higher demands of self-regulatory strategies in the study of higher grade Olympic Mathematics. Further, motivation (measured as self-efficacy, intrinsic value, task value, or learning goal) was found to have significantly contributed to the use of self-regulatory strategies (measured as self-regulation, metacognitive skills, or specific cognitive strategies such as elaboration, organization, rehearsal, critical thinking) of both senior and junior mathematically

gifted students. The author found that the correlation between motivation and self-regulation was moderate to high.

By contrast, other studies showed that self-regulation is not related to high achievers. For example, Rao, Moely and Sachs (2000) investigated the relationship between cognitive and motivational variables and their relationship to mathematics attainment among high-, average-, and low-achievers in 10th and 11th grade Hong Kong-Chinese students, using attribution theory. They found that there was no relationship between self-regulation and academic achievement. They further explained that this might be due to the way in which academic performance was measured and social contextual influences on achievement motivation. In this study the authors used performance on year-end class examinations to compare students within classes and performance on the public examination to compare students across schools. Furthermore, Chinese cultural beliefs have an impact on the results since this culture emphasizes the importance of education, and the role of the examinations in screening students for higher education. Thus, this encourages all students, regardless of ability, to regulate their cognition and use cognitive strategies.

Consistently, a study by Malpass, O'Neil and Hocevar (1999) investigated the effects of gender, self-efficacy, learning goal orientation, self-regulation and worry among 10<sup>th</sup> to 12th grade mathematically gifted students who were primarily Asian American . The results showed that self-regulation was not related to high Mathematics achievement. Also, intrinsic motivation was positively related to self-regulation but not related to high Mathematics achievement.

Dresel and Haugwitz (2005) investigated the use of self-regulatory strategies among gifted students in regular classrooms. They found that gifted students used fewer self-regulatory strategies in the regular classroom, which may not be applicable to students in selective classes or schools. Therefore, they stressed that context played an essential role in gifted students' usage of self-regulatory strategies. Other researchers (Rao, et al., 2000; Yumusak, et al, 2007) suggested that there is a need for much research on the use of self-regulatory strategy in different contexts and in different countries.

In a cross-cultural study based in Australia and Japan, Purdie and Hattie (1996) compared different levels of achievers in a sample of upper secondary school students, in terms of their use of self-regulatory strategies. The results showed that Japanese students regarded memorization as the most important strategy of learning. However,

the use of memorization was not found to be related to low achievement among Japanese students. In contrast, even though Australian students reported less use of memorization than Japanese students, high achieving students were more likely to use memorization than low achieving students. The results of this study provided evidence for the role of culture in influencing both Australian and Japanese students' self-regulatory strategies. In addition, the authors pointed to the role of educational contexts on students' self-regulated learning behaviour.

Overall, the literature is inconsistent in terms of the use of self-regulatory strategies among gifted high achievers since some studies showed that self-regulation was related to achievement (Ablard & Lipschultz, 1998; Him, 2006; Muir-Broaddus, 1995; Pintrich & De Groot, 1990) while other studies suggested the opposite (Malpass, O'Neil, & Hocevar, 1999; Rao, Moely, & Sachs, 2000). While most of this literature has compared gifted high achievers and low achievers in regular classrooms, little research has investigated the use of self-regulatory strategies in selective school environments, which is important since the context played an essential role in the usage self-regulatory strategies among gifted students (Dresel & Haugwitz, 2005). Little research has investigated the impact of culture on gifted students' use of self-regulatory strategies, which also has a great effect on the type of self-regulatory strategies used by gifted students (Lau & Chan, 2001b; Purdie & Hattie, 1996). Therefore, there is a need to further investigate this issue in the context of schooling and the impact of culture on the use of self-regulatory strategies to determine the generalizability of these results. Accordingly, this study aims to compare gifted high achievers, moderate achievers and low achievers in terms of their use of self-regulatory strategies, from a cross-cultural perspective and in terms of achievement in two subject areas Mathematics and language.

### **2.5.3 Relationship between Self-regulation and motivation**

Research has shown the importance of motivation and self-regulation components in classroom learning (Wolters & Pintrich, 1998). Researchers (Malpass et al, 1999; Pintrich & De Groot, 1990; Pintrich, Roeser, & De Groot, 1994) found that a higher level of intrinsic motivation was positively related to self-regulation among primary and high school students. Consistently, Cheong (2000) found that intrinsic value was very strongly associated with strategies and self-regulation among secondary

students in Hong Kong. He concluded that cognitive strategies and self-regulation can be used as predictors of academic performance since they were positively correlated.

In short, the literature has indicated that there was a positive correlation between motivation and self-regulation. Nevertheless, little research in the literature of gifted education has investigated the correlation between motivation and self-regulation and its relation to achievement. Also, little research has investigated the relationship between motivation in terms of intrinsic and extrinsic motivation and self-regulation and consequently how these affect students' achievement. Most literature has shown that intrinsic motivation is related to self-regulatory strategies, however, little research has investigated whether a similar pattern can exist between extrinsic motivation and self-regulation and thereby positively affect students' achievement. Accordingly, this study addresses these limitations by investigating the relationship between motivation (intrinsic and extrinsic) and self-regulation, and their relation to achievement. Indeed, this study does not only cover the relationship between motivation and self-regulation but also tries to include other variables that might be related to students' motivation and self-regulation, which thereby affect students' achievement. Therefore, this study investigates the relationships among motivation, motivational goals, self-regulation and goal orientations, attitudes toward school.

## **2.6 Motivational Goals**

Motivational goals in this study are related to task, effort, competition, social power, affiliation, social concern, praise, and tokens. Most research suggested that motivational goals such as task and effort are associated with high achievers while praise, rewards and peer help are associated with low achievers (Albailai, 2003). Philips and Lindsay (2006) investigated the factors which influenced motivation among 15 gifted students, aged 14 to 15 years, in five secondary schools in England. The results indicated that students liked rewards and recognition as well as praise from their teachers. Also, they found that intrinsic and extrinsic motivation were also evident.

A study by Albaili (2003) investigated the linkage between goal orientations and underachievement among intellectually gifted male students in secondary schools in the United Arab Emirates, using goal theory. He found that the intellectually gifted achieving students were more oriented toward effort, task, and competition than were intellectually gifted underachieving students; the intellectually gifted underachievers

were more oriented toward verbal feedback and social dependency for peers than were achievers. Albaili (2003) explained that the results could be attributed to the educational system of the United Arab Emirates, where most of the educational activities and practices are related to competitive behavior. Students are encouraged to be involved in such activities to demonstrate their competitive behavior (Albaili, 2003).

Regarding the role of motivational goals in terms of subject area, a study by VanderStoep, Pintrich, and Fagerlin (1996) examined college students' knowledge, motivation, and self-regulatory learning strategies in humanities, social science, and natural science college courses. They found that high achievers had higher levels of task value in both the natural and the social science courses at the end of the term, but this did not hold in the humanities courses. The authors explained that levels of task value were somewhat lower in the humanities courses due to the fact that introductory level college English courses are often required courses that generate little interest or value for the students.

In a cross-cultural study, Tuss, Zimmer, and Ho (1995) investigated the understanding of attributional orientation of underachieving students in terms of their achievement in Mathematics, in three countries — China, Japan, and the United States — using Weiner's attributional theory. The results indicated that Asian students, particularly Chinese, perceived effort as a more important factor in their achievement than do American students. In contrast, the American students more highly valued ability, task difficulty and situational factors, such as mood, than did the Asian students. The authors concluded that cultural factors influenced the way both underachievers and achievers perceived the causes of academic underachievement.

In short, most literature indicated that motivational goals such as task, effort, competition, and affiliation differentiated gifted high achievers from low achievers. Little research has investigated the orientations toward motivational goals in terms of achievement in subject-area, although research has indicated that students' motivational goals and achievement vary according to the subject area (VanderStoep et al., 1996). Also, little research has investigated the use of motivational goals from a cross-cultural perspective, although research has indicated that culture plays an important role in affecting gifted students' orientations toward these motivational goals (Tuss, et al., 1995). Moreover, research has indicated that school environment and educational systems had a strong effect on students' use of motivational goals particularly in the orientation toward competition (Albaili, 2003). Therefore, this study investigates



motivational goals among different levels of gifted achievers in a selective school environment, from achievement in subject- area, and cross-cultural perspectives.

## **2.7 Goal Orientations**

The third variable that was assessed in this study is goal orientations. In the domain of academic achievement, goals have been the focus of many studies since it was believed that they could be powerful motivators of behaviour (Wentzel, 2000). Wentzel (2000) defined goals with respect to content, as a cognitive representation of what it is that an individual is trying to achieve in a given situation. Hsieh, Sullivan, and Guerra (2007) defined goal orientations as the motives that students have for completing tasks, which may include developing and improving ability (mastery goals), demonstrating ability (performance approach goals), and hiding lack of ability (performance avoidance goals). There are two types of achievement goal orientations: mastery or task-oriented goals and performance or ego-oriented goals (Ames & Archer, 1988; Dweck, 1986; Dweck & Leggett, 1988; Pintrich, 2000a; Wentzel, 2000). Some researchers have proposed a third goal, which is the social goal (McInerney, et al., 1998; Wentzel, 1993).

There are a number of different labels that have been used for similar constructs. For example, the terms learning, task, task-involved, and mastery goals have all been used to refer to goals that orient the individual to focus on the task in terms of mastering or learning how to do the task (Pintrich, 2000a; Wolters, Yu, & Pintrich, 1996). Meanwhile, labels like performance, relative ability, and ego-involved goals have been used to refer to goals that orient the individual to focus on the self, ability, or performance relative to others (Pintrich, 2000a). In this study these goals were referred to as mastery and performance goals. Also, students may hold non-academic or social goal orientations that influence their academic achievement. Therefore, social goals may be related to the desire to please one's parents, to be important in a peer group, or to preserve one's cultural identity (McInerney et al, 1998; Wentzel, 1994). As a consequence, McInerney and his colleagues believed that academic achievement might be influenced not only by students' mastery and performance goal orientations but also by their social goal orientation (McInerney et al, 1998). The question still needs to be determined as to which type of goals contribute most to students' achievement and, thus, the type of goals held by high achievers and low achievers.

### **2.7.1 Which type of goals contribute most to students' achievement and what type of goals do gifted high achievers and low achievers have?**

It is generally believed that mastery goals are more related to achievers (Ablard & Lipschultz, 1998; Dweck & Leggett, 1988). Yet studies on gifted achievers and underachievers suggested that gifted high achievers might be oriented toward performance goals (Ee, Moore, & Atputhasamy, 2003). Dia, Moon, and Feldhusen (1998) reviewed research related to the effects of goal orientations on the achievement of gifted students. They found that there was limited research in gifted education literature to support the advantage of mastery goal structures over performance structures for gifted or academically talented students. However, researchers like Pintrich (2000b) stressed that performance goal orientation is likely to relate to achievement only in conjunction with mastery goal orientation. Also, research shows that students who pursue multiple classroom goals that are social as well as mastery also tend to be high achievers (Wentzel, 1989).

Ee, Moore, and Atputhasamy (2003) found that high achievers reported higher levels on mastery and performance goal orientations and less on work avoidance tendencies. They concluded that students' orientations toward mastery and performance goals may be due to the highly competitive academic environment in Singapore, which focuses on high achievement through competition. They further explained that the culture of Singaporean schools, teachers, and parents emphasized the importance of high achievement. Therefore, students may be oriented in pursuing these goals.

Dai (2000) investigated the relationship between goal orientation constructs to high ability and high achievement adolescents in summer residential programs for the gifted, using goal theory. The results indicated that despite the fact that students achieved a high level of success in school, they were not free from performance goal concerns, including fear of failure and not living up to the high expectations of peers and teachers.

Barron and Harackiewicz (2001) advocated the theory that multiple goals related positively to achievement. They investigated the role of achievement goals in promoting achievement among college students. Both their studies indicated that both mastery and performance goals were significant, providing support for the multiple goal perspective.

Similarly, other researchers suggested that students who pursued multiple classroom goals that were social as well as mastery tended to be high achievers (Wentzel, 1989). A study by Chan (2008) investigated four goal orientations (mastery goals, performance approach goals, performance avoidance goals, and social goals) and their relationships to achievement among a heterogeneous sample of Chinese gifted students in Hong Kong. The sample was selected in terms of their giftedness or talents, their academic and non-academic achievement, and represented students from a broad age range. The results indicate that gifted students endorsed performance learning and social goals over performance–approach and performance-avoidance goals which allayed the concern that Hong Kong education system with its emphasis on examinations might lead the general population of students to focus on performance goals rather than learning goals. Also, the results indicated that learning goals and performance-approach goals were not negatively correlated.

In contrast to the previous studies, Mattern (2005) compared the achievement patterns of college students who held both mastery and performance approach goals simultaneously to students who held either mastery or performance goals only. The results showed that the multiple goal groups did not perform significantly better than students in the single goal groups. However, a significant difference was found between the high mastery group and the high performance group.

A study by Chessor (2004) investigated the interrelationship of self concept, motivation and achievement among primary gifted and talented children in special classes for gifted, using the theory of social comparison. The results showed a lowering of all motivational goals, mastery goals, performance approach, and performance avoidance, for gifted students in the Opportunity Class (OC; the name given to the gifted class). Chessor (2004) concluded that students' mastery goals declined because their emotional development was not as advanced as their cognitive development. Nevertheless, the results indicated that students who were highly successful in OC classes may have been more mastery goal oriented and students who experienced low success may have been more performance goal oriented or performance avoidance oriented.

Overall, the literature is inconsistent in terms of the orientations of goals since some studies reported that high achievers were more oriented toward mastery goals (Ablard & Lipschultz, 1998; Dweck & Leggett 1988) while other studies suggested that performance is likely to relate to achievement only in conjunction with mastery goal

orientations (Ee et al, 2003; Pintrich, 2000b). Therefore, there is a need to further investigate the use of these goals within their context to understand how these goals are used and how they affect students' achievement. Also, most of these studies have focused on the use of mastery and performance goals ignoring the existence of the social goal (Ablard & Lipschultz, 1998; Chessor, 2004; Dweck & Leggett 1988; Ee et al., 2003). Moreover, research has indicated that the culture of the school has an impact on the students' orientations toward goals (Chessor, 2004; Ee et al, 2003). Therefore, this study addresses these limitations by comparing gifted high, moderate, and low achieving gifted students in terms of mastery, performance, and social goals in a selective school placement.

### **2.7.2 Are mastery goals related to positive outcomes? Are performance and social goals related to negative outcomes for gifted students?**

Research has indicated that mastery goals have been always linked to positive outcomes such as attribution of success to effort, preference for challenging tasks and deep processing strategies (Ames & Archer, 1988; Anderman & Maehr, 1994; Dweck & Leggett, 1988; Green & Miller, 1996; Hsieh, Sullivan, & Guerra, 2007; Linnenbrink & Pintrich, 2002; Meece et al., 1988). On the other hand, performance goals related to negative outcomes like shallow strategies, withdrawal of effort, and persistence of academic performance (Albaili, 2003; Anderman & Maehr, 1994; Dweck & Leggett, 1988; Linnenbrink & Pintrich, 2002; Meece et al., 1988). Nevertheless, some studies reported some positive effects of performance goals such as cognitive and metacognitive strategies (Bouffard, Vezeau, & Bordleau, 1998) and increase in academic performance (Bouffard, et al., 1998; Ee et al, 2003). These findings suggest that students' achievement could be enhanced by pursuing mastery goals or performance goals or some researchers suggested that adopting mastery as well as performance goals might be related to positive outcomes (Barron, & Harackiewicz, 2001; Wolters, Yu, & Pintrich, 1996).

Regarding research among high school and elementary school students, Wolters, Yu, and Pintrich (1996) investigated the relationships among goal orientation, students' motivational beliefs and self-regulated learning with seventh and eleventh grade students in terms of English, Mathematics, and Social Studies. The results indicated that adopting mastery and performance goal orientations (goals related to doing better than others) related positively to task value, efficacy, test anxiety, and

cognitive strategy use, self-regulation and academic performance. Nevertheless, the results indicated that adopting mastery goals was not related to achievement. Also, results indicated that adopting extrinsic goal orientations where students only focused on grades were related to maladaptive motivational and cognitive outcomes. They found that these results were similar in all subjects.

Consistent with the previous study, Bouffard, Vezeau, and Bordeleau (1998) indicated that younger students who had high mastery goals had higher self-regulation strategies when compared with older students. The results indicated that performance goals were related to self-regulation particularly cognitive and metacognitive strategies and academic performance at the higher school level.

Green and Miller (1996) investigated the relationship among college students' self-reported goal orientations, perceived ability, cognitive engagement while studying, and course achievement. The results indicated that mastery goals were positively correlated with perceived ability and meaningful cognitive engagement (self-regulation and deep strategy use). On the other hand, performance goals were positively correlated with shallow cognitive engagement which negatively influenced midterm achievement. Interestingly, the results indicated that there was a link from meaningful cognitive engagement to shallow cognitive engagement.

Schraw, Horn, Thorndike-Christ, and Bruning (1995) reported that students high on mastery goal orientation reported more strategy use (integration, organization, memorization) and metacognitive knowledge than those low on this orientation. The results indicated that students who were high on mastery goal orientation demonstrated high academic achievement and used more strategies and processed more metacognitive knowledge than those low on this orientation.

Albaili (1998) investigated the relationships between goal orientations and the use of cognitive strategies and academic achievement for undergraduate college high, moderate, and low GPA students at the United Arab Emirates University. Consistent with the previous studies, the results showed that students who scored higher on the mastery goal orientation scale were more likely to be cognitively engaged in the use of elaboration and organizational strategies. In contrast, students who scored higher on performance goal orientation were more likely to use rehearsal strategies and somewhat less likely to use elaboration and organizational strategies.

In sum, the relationship between goals and positive or negative outcomes is still unclear since some studies suggested that mastery goals are linked to positive outcomes

such as achievement and self-regulation (Ames & Archer, 1988; Dweck & Leggett, 1988; Pintrich & De Groot, 1990) while performance goals are related to negative outcomes such as shallow strategies and withdrawal of effort (Albaili, 1998). By contrast, other studies have showed that performance goals are related to positive outcomes such as cognitive and metacognitive strategies (Bouffard, et al., 1998) and increase in academic performance (Bouffard, et al., 1998; Ee et al, 2003). Also, research has shown that motivational goals declined in selective programs for gifted and talented students (Chessor, 2004; Craven, et al, 2000). Moreover, research has shown that students' motivation and goals affect their self-regulation and how they engage and respond to academic tasks (Ablard & Lipschultz, 1998; Hidi & Harackiewicz, 2000). Therefore, this study compares gifted high, moderate and low achievers in terms of motivation, self-regulation, motivational goals, goal orientations and attitudes toward school, teachers and class in a selective school placement. Also, this study focuses on investigating the relationship among these variables and how they affect students' achievement.

## **2.8 Attitudes toward school**

The last variable that was assessed in this study was students' attitudes toward school and teachers. Gagné (1995) indicated the importance of the environmental catalyst in the development from giftedness into talent. In the environmental catalysts, school environment and teachers played an integral role in recognizing and developing giftedness (Gagné, 1995). The role of the psychological environment was also emphasized in contemporary theories of motivation, particularly in the Social Cognitive theory and Goal Orientation theory. Social Cognitive theory proposes that personal, environmental, and behavioural factors operate separately but interdependently as students engage in academic tasks (Schunk et al., 2008). Also, Goal Orientation theory stressed the importance of investigating the school environment particularly in determining goal adoption (Ames, 1992; Ames & Archer, 1988; Anderman & Maehr, 1994; Linnenbrink & Pintrich, 2002; Midgley, et al., 1995; Wolters, 2004).

The literature has shown that students' attitudes toward school and teachers and class had a strong effect on students' achievement in general (Church, Elliot, & Gable, 2001; Nolen, 2003; Roeser, Midgely & Urden, 1996). Therefore, the question needs to

be asked whether students' attitudes toward school and teachers can differentiate between gifted high achievers and low achievers.

### **2.8.1 Differences between gifted high achievers and low achievers in their attitudes toward school and teachers**

Literature in gifted education has shown that school is considered one of the factors involved in underachievement of gifted students (Baker et al., 1998; Emerick, 1992; Matthews & McBee, 2007; McCoach & Siegle, 2003a). Most literature on gifted students in regular classrooms has shown that high achievers had more positive attitudes toward school and teachers than did low achievers (Ford, 1995; McCoach & Siegle, 2003a). The same pattern existed in selective programs for gifted and talented. Nevertheless, research has shown that selective programs for the gifted and talented did not necessarily support the positive outcomes, particularly in relation to self-concept, motivation and mastery goal orientation (Chessor, 2004; Craven et al, 2000).

McCoach and Siegle (2003a) compared gifted high achieving and low achieving high school students in terms of their attitudes toward school and teachers. They found that gifted high achievers were more positive in their attitudes toward their school and teachers than were underachievers. However, these factors did not aid significantly in the classification of gifted students as either high achievers or underachievers after controlling for the goal valuation and motivation/self-regulation factors. Similarly, a study by Baslanti and McCoach (2006) compared high achieving, moderate achieving, and low achieving college students in terms of their attitudes toward school. The results were consistent with the results in the McCoach and Siegle (2003a) study, with high achieving students being more positive in their attitudes toward school and teachers than were low achievers.

Colangelo, Kerr, Christensen, and Maxey (1993) compared gifted high achieving and underachieving juniors on a number of characteristics such as gender, ethnicity, family income, attitudes toward school, out-of-class accomplishments, academic and career plans, and need for services. In terms of students' attitudes toward school, the results indicated many gifted underachievers thought their school was good, however, they were less likely than high achievers to be satisfied with their classroom instruction and the guidance they received. Therefore, the authors concluded that it was difficult to make generalizations about the gifted underachievers' attitudes toward school because the data were conflicting.

Street (2001) found that personal pleasure in achievement, long term goals, and positive links with at least one of the teachers, were significant in gifted students' achievement. He further stressed that not all teachers needed to establish positive links to sustain motivation. In fact this relationship was successful especially for intrinsically-motivated students. Similarly, Ford (1995) investigated achievement and underachievement among gifted, potentially gifted, and average African American students in terms of their perceptions of factors negatively or positively affecting their achievement. She found that underachievers felt less positive about their relationship with their teachers. Also, they felt that they did not have sufficient opportunities to understand what was taught. Underachievers were also less positive about science, reading, and Mathematics than were achievers. Therefore she suggested that school personnel may need to work on building positive relationships with these students.

Regarding gifted students' attitudes in selective programs, Chessor (2004) conducted three studies in which she investigated the effect of special class placement on self-concept, motivation, goal orientations and achievement. One of these studies investigated the effects of special class placement for gifted primary school children, using parents' perceptions. The results indicated that 33% were perceived by their parents to have had success in the OC class. The parents reported that their children were enjoying success and performing well in their high school and two out of the seven gained entrance to selective high schools. The parents of the moderate success group reported positive as well as negative aspects. They reported that competition and pressure were negative. The results indicated that 45% were perceived by their parents to have had moderate success in the OC class. For the low success group, the parents reported that style of teaching and management of the class did not suit their child. They believed that motivation and teaching style were factors which contributed to the low success of their children in the opportunity class. The results indicated that 52% were perceived by their parents to have had low success in the OC class and no student from this group was accepted in the selective high school. Importantly, parents whose children were accepted into the selective high school reported that they were doing well and they were in the right place. Chessor (2004) concluded that grouping primary gifted students together in selective gifted classes had the potential for positive outcomes, especially in terms of achievement. The achievement of gifted and talented students was high and remained high in their selective OC classes.



In sum, the literature indicated that gifted students' attitudes toward school, teachers, class and student-teacher relationships did affect gifted students' achievement and differentiated between gifted high achievers and low achievers. Nevertheless, most of the literature compared gifted high achievers and low achievers in the regular classroom. Little research has compared gifted students' attitudes in a selective program for gifted students, which is important since research has indicated that gifted students' attitudes do affect their achievement in regular classrooms. Also, some research has indicated that gifted students' motivation and goals declined in selective programs for gifted and talented students (Chessor, 2004; Craven et al, 2000). Furthermore, research has indicated that students' attitudes toward school declined as they got older (Wigfield & Eccles, 1992). Therefore, this study addresses these shortcomings by comparing gifted high, moderate, and low achieving high school students in terms of their attitudes toward school, teachers and class in a selective school environment.

## **2.9 Underachievement and gender**

Much research has shown that gifted males were more likely to underachieve than gifted females, especially in the early grades (Tuss et al., 1995; Whitmore, 1980). Colangelo, Kerr, Christensen and Maxey (1993) found that males were underachievers in classroom performance and standardized test scores. Moreover, the results indicated that male high achievers outnumbered female high achievers while male underachievers outnumbered female underachievers.

Matthews and McBee (2007) examined highly gifted students attitudes toward their school to learn. They wanted to find whether these attitudes would predict which students would underachieve in a summer program context. They reported that the low GPA group in their research was 70% males. They also found that 78% of the group that scored 1.5 or more standard deviations below the mean in summer program academic achievement was male. Interestingly, 70% of the group of students who reported one or more behaviour problems was also male though these were not overlapping sets of students. Another study by McCall et al (2000) found that more males were identified as underachievers than females but the ratio was substantially less than two to one. Consistently with the previous literature, Lau and Chan (2001b) found that among 27 underachievers in Hong Kong, 25 were boys.

In terms of motivation, the literature suggested that females would score higher than males in motivation (Tallent-Runnels, Olivárez, Walsh, & Irons, 1994). However, a recent study by Preckel, Goetz, Perkun, and Kleine (2008) investigated gender differences among gifted and average ability sixth graders in terms of interest, self-concept, and motivation in achievement in Mathematics. The results show that in both ability groups, boys scored significantly higher than girls. Most importantly, the results suggested that gender differences were larger in the gifted group than in the average ability group. Also, the results supported the assumption that gender differences in motivation, self-concept, and interest in Mathematics were more associated with gifted than average ability students.

In terms of goal orientation, Ablard and Lipschultz (1998) found that high achieving adolescent girls were more oriented toward mastery goals than boys but there was no difference in the orientation toward performance goals. However Ziegler, Heller, and Broome (1996) found that high achieving, high ability adolescent girls were more oriented toward performance goals than boys.

In terms of self-regulation, females have consistently showed higher levels of self-regulated learning than males (Ablard & Lipschultz, 1998; Risemberg & Zimmerman, 1992; Zimmerman & Martinez-Pons, 1990). Wolters and Pintrich (1998) found that females reported higher levels of cognitive strategy use than males across three subject areas: English, Mathematics, and Social Studies. Interestingly, the reported level of regulatory strategy use was similar among all subject areas for both males and females.

In terms of effort, Hong and Aqui (2004) found female high achievers in academic Mathematics reported expending more effort in the general task category and in Mathematics compared to male high achievers. Finally, in terms of attitudes, Martin (2002) found that gifted girls revealed more negative math attitudes, compared to the boys, at all grade levels.

Overall, research has indicated males were more likely to have negative outcomes than females in terms of achievement, self-regulation, goal orientation, and attitudes. Therefore, this research also aims to determine whether there is a gender difference in motivation, self-regulation, goal orientation, and attitudes toward school in selective school environment and to recognize the impact of culture on gifted underachievement.

## 2.10 The limitations of the literature

In conclusion, the literature on motivation, self-regulation, and goal orientations has several limitations. First, in terms of comparison among gifted students the literature can be divided into six groups. The first group contains studies which compared intellectually gifted students to non-gifted students (Davis & Connell, 1985; Ford, 1995). The second group of studies compared intellectually gifted primary school students and intellectually gifted secondary school students (Ee et al, 2003; Him, 2006; Neber & Schommer-Aikins, 2002). The third group of studies compared mixed groups (gifted high achievers and gifted underachievers and high or low non-gifted achievers) (Lau & Chan, 2001b; Muir-Broaddus, 1995; Vlahovic-Stetic et al, 1999). The fourth group of studies compared gifted students in different programs such as selective classes and mixed ability classes (Chessor, 2004; Craven et al, 2000). The fifth group compared gifted high achieving students to gifted low achieving students (Albailai, 2003; Baslanti & McCoach, 2006; Colangelo et al, 1993; McCoach & Siegle, 2003a). The sixth group compared gifted high achieving students to gifted low achieving and moderate achieving students (Albailai, 1998; Baslanti & McCoach, 2006; Peterson, 2000).

Researchers in most of these studies compared gifted students focusing on one variable such as motivation (Philips & Lindsay, 2006; Valhovick-Stetic, Vidovic, & Arambasic, 1999), self-regulatory strategies (Muir-Broaddus, 1995; Ruban & Reis, 2006), or goal orientations (Dai, 2000; Mattern, 2005) or combined two variables such as motivation and self-regulation (Lau & Chan, 2001b; Yumusak, Sungur, & Cakiroglu, 2006) or self-regulation and goals (Ablard & Lipschultz, 1998; Albaili, 1998). By contrast, little research has compared high achievers and low achievers combining motivation, self-regulation, motivational goals, and goal orientations together and explored how these variables are related to gifted students' achievement. The importance of investigating all these variables together is related to the fact that children's goals affect their self-regulation and motivation and how they engage and respond to academic tasks (Ablard & Lipschultz, 1998; Hidi & Harackiewicz, 2000). Also, little research has compared three levels of achievers.

Second, in terms of motivation among gifted students most of the studies suggested that motivation plays an important role in achievement and in differentiating high achievers from low achievers. Most of the literature has investigated motivation

among primary or junior high school children (Davis & Connell, 1985; Neber & Schommmer-Aikins, 2002; Vlahovic-Stetic et al, 1999). By contrast, little research has investigated motivation among high school students even though researchers indicated that it is important to investigate motivation among high school students since students' achievement and motivation decreased as they get older (Eccles & Midgely, 1989; Gottfried, Marcoulides, Gottfried, Oliver, & Guerin, 2007). Further, little research has compared gifted high achievers and low achievers in terms of intrinsic and extrinsic motivation.

Third, the literature is inconsistent in terms of the use of self-regulatory strategies among gifted students since some studies showed that self-regulation was related to achievement (Ablard & Lipschultz, 1998; Muir-Broaddus, 1995; Pintrich & De Groot, 1990) while other studies suggested the opposite (Malpass, et al., 1999; Rao, et al., 2000). Also, most of this literature has compared gifted high achievers and low achievers in regular classrooms (Dresel & Haugwitz, 2005; Lau & Chan, 2001b; Muir-Broaddus, 1995). By contrast little research has investigated self-regulatory strategies in selective schools, although context played an essential role in the gifted students' use of self-regulatory strategies (Dresel & Haugwitz, 2005). In addition, little research has investigated the impact of culture on gifted students' use of self-regulatory strategies, which is important since research has shown that culture also has a great effect on the type of self-regulatory strategies used by gifted students (Lau & Chan, 2001b; Purdie & Hattie, 1996).

Fourth, the literature is inconsistent in terms of goal orientations among gifted students since some studies reported that high achievers were more oriented toward mastery goals (Ablard & Lipschultz, 1998; Dweck & Leggett 1988) while other studies suggested that performance goals are likely to relate to achievement only in conjunction with mastery goal orientations (Pintrich, 2000b). Therefore, there is a need to further investigate the use of these goals within their context to understand how these goals are used and how they affect students' achievement. Also, most of these studies have focused on the use of mastery and performance goals and ignored the social goal (Ablard & Lipschultz, 1998; Chessor, 2004; Dweck & Leggett 1988; Ee et al., 2003).

In terms of the relationship between goals and positive or negative outcomes the literature is still unclear since some studies suggested that mastery goals are linked to positive outcomes such as achievement and self-regulation (Ames & Archer, 1988; Dweck & Leggett, 1988; Pintrich & De Groot, 1990) and performance goals are related

to negative outcomes like shallow strategies and withdrawal of effort (Albaili, 2003; Albaili, 1998). By contrast, other studies have showed that performance goals are related to positive outcomes such as cognitive and metacognitive strategies (Bouffard, et al., 1998) and increase in academic performance (Bouffard, et al., 1998; Ee et al, 2003).

Fifth, in terms of the role of school environment in affecting students' achievement most of the literature has compared gifted high achievers and low achievers in regular classrooms. Little research has compared gifted students' attitudes in a selective program or school, which is important since research has indicated that gifted students' attitudes affect their achievement in regular classrooms. Also, some research has indicated that gifted students' motivation and goals declined in selective programs for gifted and talented students (Craven et al, 2000; Chessor, 2004). Furthermore research has indicated that students' attitudes toward school declined as they got older (Wigfield & Eccles, 1992).

Finally, in terms of gender most the literature indicated that males were more likely to have negative outcomes than females in terms of achievement, self-regulation, goal orientation, attitudes, and interest in subject areas (Colangelo, et al., 1993; Matthews & McBee, 2007; McCall et al, 2000; Tuss et al., 1995, Whitmore, 1980). Nevertheless, little research has investigated gender difference among gifted students in terms of motivation, self-regulation, goal orientation, and attitudes toward school in selective school environments.

Overall, although the literature has examined motivation, self-regulation and goal orientations among achieving and underachieving gifted students, the literature is still limited, particularly in terms of theory, cross-cultural studies, and in investigating all the motivational variables together. The main purpose of this research, therefore, is to address this gap, and empirically examine whether there are differences among gifted high, moderate, and low secondary school students in terms of motivation, self-regulation, motivational goals, goal orientations, and attitudes toward their selective schools and teachers, and it does so from cultural, gender, grade, achievement in subject-area, and goal theory perspectives.

## **CHAPTER THREE**

### **METHOD**

#### **Introduction**

This study examines the problem of underachievement among gifted high school students. Low achievers were compared to high and moderate achievers on their motivation, self-regulation, motivational goals, goal orientations, and attitudes toward their school and teachers. Participants were all highly able students from grades 10 and 11 in two academically selective high schools, one in Jordan and the other one in Australia. This chapter discusses the method that was used in this study. It describes the sample, the research design, instruments, validity and reliability of these instruments, procedures of data collection, and procedures of data analysis.

The study aims to answer two basic questions and three hypotheses. The first questions aims to investigate to what extent high achievers, moderate achievers, and low achievers differ in their motivation, self-regulation, motivational goals, goal orientations, and attitudes toward their school and teachers. The second question aims to investigate the relationship among motivation, self-regulation, motivational goals, goal orientation, and attitudes and consequently achievement. The first research hypothesis aims to examine whether males scored lower than females in the variables measured in this study. The second hypothesis investigated whether there was any difference between tenth and eleventh grade students in each culture in terms of the variables measured in this study. The third hypothesis examined whether there was any difference between the Jordanian and Australian samples in terms of the variables measured in this study.

### **3.1 The sample**

The sample of this study comprised tenth and eleventh grade students in two coeducational selective high schools in Jordan and Australia. Participants were chosen from these grades since research has shown that students' motivation, interest in subject area, attitudes toward school, and achievement decreased in high school (Eccles & Midgely, 1989; Gottfried, Marcoulides, Oliver & Guerin, 2007; Maher, 1991). All the students were high ability students, although the definition of giftedness differed between the two countries.

#### **3.1.1 First study: Jordanian Sample**

The sample was drawn from one of the elite schools in Jordan, The Jubilee School. The Jubilee School is an independent coeducational boarding secondary school which offers a four-year educational program for students with high intellectual ability and commitment to scholarship. The Jubilee School is part of the Jubilee Institute which is, in turn, part of the King Hussein Foundation (KHF). There are approximately 425 students in grades 9-12 with a maximum number of 25 students in every section from various socioeconomic backgrounds and geographic regions in Jordan. Special consideration is always given to students who come from the remote and underprivileged areas of the kingdom. Basically, the school aims at meeting the special intellectual, social, and emotional needs of academically gifted students. Also, it aims at serving as a model of educational excellence for public and private secondary schools in Jordan and the Arab region.

A rigorous multiple-criteria system is applied for selecting students in The Jubilee School. Criteria include academic distinction and outstanding accomplishments over the previous five semesters, teachers' ratings of the students' behavioral characteristics and satisfactorily passing the entrance exam which is a scholastic aptitude test that was especially developed in Arabic for the Jubilee School in three areas — Mathematics, verbal and logical thinking — in addition to a personal interview.

In the academic year 1998/1999, the school allocated 5% of its student population to outstanding students from the Arab countries. In terms of the curriculum, the school is distinguished by its extra and co-curricular activities. For example, all students are exposed to a variety of experiences on both national and international

levels. They are offered opportunities to meet and converse with politicians, academicians, economists and social leaders on current issues and future challenges. Finally, they are also encouraged to design and implement research studies, projects, and surveys.

The sample of the Jordanian study consisted of 169 gifted high school students from grades 10 and 11 in an academically selective high school in Amman Jordan (the Jubilee school) enrolled in the first semester 2006/2007. There were 88 participants from year 11 and 81 participants from year 10. The majority of the participants in the study identified themselves as Jordanian. There were 88 participants who were 16 years old, 73 who were 15 years old, 5 participants who were 17 years old and 3 participants who were 14 years old. The mean age of the participants was 15.6. In terms of their achievement in Arabic, there were 49 low achievers, 72 moderate achievers, and 48 high achievers and in Mathematics, there were 39 low achievers, 62 moderate achievers, and 68 high achievers. Overall, there were 95 males and 74 females.

### **3.1.2 Second study: Australian Sample**

The sample was drawn from a selective high school in regional New South Wales. Selective high schools in NSW have specific criteria for entry. Entry into these schools is determined by the student's results in the Selective High Schools Test in English (including reading and writing), Mathematics and general ability, together with their primary school's assessment of their performance in English and Mathematics. Other evidence of academic merit may also be considered.

Currently there are approximately 720 students in the school. One hundred and twenty of the students who perform well in the selective schools examination are accepted every year. If students drop out or change schools then students high on the original reserve list are offered places. Because there is a small number of students who do not go on to complete years 11 and 12, these students' places are taken by new students so the number of students at the school is constant. Also, an additional 10 students are allowed to enrol at the school for years 11 and 12.

The curriculum at the School has been described as a broad, sound and balanced curriculum. The development of the curriculum model was based upon the desire to allow students to progress at their own rate through a course of study rather than being locked into a specific year group throughout their secondary education. Basically, the curriculum is developed to allow students to choose a course of study which will meet



their individual needs and abilities. Finally, students excel in activities like sports and drama, even though it is primarily a school acclaimed for academic achievement.

The sample for the Australian study consisted of 197 gifted high school students from grades 10 and 11 in an academically selective high school in NSW Australia enrolled in the second semester 2007/2008. There were 94 participants from year 11 and 103 participants from year 10. The majority of the participants in the study identified themselves as Australian. Regarding their age, there were 92 participants who were 16 years old, 73 who were 15 years old, 31 participants who were 17 years old and 1 participant who was 14 years old. The mean age of the participants was 15.78. English and Mathematics teachers were asked to rank the participants into high, moderate and low achievers. In terms of their achievement in English, there were 19 low achievers, 71 moderate achievers and 107 high achievers. In terms of their achievement in Mathematics there were 41 low achievers, 78 moderate achievers and 59 high achievers. Overall, there were 101 males and 96 females.

### **3.1.3 Selection of achievement groups**

As indicated previously, this study compared three achievement levels because previous research has focused only on high and low achievement. Teachers in Jordan and Australia were asked to nominate whether the students were performing at a high, moderate, or low level. The research did not specify what percentage in each group given the selective nature of the school. Rather, the teachers back their nominations on their extensive experience over a number of years to designate these groups. For both samples, students were allocated to high, moderate, and low achieving grouping in both Mathematics and Arabic or English. In addition to the teachers' nominations, the students in the Australian sample were also asked to rank themselves into three levels of achievers in English and Mathematics. A Pearson moment correlation was done to see the relationship between the teachers' nomination and the students' rankings. The results show that there was a strong correlation between the teachers' nominations and students' rankings in Mathematics but it was weak in English.

## **3.2 Research Design**

The research design was a cross-cultural, comparative between groups design that employed three standardized tests assessing students' motivation, self-regulation,

motivational goals, goal orientations, and attitudes toward their school and teachers. The explanatory variables are achievement in terms of English and Mathematics in Australia and Arabic and Mathematics in Jordan; grade; sex; and, culture. The responses variables are motivation, self-regulation, motivational goals, goal orientations, and attitudes toward their school and teachers and class.

### **3.3 Instruments**

In this study, three instruments were used to assess students' motivation, self-regulation, motivational goals, goal orientations, and attitudes toward their school and teachers. First, participants' goal orientations as well as their motivational goals were measured using the Inventory of School Motivation Scale-R (ISM) (McInerney & Sinclair, 1992). Second, participants' attitudes and preferences toward the learning environment were measured using the School Attitude Assessment Survey-R (SAAS) (McCoach & Siegle, 2003a). Finally, participants' learning strategies, intrinsic and extrinsic motivation were measured using the Motivated Strategies for Learning Questionnaire (MSLQ-R) (Pintrich, Smith, Garcia & Mckeachie, 1991).

#### **3.3.1 The Inventory of School Motivation Scale (ISM-R)**

The Inventory of School Motivation Scale was constructed around a number of dimensions drawn from Personal Investment Theory and Self-Concept Theory (McInerney & Sinclair, 1992). Based on Maehr's approach, McInerney and his colleagues proposed a hierarchical, multidimensional model of goals relevant for both western and non-western students (McInerney, Marsh & Yeung, 2003; McInerney, Yeung, & McInerney, 2001). The scale includes eight Motivational Goal scales—Task, Effort, Competition, Social Power, Affiliation, Social Concern, Praise, and Tokens—which can be grouped into three more general goals: Mastery Goals, Performance Goals and Social Goals. There are also four Sense-of-Self Scales: Sense of Purpose, Self-Reliance, Negative Self-Concept and Positive Self-Concept. The response format for the items is Likert scale and includes strongly disagree, disagree, unsure, agree and strongly agree (McInerney & Sinclair, 1992). In this study only Task, Effort, Competition, Social Power, affiliation, Social Concerns, Praise, Tokens, Mastery Goals, Performance Goals, and Social Goals scales were used because these variables are related to the Goal Theory that was used in this study.

The Task scale measures interest in the task and wanting to improve understanding. The effort scale measures the effort students are willing to put forth to understand something or to improve. Competition is a measure of competitiveness in learning. Social power refers to an individual's need to function in a position of authority through leading a group. Affiliation measures the importance of working with others in groups. Social Concern measures the concern a student has for the welfare of his or her peers. The Praise scale measures the importance placed on receiving verbal praise from others. Tokens measure the importance of obtaining tangible rewards for achievement (McInerney & Sinclair, 1992).

The Mastery General Scale measures the students' orientations toward mastering or learning how to do the task and the Performance General Scale measures how performance oriented they are in relation to the other students. Finally, the Social General Scale is related to how socially oriented students are, which includes the desire to please one's parents, to be important in a peer group, or to preserve one's cultural identity (McInerney & Sinclair, 1992). Studies which have used this instrument reported reliability statistics that varied from .67 to .82 (Mean = .76) (McInerney & Ali, 2005; McInerney & Sinclair, 1992). Also, Radda, Iwamoto and Patrick (1998) in their study of the motivational factors that influence achievement and retention in school for American Indian students from two communities showed that the Inventory of School Motivation Scales scored high internal consistency of .91. Watkins and McInerney (2003) evaluated the use of the Inventory of School Motivation Scale among Filipino students; the results indicated that except for Self-Reliance (.46), Self-Esteem (.58), and Task (.58), the ISM scales were all very adequate exceeding 0.70. They concluded that ISM was reasonably reliable and valid for use with Filipino students. Similarly, Yeung and Yeung (2001) tested the applicability of Task, competition, effort and praise in the ISM among Chinese students in Hong Kong, the results supported the applicability of the ISM's Task (.73), Effort (.77), Competition (.79), and Praise (.84).

### **3.3.2 The Motivated Strategies for Learning Questionnaire (MSLQ-R)**

The Motivated Strategies for Learning Questionnaire (MSLQ) is a self-report instrument designed to assess students' motivational orientations and their use of different learning strategies (Pintrich et al, 1993). The MSLQ consists of two main scales: the Motivation Scale and the Self-Regulation scale. The instrument utilizes a 7-point Likert scale ranging from 'not at all true of me' to 'very true of me'.

The Motivational scale proposes three general motivational constructs: expectancy, value and affect (Pintrich, Smith, Garcia, & McKeachie, 1993). In the Expectancy scale there are two related subscales which are constructed to assess students' perceptions of Self-Efficacy and control beliefs for learning. In the Value scale there are three subscales that focus on the reasons why students engage in an academic task. The three subscales are Intrinsic Goal Orientation (learning and mastery goals), Extrinsic Goal orientation (a focus on grades and approval from others), and Task value beliefs scale (measures how interesting, useful, and important the course content is to the students). Finally, the Affect scale includes the Test Anxiety scale, which taps into students' worry and concern over taking exams (Pintrich et al, 1993).

The Learning Strategies (Self-Regulatory Strategies) contain three general scales: cognitive, metacognitive and resource management. Cognitive strategies include students' use of basic and complex strategies for the processing of information from texts and lectures. The most basic Cognitive Strategy subscale provides a measure of the use of Rehearsal by students. The use of more complex strategies is measured by two subscales, the use of Elaboration strategies such as paraphrasing and summarizing and Organization strategies such as outlining. In addition, a subscale on Critical Thinking is included which concerns students' use of strategies, for example, applying previous knowledge to new situations or making critical evaluations of ideas (Pintrich et al, 1993).

The second general category is Metacognitive Control Strategies, which is measured by one scale concerning the use of strategies that help students control and regulate their own cognition. This subscale includes planning (setting goals), monitoring of one's comprehension, and regulating. The third general strategy category is Resource Management, which includes four subscales on students' regulatory strategies for controlling other resources besides their cognition (Pintrich et al, 1993).

Pintrich and his colleagues (1993) showed that the six motivational subscales and the nine learning strategies subscales represent a coherent conceptual and empirically-validated framework for assessing student motivation and use of learning strategies. Research (Pintrich et al., 1991; Pintrich et al, 1993; Yumusak, et al., 2007) showed the coefficient alphas for all the scales demonstrate good internal consistency. The coefficient alphas for the motivational scales demonstrated good internal consistency estimates (.90). Also, the Test Anxiety and Intrinsic Goal Orientation subscales yielded good internal consistency estimates (.80 and .74 respectively). The

alphas of learning strategies scales are reasonable, with most coefficient alphas above .70. Similarly, a study by Yumusak and his colleagues (2007) showed that the reliability coefficients ranged from 0.54 to 0.85 for the motivation section and from 0.50 to 0.78 for the learning strategies section of the questionnaire.

### **3.3.3 The School Attitude Assessment Survey (SAAS-R)**

The survey contains 43 items designed to measure students' attitudes toward school and teachers, motivation, self-regulation, goal valuation, and academic self-perception. The instrument utilizes a 7-point Likert scale, ranging from strongly disagree to strongly agree. In this study only Attitudes toward Teachers and Attitudes toward School scales were used. The Attitudes toward School and Teacher factors measure students' self-reported satisfaction with their school environments by measuring the intensity of their positive or negative affect for or against school and objects associated with school (McCoach & Siegle, 2003b).

Research (McCoach & Siegle, 2003b; McCoach, 2002) provided evidence of the construct validity and reliability of the instrument for students' motivation, self-regulation and goal valuation. McCoach (2002) in her initial study showed that scores from the SAAS seemed to demonstrate evidence of adequate validity and reliability for use as a research instrument on a population of secondary students. However, Peer Attitudes scale did not provide unique information (McCoach, 2002).

In a follow-up cross-validation study of the School Attitudes Assessment Survey-Revised, McCoach and Siegle (2003b) found that the mean differences between achievers' and underachievers' attitudes toward teachers and school, goal valuation, motivation, and self-regulation, were statistically significant ( $p < .001$ ) and the reliability coefficients for individual factors were above .88. Reliability analysis indicated that the scores on the subscales showed an internal consistency reliability coefficient of at least .80 on each of the five factors. It was 0.92 for the 6-item Goal Valuation subscale, 0.94 for the 11-item Motivation, Self-Regulation subscale, 0.85 for the 4-item Attitude toward Teachers subscale, and 0.92 for Attitude toward School subscale. Most importantly, this instrument was able to differentiate between gifted achievers and underachievers.

In an independent investigation, Suldo and her colleagues (2008) investigated the psychometric properties of the SAAS-R by comparing SAAS-R scales to other indicators of attitudes and behaviors relevant to school functioning among students in

general education and college preparatory programs. The findings supported the construct validity of the SAAS-R.

### **3.4 Instruments' Reliability**

As the instruments have not been implemented in Jordan or Australia with this population, the reliabilities of the instruments needed to be assessed. Therefore, reliability analysis of all the scales in the Jordanian and Australian studies was employed to determine the scales that showed good internal consistency reliability coefficients as presented in Tables 3.1 and 3.2.

**Table 3.1**

*Reliability of the School Attitude Assessment Survey, the Inventory of School Motivation Scale and the Motivated Strategies for Learning Questionnaire in the Jordanian Sample*

The school Attitude Assessment Survey	Cronbach's Alpha	N of Items
1. Attitudes toward school	.915	7
2. Attitudes toward teachers and class	.881	8
The Inventory of School Motivation Scale	Cronbach's Alpha	N of Items
1. Task	.445	4
2. Effort	.826	7
3. Competition	.783	6
4. Social Power	.896	6
5. Affiliation	.789	3
6. Social Concern	.754	5
7. Praise	.882	5
8. Tokens	.886	7
9. Mastery Goals	.858	5
10. Performance Goals	.857	8
11. Social Goals	.861	5
The Motivated Strategies for Learning Questionnaire	Cronbach's Alpha	N of Items
1. Intrinsic Motivation	.594	4
2. Extrinsic Motivation	.472	4
3. Rehearsal	.666	4
4. Elaboration	.769	6
5. Organization	.665	4
6. Critical Thinking	.790	5
7. Metacognitive self-regulatory strategy	.785	12

Table 3.1 shows the internal consistency estimates of reliability for the scales and subscales used in this study in the Jordanian sample. Generally speaking, the scales used in this study showed moderate to high internal consistency, as indicated by Cronbach's coefficient alpha. The highest Alpha was recorded in the School Attitude Assessment Survey particularly in the Students' Attitude toward School subscale, which was about (.92). In fact, both subscales in The School Attitude Assessment Survey were very high. In the Inventory of School Motivation Scale, all scales showed high internal consistency which ranged from .75 to .89. The highest alpha was recorded

in the Social Power subscale (.90) and the lowest alpha was recorded in the Task subscale (.45) which was considered unreliable. Finally, all the scales in The Motivated Strategy for Learning Questionnaire showed moderate internal consistency which ranged from .59 to .79. The highest alpha was recorded in the Critical Thinking subscale (.79) and the lowest alpha was recorded in the Extrinsic subscale (.47) which was considered unreliable. Overall, all the scales used in this study were reliable except for the Task and the Extrinsic subscales.



**Table 3.2**

*Reliability of the School Attitude Assessment Survey, the Inventory of School Motivation Scale and the Motivated Strategies for Learning Questionnaire in the Australian Sample*

The school Attitude Assessment Survey	Cronbach's Alpha	N of Items
1. Students' attitudes toward school	.942	7
2. Students' attitudes toward teachers and class	.905	8
The Inventory of School Motivation Scale	Cronbach's Alpha	N of Items
1. Task	.681	4
2. Effort	.803	7
3. Competition	.924	6
4. Social Power	.875	6
5. Affiliation	.818	3
6. Social Concern	.745	5
7. Praise	.843	5
8. Tokens	.880	7
9. Mastery Goals	.763	5
10. Performance Goals	.851	8
11. Social Goals	.854	5
The Motivated Strategies for Learning Questionnaire	Cronbach's Alpha	N of Items
1. Intrinsic Motivation	.764	4
2. Extrinsic Motivation	.814	4
3. Rehearsal	.719	4
4. Elaboration	.780	6
5. Organization	.789	4
6. Critical Thinking	.781	5
7. Metacognitive self-regulatory strategy	.767	12

Table 3.2 shows the internal consistency estimates of reliability for the scales and subscales used in this study in the Australian sample. Generally speaking, the scales used in this study showed moderate to high internal consistency, as indicated by Cronbach's coefficient alpha. The highest Alpha was recorded in the School Attitude

Assessment Survey particularly in the Students' Attitudes toward School subscale, which was .94. Similarly, the Students' Attitudes toward Teachers and Class subscale was also high (.91).

In the Inventory of School Motivation Scales, all scales showed high internal consistency which ranged from .92 to .68. The highest alpha was recorded in the Competition subscale (.92) and the lowest alpha was recorded in the Task subscale (.68). Finally, all the scales in the Motivated Strategy for Learning Questionnaire showed high internal consistency which ranged from .81 to .72. The highest alpha was recorded in the Extrinsic Motivation subscale (.81) and the lowest alpha was recorded in the Rehearsal subscale (.72). Overall, all the scales used in this study were reliable; there were no scales that were unreliable as in the Jordanian study.

Overall, the values of Cronbach's alpha for the Jordanian and the Australian students showed very good agreement for almost all of the 20 variables that were measured. For the 15 of these variables the difference "Cronbach's alpha for the Jordan- Cronbach's alpha for Australia" was between -0.1 and +0.1. The remaining five variables were task (difference= -0.236), competition (-0.141), intrinsic (-0.170), extrinsic (-0.342) and organization (-0.124). In each of these five variables given, the Cronbach's alpha for the Australian students was greater than the corresponding value for Jordanian students. This indicates slightly greater consistency by the Australian students in the answers that the individual students gave to the various items of any of these five variables.

### **3.5 Procedures of Data Collection**

Prior to the implementation of the study, the researcher obtained permission from a number of different parties for conducting the study. Permission was sought from NSW Department of Education, from the participating schools' principals and participants' approval. Arabic and Mathematics teachers in Jordan and English and Mathematics teachers in Australia were asked to rank the students into high, moderate, and low achievers in terms of their performance in these subjects. The contact teachers in each of the selective schools facilitated the distribution and collection of the informed consent forms with the students' parents or guardians.

All questionnaires were translated into Arabic for the Jordanian participants in order to optimize the learners' understanding of the content of the Questionnaire

(Appendices F, G, and H). The questionnaires were translated by the researcher first, and then they were checked and modified by a teacher who is a fluent Arabic speaker and familiar with this topic. The Questionnaires were completed under the supervision of the researcher and teachers in each school during two regular class periods. Standardized instructions were read aloud to students and they could ask questions. Students were reassured that all the collected data would be confidential and used for research only. The whole procedure took about 60 minutes. The Jordanian sample completed the questionnaires at the end of the first term (November 2006). The Australian sample completed the questionnaires at the beginning of the second semester (July 2007).

### **3.6 Procedures of Data Analysis**

The first step in the data analysis strategy was to compute descriptive statistics for all questions, using the computer software SPSS version 15 (Statistical Package for the Social Sciences). The second step was conducting the reliability analysis of all the scales used in this study. Third, Pearson moment correlations were conducted to determine the relationship among the variables measured in this study. Then, a series of univariate analyses was completed to determine the interaction effects of the explanatory variables (achievement levels, sex, grade, and culture) on the response variables (attitudes toward school, motivation, self-regulation, motivational goals, and goal orientations). Fifth, one way ANOVA including *Post hoc* pair wise multiple comparisons using *Boneferroni* test were then completed to evaluate differences on specific variables in terms of sex and grade for each culture. Finally, Pearson moment correlations and linear regressions were used to examine the relationship among attitudes toward school, motivation, self-regulation, motivational goals, goal orientation, and achievement.

## **CHAPTER FOUR**

### **RESULTS**

#### **Introduction**

The results presented in this chapter are based on a comparison group design. Three survey instruments were used to measure the five primary response variables, students' motivation, self-regulation, motivational goals, goal orientations, and attitudes: the Inventory of School Motivation Scale -R (ISM), the Motivated Strategies for Learning Questionnaire (MSLQ-R) and finally the School Attitude Assessment Survey-R (SAAS). Each of these primary responses was further sub-categorized according to the subscales as identified in Table 4.1. Participants were divided into three groups in terms of their teachers' rankings of the students' learning outcomes in two subjects, Arabic and Mathematics in Jordan, and English and Mathematics in Australia.

**Table 4.1**  
***Description of the Variables Analyzed in the Study***

Set of Analysis 1	
Responses	Explanatory Variables
<b>1. Motivation</b>	
Intrinsic	Achievement in Arabic (Jordan) (Three levels)*
Extrinsic	Achievement in English (Australia) (Three levels)*
<b>2. Self-regulation</b>	
Rehearsal	
Organization	Sex
Elaboration	Grade
Critical Thinking	Culture
Metacognitive	
<b>3. Motivational goals</b>	
Task	
Effort	
Competition	
Affiliation	
Social Power	
Social Concern	
Praise	
Tokens	
<b>4. Goal orientations</b>	
Mastery Goals	
Performance Goals	
Social Goals	
<b>5. Students' Attitudes</b>	
Attitudes toward the school	
Attitudes toward teachers	

**\* The analyses were repeated using Achievement in Mathematics as the response variable rather than achievement in Arabic or English**

### 4.1 Pretest Analysis

In order to establish whether the response variables were dependent an initial correlation analysis was undertaken as shown in Table 4.2. The Pearson moment correlations showed that there were strong to moderate relationships between the variables of the study.

There was a strong positive relationship between performance goals and motivational goals, for example there was a strong positive relationship between performance goals and social power ( $r=.78$ ), performance goals and competition ( $r=.71$ ), performance goals and praise ( $r=.62$ ), and performance goals and tokens ( $r=.71$ ). Also, mastery goals had a strong positive relationship with praise ( $r=.50$ ) and with effort ( $r=.56$ ). There was a positive strong relationship between social goals and affiliation ( $r=.66$ ) and social goals and social concern ( $r=.55$ ) which all were significant at the .01 level.

There was a strong positive relationship among goals, for example, mastery goals had a positive strong relationship with performance goals ( $r=.59$ ). Also, there was a strong positive relationship between social goals and performance goals ( $r=.52$ ) which all were significant at the .01 level.

There were strong positive relationships among the self-regulatory strategies, for example, elaboration and metacognitive self-regulatory strategy ( $r=.78$ ), elaboration and organization ( $r=.68$ ), elaboration and critical thinking ( $r=.71$ ). There was a strong relationship between rehearsal and elaboration ( $r=.63$ ), rehearsal and organization ( $r=.68$ ), rehearsal and metacognitive self-regulatory strategy ( $r=.70$ ). Also, there was also a strong relationship between organization and metacognitive self-regulatory strategy ( $r=.74$ ) and critical thinking and metacognitive self-regulatory strategy ( $r=.66$ ) which all were significant at the .01 level.

Furthermore, the results showed that there was a positive strong relationship between intrinsic motivation and elaboration ( $r=.56$ ), intrinsic motivation and critical thinking ( $r=.66$ ), intrinsic motivation and metacognitive self-regulatory strategy ( $r=.53$ ), intrinsic motivation and extrinsic motivation ( $r=.50$ ), and intrinsic motivation and effort ( $r=.52$ ) which all were significant at the .01 level.

There was a strong positive relationship between task and effort ( $r=.54$ ). Also, there was a strong positive relationship between competition and social power ( $r=.63$ ), competition and extrinsic motivation ( $r=.51$ ), competition and tokens ( $r=.51$ ). Finally, there was a strong positive relationship between social power and tokens ( $r=.52$ ) which all were significant at the .01 level.

This suggested that it might be appropriate to undertake a multivariate analysis, which could allow patterns evident in multivariate space and not in univariate space to be detected. Also there is control on the over-all type 1 error rate when conducting one analysis rather than twenty. One could expect significant findings in 5 per cent of the

analyses purely by chance. However the complexity of a multivariate analysis with 20 response variables provides a level of complexity that might not aid understanding.

Pearson Moment Correlations of Motivation, Self-Regulation, Motivational Goals, Goal Orientations, and Attitudes

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Motivational Goals																				
1.Task	-	.538**	.400**	.356**	.099	.227**	.396**	.222**	.488**	.394**	.205**	.409**	.419**	.257**	.291**	.267**	.282**	.327**	.236**	.254**
2.Effort	.538**	-	.513**	.453**	.209**	.319**	.313**	.271**	.564**	.449**	.313**	.516**	.353**	.363**	.441**	.396**	.433**	.448**	.361**	.344**
3.Comp	.400**	.513**	-	.634**	.126*	.085	.420**	.510**	.479**	.714**	.269**	.408**	.512**	.284**	.406**	.280**	.428**	.316**	.181**	.131*
4.Social/p	.356**	.453**	.634**	-	.324**	.180**	.404**	.524**	.448**	.783**	.469**	.390**	.329**	.249**	.408**	.249**	.431**	.312**	.144**	.066
5.Affiliation	.099**	.209**	.126**	.324**	-	.451**	.216**	.299**	.256**	.308**	.662**	.251**	.128*	.257**	.241**	.220**	.283**	.260**	.169**	.087
6.Social/C	.227**	.319**	.085**	.180**	.451**	-	.226**	.084	.343**	.195**	.554**	.284**	.146**	.268**	.282**	.300**	.198**	.303**	.253**	.203**
7.Praise	.396**	.313**	.420**	.404**	.216**	.226**	-	.487**	.500**	.622**	.340**	.192**	.417**	.300**	.275**	.197**	.162**	.255**	.229**	.222**
8.Tokens	.222**	.271**	.510**	.524**	.299**	.084	.487**	-	.358**	.709**	.405**	.254**	.321**	.247**	.341**	.189**	.347**	.273**	.067**	.046
Goal Orientations																				
9.Mastery/G	.488**	.564**	.479**	.448**	.256**	.343**	.500**	.358**	-	.593**	.459**	.477**	.412**	.357**	.402**	.368**	.343**	.402**	.356**	.316**
10.Perfo/G	.394**	.449**	.714**	.783**	.308**	.195**	.622**	.709**	.593**	-	.517**	.395**	.408**	.275**	.433**	.285**	.424**	.359**	.210**	.197**
11.Social/G	.205**	.313**	.269**	.469**	.662**	.554**	.340**	.405**	.459**	.517**	-	.346**	.232**	.331**	.411**	.295**	.413**	.392**	.255**	.163**
Motivation																				
12.Intrinsic	.409**	.516**	.408**	.390**	.251**	.146**	.192**	.254**	.477**	.395**	.346**	-	.499**	.393**	.564**	.484**	.663**	.529**	.239**	.239**
13.Extrinsic	.419**	.353**	.512**	.329**	.128**	.268**	.417**	.321**	.412**	.408**	.232**	.499**	-	.348**	.362**	.330**	.338**	.362**	.178**	.233**
Self-Regulation																				
14.Reh	.257**	.363**	.284**	.249**	.257**	.282**	.300**	.247**	.357**	.275**	.331**	.393**	.348**	-	.630**	.677**	.461**	.698**	.250**	.265**
15.Elab	.291**	.441**	.406**	.408**	.241**	.300**	.275**	.341**	.402**	.433**	.411**	.564**	.362**	.630**	-	.680**	.708**	.781**	.280**	.277**
16.Organiz	.267**	.396**	.280**	.249**	.220**	.198**	.197**	.189**	.368**	.285**	.295**	.484**	.330**	.677**	.680**	-	.456**	.735**	.264**	.293**
17.Critical	.282**	.433**	.428**	.431**	.283**	.303**	.162**	.347**	.343**	.424**	.413**	.663**	.338**	.461**	.708**	.456**	-	.659**	.217**	.198**
18.Metacog	.327**	.448**	.316**	.312**	.260**	.146**	.255**	.273**	.402**	.359**	.392**	.529**	.362**	.698**	.781**	.735**	.659**	-	.292**	.303**
Attitudes toward the school and teachers																				
19.SAS	.236**	.361**	.181**	.144**	.169**	.253**	.229**	.067	.356**	.210**	.255**	.239**	.178**	.250**	.280**	.264**	.217**	.292**	-	.651**
20.SATC	.254**	.344**	.131*	.066	.087	.203**	.222**	.046	.316**	.197**	.163**	.239**	.233**	.265**	.277**	.293**	.198**	.303**	.651**	-

\*Note \*\* Correlation is significant at the 0.01 level (2-tailed). \* Correlation is significant at the 0.05 level (2-tailed).

Social/p: Social Power, Social/C, Social Concern, Mastery/G: Mastery Goals, Perfo/G: Performance Goals, Intrinsic: Intrinsic Motivation, Extrinsic: Extrinsic Motivation, Elaboration, Critical: Critical thinking, Metacog: Metacognitive Self-Regulatory Strategy, SAS: students' attitudes toward school, SATC: Students' attitudes toward teachers and class



Second, a series of univariate analysis was completed to determine the interaction effects of explanatory variables (achievement levels, sex, grade, and culture) on the responses variables (motivation, self-regulation, motivational goals, goal orientations, and attitudes). In conducting the univariate analysis the first step involved determining if there were any interactions between the groups, grades, sex, culture and achievement in language and achievement in Mathematics. A summary of these interactions were displayed in Tables 4.3 and 4.4. Where there were significant interactions between the explanatory variables then subsequent analyses were conducted to determine the nature of the interaction (see also Appendices A and B).

Table 4.3

A summary of the Univariate Analysis of Motivation, Self-Regulation, Motivational Goals, Goal Orientations, and Attitudes in terms of Achievement in Language

Explanatory Variables													
Variables	sex	grade	achievement in language	culture	sex*	achievement in language	grade*	achievement in language	Sex*grade*	sex*	achievement in language*	Sex*	Sex*grade*
1-Motivation													
Intrinsic	x	x	x	x	x	x	x	x	x	x	x	x	x
Extrinsic	x	x	x	x	x	x	x	x	x	x	x	x	x
2- Self-Regulation													
Rehearsal	x	x	x	x				x	x	x			
Elaboration	x	x	x	x	x			x					
Organization	x	x	x	x		x		x			x		
Critical thinking	x	x	x	x				x					
Metacognitive	x	x	x	x		x		x			x		
3- Motivational goals													
Task		x	x	x			x	x	x		x		
Effort			x	x							x		
Competition	x	x	x	x							x		
Social Power				x						x			
Affiliation			x	x			x		x				
Social Concern		x		x									
Praise		x	x			x							
Tokens			x										
4- Goal Orientations													
Mastery goals		x	x	x					x		x		
Performance goals		x		x					x		x		
Social goals				x			x						
5- Attitudes													
Attitudes toward the school	x	x		x				x			x		x
Attitudes toward teachers	x	x	x								x		x

Table 4.4

A summary of the Univariate Analysis of Motivation, Self-Regulation, Motivational Goals, Goal Orientations, and Attitudes in terms of Achievement in Mathematics

Explanatory Variables												
Variables	sex	grade	achievement in Math	achievement culture	sex* grade	Sex* achievement in Math	grade* achievement in Math	Sex*grade* achievement in Math	sex* grade* culture	achievement in Math * culture	Sex* achievement in Math *culture	Sex*grade* achievement in Math * culture
1- Motivation												
Intrinsic	x	x	x	x						x		
Extrinsic		x	x	x		x	x			x		x
2- Self-Regulation												
Rehearsal			x							x		
Elaboration		x	x	x								
Organization		x	x	x						x		
Critical thinking	x		x	x		x						
Metacognitive			x							x		
3- Motivational goals												
Task			x	x		x				x		
Effort			x	x								
Competition		x	x	x						x		
Social Power			x			x	x					
Affiliation			x	x		x						
Social Concern		x	x									
Praise						x						
Tokens												
4- Goal Orientations												
Mastery goals			x	x		x				x		
Performance goals			x	x		x						
Social goals												
5- Attitudes												
Attitudes toward the school												
Attitudes toward teachers		x	x									

Tables 3.3 and 3.4 indicate that for the achievement in Mathematics classification of students into motivational levels, an examination of the nature of the interaction suggested that analysis within culture would be necessary for all but social goals, attitudes toward school, attitudes toward teachers and class, rehearsal, metacognitive self-regulatory, social power, affiliation, social concern, praise, and tokens. However, for the achievement in language groups, the results suggested that analysis within culture would be necessary for all but praise, tokens, and attitudes toward teachers.

Therefore, another series of univariate analyses was completed to determine the interaction effects of the explanatory variables (achievement levels, sex, grade,) on each of the response variables (motivation, self-regulation, motivational goals, goal orientations, and attitudes) for each culture. Basically, the results show that there was a significant interaction between these variables and the explanatory variables (sex, grade, and achievement levels) in both the Australian and the Jordanian samples as shown in Tables 4.5 and 4.6.

Table 4.5

Univariate Analysis of Motivation, Self-Regulation, Motivational Goals, Goal Orientations, and Attitudes in the Jordanian and Australian Samples in terms of Achievement in Mathematics

Achievement in Mathematics in the Jordanian Sample					Achievement in Mathematics in the Australian Sample				
Explanatory Variables (n= 169)					Explanatory Variables (n= 197)				
Responses	sex	Grade	achievement in Math	sex * achievement in Math	grade * achievement in Math	sex * achievement in Math	sex * grade	achievement in Math	sex * grade * achievement in Math
1- Motivation									
Intrinsic	.358	.018*	.344	.925	.479	.945	.001	.000*	.739
Extrinsic	.523	.658	.088	.171	.920	.282	.007	.000*	.559
2- Self-Regulations									
Rehearsal	.878	.662	.271	.144	.986	.945	.095	.006*	.944
Elaboration	.874	.098	.269	.516	.466	.282	.007	.001*	.975
Organization	.687	.214	.896	.355	.570	.143	.018	.000*	.984
Critical Thinking	.295	.212	.108	.713	.934	.000*	.804	.000*	.297
Metacognitive	.839	.514	.802	.269	.504	.181	.035	.000*	.775
3- Motivational Goals									
Task	.004*	.319	.818	.884	.175	.461	.194	.001*	.101
Effort	.571	.186	.168	.969	.583	.486	.891	.000*	.503
Competition	.273	.051	.032*	.598	.836	.114	.079	.000*	.804
Social power	.613	.117	.243	.807	.894	.001*	.135	.139	.813
Affiliation	.292	.089	.027*	.978	.553	.008*	.519	.528	.110
Social Concern	.015*	.015*	.993	.898	.884	.920	.559	.430	.559
Praise	.011*	.310	.187	.291	.443	.767	.737	.226	.567
Tokens	.881	.493	.629	.766	.603	.033*	.059	.283	.877
4- Goal Orientations									
Mastery Goals	.065	.116	.709	.678	.173	.158	.334	.001*	.530
Performance Goals	.188	.096	.417	.942	.529	.039*	.973	.004*	.216
Social Goals	.165	.048*	.626	.993	.604	.028*	.528	.558	.784
5- Attitudes									
SAS	.401	.207	.588	.954	.382	.547	.799	.041*	.469
SATC	.831	.087	.739	.673	.174	.155	.068	.020*	.959

\*  $p < 0.05$

Univariate Analyses of Motivation, Self-Regulation, Motivational Goals, Goal orientations, and Attitudes in the Jordanian and Australian Samples in terms of Achievement in Language

Achievement in Language/ Arabic in the Jordanian Sample (n= 169)					Achievement in language/ English in the Australian Sample (n=197)				
Explanatory Variables					Explanatory Variables				
Responses	sex	Grade	achievement in language	sex * achievement in language	sex * achievement in language	grade * achievement in language	sex * achievement in language	sex * grade * achievement in language	sex * grade * achievement in language
1- Motivation									
Intrinsic	.234	.018*	.953	.713	.703	.805	.289	.000*	.000*
Extrinsic	.500	.863	.093	.732	.625	.100	.935	.000*	.000*
2- Self-Regulations									
Rehearsal	.955	.971	.561	.599	.077	.780	.504	.002*	.004*
Elaboration	.754	.082	.590	.792	.486	.743	.234	.003*	.005*
Organization	.744	.289	.922	.713	.005*	.343	.072	.208	.001*
Critical Thinking	.125	.063	.574	.602	.664	.196	.145	.000*	.122
Metacognitive	.975	.800	.573	.650	.048*	.918	.234	.002*	.000*
3- Motivational Goals									
Task	.002*	.675	.905	.522	.332	.292	.749	.047*	.024*
Effort	.907	.252	.377	.407	.922	.025*	.441	.018*	.260
Competition	.015*	.059	.135	.309	.673	.009*	.674	.001*	.045*
Social power	.722	.092	.417	.188	.930	.043*	.104	.016*	.768
Affiliation	.156	.186	.010*	.956	.035*	.195	.018*	.116	.711
Social Concern	.002*	.046*	.096	.541	.281	.674	.367	.766	.131
Praise	.005*	.383	.767	.442	.946	.574	.905	.028*	.055
Tokens	.685	.312	.313	.937	.834	.057	.593	.066	.465
4- Goal Orientations									
Mastery Goals	.089	.198	.625	.992	.330	.509	.739	.021*	.031*
Performance Goals	.348	.052	.229	.691	.860	.020*	.171	.014*	.267
Social Goals	.229	.051	.464	.563	.312	.117	.331	.386	.412
5- Attitudes									
SAS	.621	.044*	.564	.813	.935	.096	.328	.004*	.005*
SATC	.383	.040*	.976	.720	.962	.086	.266	.021*	.001*

\* p< 0.05

Table 4.5 indicates that in terms of achievement in Mathematics in the Australian sample, the results show there was a significant interaction between sex and achievement in Mathematics in social power ( $p<.05$ ). There was also a significant interaction between grade and achievement in Mathematics in intrinsic motivation ( $p<.05$ ), extrinsic motivation ( $p<.05$ ), and rehearsal ( $p<.05$ ). However, in the Jordanian sample, the results show there was no significant interaction between sex and achievement in Mathematics or grade and achievement in Mathematics in any of the variables measured in this study.

Table 4.6 indicates that in terms of achievement in language in the Australian sample, the results show there was a significant interaction between sex and achievement in language in intrinsic motivation ( $p<.05$ ), extrinsic motivation ( $p<.05$ ), rehearsal ( $p<.05$ ), and attitudes toward the school ( $p<.05$ ). There was also a significant interaction between grade and achievement in language in intrinsic motivation ( $p<.05$ ), extrinsic motivation ( $p<.05$ ), task ( $p<.05$ ), and attitudes toward the school ( $p<.05$ ). In the Jordanian sample, the results show there was a significant interaction between sex and achievement in language in organization ( $p<.05$ ), metacognitive self-regulatory strategy ( $p<.05$ ), and affiliation ( $p<.05$ ). There was also a significant interaction between grade and achievement in language in task ( $p<.05$ ), effort ( $p<.05$ ), competition ( $p<.05$ ), and performance goals ( $p<.05$ ).

## **4.2 Results Study 1 (Jordanian)**

### **4.2.1 Comparison of demographic information of high achievers, moderate achievers and low achievers**

The current study employed a comparative design that examined students' motivation, self-regulation, motivational goals, goal orientations, and attitudes toward school and teachers, among the three levels of achievers. Therefore, it is important to recognize the similarity of the demographic characteristics of the three groups. The demographic characteristics were gathered as part of the questionnaires that the participants completed as presented in chapter 3.

Results indicated that there was no significant age difference among the three levels of achievers in terms of their achievement in Arabic  $\chi^2(6, N= 169) = 5.654, p= .46$  and Mathematics  $\chi^2(6, N= 169) = 5.390, p= .50$ . Also, there was no significant difference in the number of females and males in each group in terms of their achievement in Arabic  $\chi^2(2, N= 169) = 1.878, p=.39$  and achievement in Mathematics  $\chi^2(2, N= 169) = 3.632, p=.19$ . Finally, the results also show that there was no significant grade difference among the three levels of achievers in terms of their achievement in Arabic  $\chi^2(2, N= 169) = 2.768, p= .25$  and Mathematics  $\chi^2(2, N= 169) = 2.115, p=.35$ .

### **4.2.2 Pretest Differences**

A reliability analysis of all the scales was employed to determine a good internal consistency reliability coefficient as presented in chapter 3. Univariate analysis was conducted to determine the interactions between the response variables (motivation, self-regulation, motivational goals, and goal orientations, and attitudes) and explanatory variables (achievement in Arabic, achievement in Mathematics, sex, and grade) (see Tables 4.5 and 4.6). Univariate analysis indicated there were interactions between the explanatory variables and the response variables. Therefore, the results were analyzed in terms of achievement in Mathematic and language, sex, and grade.



#### **4.2.3 Differences among high achievers, moderate achievers and low achievers in their motivation, self-regulation, motivational goals, goal orientation, and attitudes.**

The main aim of the study was to compare the three levels of achievers in terms of their motivation, self-regulation, motivational goals, goal orientations, and attitudes toward the school and teachers and class. Univariate analysis was used to uncover the main and interaction effects of explanatory variables (achievement levels, grade, and sex) on the response variables (motivation, self-regulation, motivational goals, goal orientations, and attitudes). One way ANOVA using *Bonefferoni* adjustment was used to determine the differences among the three groups. Basically *Bonefferoni* test was used to test multiple comparisons between treatment means since there are a large number of treatments is present. Most importantly, *Bonefferoni* adjustment can fix the problem of type one error.

The assumptions that were tested in one way ANOVA s were that the dependent variables were normally distributed and the homogeneity of the population. The results through Q-Q plots indicate that the dependent variables are normally distributed. Regarding the homogeneity of the population, Levene's test was used to test this assumption if results were significant below .05 then other tests such as Welch and Brown- Forsythe were used. If the results were not significant below .05 then the assumption has been violated and the results regarding post hoc comparison were not considered.

The results of Leven's test indicate that this assumption has not been violated except for social concern for tenth grade students in terms of their achievement in Mathematics, eleventh grade students in terms of their achievement in Arabic, and male students in terms of their achievement in Arabic. Praise and social goals for tenth grade students in terms of their achievement in Mathematics. Task and intrinsic and extrinsic motivation for eleventh grade students in terms of their achievement in Mathematics. Finally, competition for female students in terms of their achievement in Mathematics (see Appendices C, D, E, F, G, H, I, J).

Three scales were used to measure the participants' motivation, self-regulation, motivational goals, goal orientations, and attitudes. First, participants' goal orientations as well as their motivational goals were measured using the Inventory of School Motivation Scale –R (ISM) (McInerney & Sinclair, 1992). Second,

participants' attitudes and preferences toward the learning environment were measured using the School Attitude Assessment Survey-R (SAAS) (McCoach & Siegle, 2001). Third, participants' learning strategies, intrinsic and extrinsic motivation were measured using the Motivated Strategies for Learning Questionnaire (MSLQ-R) (Pintrich, Smith, Garcia & McKeachie, 1991).

#### **4.2.4 Research Question 1: To what extent do high achievers, moderate achievers, and low achievers differ in their motivation, self-regulation, motivational goals, goal orientations, and attitudes toward the school and teachers and class?**

This section presents the descriptive results of motivation, self-regulation, motivational goals, goal orientations, and attitudes among the three groups. Also, this section presents one way ANOVA and Post hoc comparison results to determine the differences among the three groups (see Tables 4.7 and 4.8).

Table 4.7

Descriptive Statistics, ANOVA Results, and Post Hoc Comparison among Tenth and Eleventh Grades' Three Levels of Achievers in their Attitudes, Motivation, Self-Regulation, Motivational Goals, and Goal orientation (Jordanian Study)

Tenth Grade (Achievement in Arabic) Variables		Mean			SD		F	P	post hoc comparison	
		Low	Moderate	High	Low	Moderate				High
The School Attitude Assessment Survey (SAAS)										
1- Students' attitudes toward the school		39.33	37.86	32.27	5.29	8.77	10.70	1.81	.067	
2- Students' attitudes toward teachers and class		37.11	37.83	34.27	8.56	8.05	8.79	1.28	.284	
The Inventory of School Motivation Scale (ISM)										
3- Task		18.57	18.28	18.52	1.57	1.58	1.34	.316	.730	
4- Effort		30.25	27.44	27.78	3.19	5.01	4.19	2.32	.105	
5- Competition		25.94	22.87	23.52	3.96	4.11	4.37	3.41	.038*	Low > Moderate
6- Social Power		25.16	21.67	21.19	3.91	6.08	5.45	3.13	.050	
7- Affiliation		12.15	11.51	9.31	2.87	2.58	3.63	5.54	.006*	Low > High, Moderate > High
8- Social Concern		20.31	19.15	18.04	2.88	3.45	4.66	1.91	.155	
9- Praise		20.36	19.2	18.80	4.94	4.64	4.83	.585	.559	
10- Tokens		25.00	23.25	21.78	6.63	6.11	6.45	1.30	.278	
11- Mastery Goals		22.05	21.65	21.72	3.33	2.04	2.91	.143	.867	
12- Performance Goals		33.78	29.47	28.08	3.37	5.62	7.67	5.70	.005*	Low > Moderate, Low > High
13- Social Goals		19.73	19.65	17.26	3.72	3.67	5.43	2.65	.077	
The Motivated Strategy for Learning Questionnaire (MSLQ)										
14- Intrinsic Motivation		21.82	21.48	21.18	4.41	4.94	5.02	.084	.920	
15- Extrinsic Motivation		24.83	21.78	22.72	3.18	3.84	4.94	3.42	.032*	Low > Moderate
16- Rehearsal		18.52	16.23	17.09	6.14	5.48	5.57	1.05	.355	
17- Elaboration		28.78	27.05	28.36	7.37	8.93	6.32	.372	.690	
18- Organization		18.47	16.23	15.95	4.29	5.51	6.46	1.31	.277	
19- Critical Thinking		24.52	21.91	22.50	5.04	7.25	5.92	1.05	.357	
20- Metacognitive self -regulatory strategy		55.00	49.77	51.22	11.02	14.30	14.60	.837	.437	

\*p< 0.05

Tenth Grade (Achievement in Mathematics) Variables	Mean			SD			F	P	Post hoc comparison
	Low	Moderate	High	Low	Moderate	High			
The School Attitude Assessment Survey (SAAS)									
1- Students' attitudes toward the school	37.05	37.03	36.60	7.99	10.03	8.58	.020	.980	
2- Students' attitudes toward teachers and class	34.49	38.19	36.03	9.98	8.10	7.50	.978	.381	
The Inventory of School Motivation Scale (ISM)									
3- Task	18.20	18.30	18.71	1.82	1.53	1.21	.843	.434	
4- Effort	27.05	27.45	29.62	4.95	4.68	3.74	2.40	.098	
5- Competition	23.26	22.72	25.28	4.50	4.43	3.59	3.01	.055	
6- Social Power	23.94	21.45	22.37	5.17	5.93	5.52	1.12	.332	
7- Affiliation	11.36	11.75	10.03	2.77	2.90	3.44	3.48	.089	
8- Social Concern	19.57	18.96	19.00	2.56	4.14	4.05	.178	.837	
9- Praise	20.26	19.06	19.14	3.66	5.21	4.88	.431	.652	
10- Tokens	23.90	22.79	23.17	4.80	7.05	6.75	.176	.839	
11- Mastery Goals	21.30	21.96	21.88	3.07	2.12	2.79	.435	.649	
12- Performance Goals	31.50	29.39	29.92	5.42	5.27	7.17	.780	.462	
13- Social Goals	19.73	19.30	18.10	2.80	3.85	5.58	.941	.395	
The Motivated Strategy for Learning Questionnaire (MSLQ)									
14- Intrinsic Motivation	20.15	21.68	22.14	4.43	4.67	5.18	1.01	.369	
15- Extrinsic Motivation	23.36	21.78	23.53	3.87	4.13	4.37	1.55	.220	
16- Rehearsal	18.52	16.39	16.70	6.30	5.15	5.84	.910	.407	
17- Elaboration	26.73	26.56	30.03	9.04	7.33	7.36	1.74	.183	
18- Organization	17.47	15.87	17.10	5.11	5.71	5.78	.609	.547	
19- Critical Thinking	22.05	22.00	24.16	7.19	5.40	6.98	.923	.402	
20- Metacognitive self -regulatory strategy	51.64	49.73	53.00	11.92	13.37	15.25	.409	.666	

\*p<0.05



Eleventh Grade (Achievement in Arabic) Variables		Mean			SD			F	P	Post hoc comparison
		Low	Moderate	High	Low	Moderate	High			
The School Attitude Assessment Survey (SAAS)										
1- Students' attitudes toward the school		39.33	38.87	41.20	9.17	9.17	8.48	.508	.603	
2- Students' attitudes toward teachers and class		38.32	38.25	42.60	8.66	11.55	9.28	1.14	.325	
The Inventory of School Motivation Scale (ISM)										
3- Task		18.16	18.69	18.80	1.51	1.87	1.35	3.62	.285	
4- Effort		27.86	28.90	30.80	4.36	4.62	3.88	.767	.047*	High > Low
5- Competition		24.07	24.93	27.16	4.86	4.68	2.79	3.62	.031*	High >Low
6- Social Power		23.13	24.37	24.60	4.42	4.81	5.11	.767	.468	
7- Affiliation		11.86	11.87	11.50	2.54	2.41	2.48	.193	.824	
8- Social Concern		20.66	20.51	20.32	2.12	2.74	3.71	.099	.906	
9- Praise		19.96	20.26	20.64	4.44	4.92	4.30	.146	.865	
10- Tokens		24.14	22.25	26.76	6.42	7.88	6.30	2.93	.059	
11- Mastery Goals		22.20	22.00	23.28	3.9	4.42	1.92	.944	.393	
12- Performance Goals		31.53	31.84	33.44	5.91	7.47	4.61	.716	.492	
13- Social Goals		20.36	19.57	20.91	3.05	4.59	3.16	.928	.400	
The Motivated Strategy for Learning Questionnaire (MSLQ)										
14- Intrinsic Motivation		22.76	23.18	23.60	3.91	4.16	2.97	.335	.716	
15- Extrinsic Motivation		22.40	22.40	24.04	3.75	5.07	3.16	1.38	.257	
16- Rehearsal		17.56	16.87	18.00	5.93	5.98	5.78	.298	.766	
17- Elaboration		29.10	30.03	31.20	7.37	7.45	6.50	.586	.559	
18- Organization		17.23	18.18	19.04	5.78	4.82	5.30	.796	.454	
19- Critical Thinking		23.46	24.71	226	7.67	6.87	6.03	.915	.405	
20- Metacognitive self -regulatory strategy		53.73	51.96	53.25	14.71	12.48	10.71	.146	.864	

\*p<0.05

Eleventh grade (achievement in Mathematics)									
Variables		Mean			SD			comparison	
Low	Moderate	High	Low	Moderate	High	F	p		
The School Attitude Assessment Survey (SAAS)									
1- Students' attitudes toward the school									
38.96	38.04	35.81	8.53	9.06	11.79	1.51	.227		
2- Students' attitudes toward teachers and class									
37.84	38.7	38.00	9.49	9.96	10.47	1.32	.274		
The Inventory of School Motivation Scale (ISM)									
3- Task									
17.79	18.25	18.43	1.63	1.81	1.53	1.45	.239		
4- Effort									
28.29	28.07	29.13	4.40	5.19	4.83	.317	.729		
5- Competition									
24.46	23.45	25.21	5.19	5.04	4.57	1.30	.279		
6- Social Power									
23.48	22.96	22.76	4.67	6.37	6.24	.796	.455		
7- Affiliation									
11.75	11.81	9.13	2.79	2.56	3.29	1.73	.184		
8- Social Concern									
20.10	19.31	17.54	2.59	3.37	4.58	.047	.954		
9- Praise									
19.27	18.65	18.66	5.31	5.34	5.29	3.05	.053		
10- Tokens									
24.92	22.8	23.65	7.35	7.95	7.43	1.14	.325		
11- Mastery Goals									
21.41	21.50	22.4	4.32	3.88	2.98	1.65	.199		
12- Performance Goals									
32.1	30.02	29.73	6.26	7.80	7.86	1.30	.278		
13- Social Goals									
20.24	19.16	17.63	3.49	4.54	5.38	.010	.990		
The Motivated Strategy for Learning Questionnaire (MSLQ)									
14- Intrinsic Motivation									
22.82	22.71	22.13	4.01	4.96	4.96	.922	.402		
15- Extrinsic Motivation									
22.6	22.07	32.26	3.87	4.84	3.91	2.24	.113		
16- Rehearsal									
19.10	15.72	16.8	5.77	6.13	5.98	.382	.684		
17- Elaboration									
29.72	28.5	28.95	7.41	8.94	6.81	.077	.926		
18- Organization									
18.93	16.85	15.3	5.16	5.42	6.21	.209	.812		
19- Critical Thinking									
24.75	23.43	25.23	5.56	7.10	6.31	1.40	.252		
20- Metacognitive self -regulatory strategy									
56.64	50.08	48.66	13.49	15.2	13.54	.685	.507		

\*p<0.05

Males (Achievement in Arabic) Variables		Mean			SD			F	P	Post hoc comparison
		Low	Moderate	High	Low	Moderate	High			
The School Attitude Assessment Survey (SAAS)										
1- Students' attitudes toward the school		38.96	38.04	35.81	8.53	9.06	11.79	.684	.507	
2- Students' attitudes toward teachers and class		37.84	38.70	38.00	9.49	9.96	10.47	.078	.925	
The Inventory of School Motivation Scale (ISM)										
3- Task		17.79	18.25	18.43	1.63	1.81	1.53	1.05	.354	
4- Effort		28.29	28.07	29.13	4.40	5.19	4.83	.355	.702	
5- Competition		24.46	23.45	25.21	5.19	5.04	4.57	.993	.375	
6- Social Power		23.48	22.96	22.76	4.67	6.37	6.24	.118	.889	
7- Affiliation		11.75	11.81	9.13	2.79	2.56	3.29	7.61	.001*	Low > High
8- Social Concern		20.1	19.31	17.54	2.59	3.37	4.58	3.45	.036*	Moderate > High
9- Praise		19.27	18.65	18.66	5.31	5.34	5.29	.133	.875	Low > High
10- Tokens		24.92	22.80	23.65	7.35	7.95	7.43	.638	.531	
11- Mastery Goals		21.41	21.50	22.4	4.32	3.88	2.98	.511	.601	
12- Performance Goals		32.10	30.02	29.73	6.26	7.80	7.86	.886	.416	
13- Social Goals		20.24	19.16	17.63	3.49	4.54	5.38	2.13	.125	
The Motivated Strategy for Learning Questionnaire (MSLQ)										
14- Intrinsic Motivation		22.82	22.71	22.13	4.01	4.96	4.96	.158	.854	
15- Extrinsic Motivation		22.6	22.07	32.26	3.87	4.84	3.91	.550	.579	
16- Rehearsal		19.10	15.72	16.80	5.77	6.13	5.98	2.78	.068	
17- Elaboration		29.72	28.50	28.95	7.41	8.94	6.81	.200	.819	
18- Organization		18.93	16.85	15.30	5.16	5.42	6.21	2.83	.065	
19- Critical Thinking		24.75	23.43	25.23	5.56	7.10	6.31	.649	.525	
20- Metacognitive self -regulatory strategy		56.64	50.08	48.66	13.49	15.2	13.54	2.39	.098	

\*p<0.05



Males (Achievement in Mathematics)									
Variables	Mean			SD			F	P	Post hoc comparison
	Low	Moderate	High	Low	Moderate	High			
The School Attitude Assessment Survey (SAAS)									
1- Students' attitudes toward the school	36.73	37.21	38.72	9.99	10.06	9.16	.342	.12	
2- Students' attitudes toward teachers and class	35.93	38.23	39.25	9.44	9.50	9.41	.702	.498	
The Inventory of School Motivation Scale (ISM)									
3- Task	18.17	18.02	18.27	1.42	1.63	1.88	.207	.813	
4- Effort	27.86	27.89	29.10	4.01	4.99	5.01	.699	.500	
5- Competition	23.93	22.81	25.57	5.06	5.45	4.16	3.123	.049*	High > Moderate
6- Social Power	24.12	21.83	23.74	6.18	5.95	5.42	1.36	.263	
7- Affiliation	11.68	11.63	10.52	2.72	3.02	2.99	1.65	.198	
8- Social Concern	19.33	18.97	19.23	2.94	3.66	3.80	.074	.929	
9- Praise	20.56	17.94	19.47	4.68	5.89	4.63	2.47	.091	
10- Tokens	23.58	22.48	24.76	6.93	8.05	7.51	.827	.441	
11- Mastery Goals	21.35	21.37	22.12	3.95	4.27	3.34	.440	.645	
12- Performance Goals	30.76	29.52	31.56	6.78	7.14	7.85	.737	.481	
13- Social Goals	19.43	19.39	18.76	3.22	4.07	5.38	.222	.801	
The Motivated Strategy for Learning Questionnaire (MSLQ)									
14- Intrinsic Motivation	22.06	22.35	23.05	3.25	5.01	4.85	.341	.712	
15- Extrinsic Motivation	23.4	20.94	23.71	3.99	4.85	3.42	4.61	.012*	High > Moderate
16- Rehearsal	20.25	16.23	16.46	5.53	6.19	5.59	2.82	.065	
17- Elaboration	29.87	27.75	29.77	7.07	8.44	7.85	.734	.483	
18- Organization	18.41	16.97	16.69	5.42	6.13	5.31	.562	.572	
19- Critical Thinking	23.58	23.63	25.18	5.42	6.37	7.01	.637	.531	
20- Metacognitive self -regulatory strategy	56.00	52.28	50.07	12.6	14.61	14.98	.830	.440	

\*p<0.05



Females (Achievement in Arabic) Variables		Mean			SD			F	P	Post hoc comparison
		Low	Moderate	High	Low	Moderate	High			
The School Attitude Assessment Survey (SAAS)										
1- Students' attitudes toward the school		39.85	38.80	38.96	7.02	8.80	8.73	.099	.906	
2- Students' attitudes toward teachers and class		37.89	37.03	38.45	7.30	10.91	9.19	.142	.868	
The Inventory of School Motivation Scale (ISM)										
3- Task		19.10	18.79	18.88	0.967	1.56	1.12	.345	.709	
4- Effort		29.26	29.22	29.56	3.72	4.37	3.77	.793	.457	
5- Competition		25.33	24.31	25.6	3.48	3.51	3.57	.996	.375	
6- Social Power		24.61	22.96	23.28	3.68	4.53	4.88	.791	.457	
7- Affiliation		12.3	11.46	11.66	2.45	2.53	2.72	.639	.531	
8- Social Concern		21.15	20.42	20.76	2.05	2.86	3.45	.362	.697	
9- Praise		21.42	21.06	20.76	2.89	3.42	3.75	.202	.817	
10- Tokens		23.77	22.75	25.04	4.8	5.38	6.22	1.11	.332	
11- Mastery Goals		23.26	22.28	22.68	1.96	2.22	2.11	1.20	.307	
12- Performance Goals		32.85	31.37	31.92	3.01	4.37	4.73	.732	.485	
13- Social Goals		19.95	20.27	20.44	3.1	3.3	3.74	.117	.890	
The Motivated Strategy for Learning Questionnaire (MSLQ)										
14- Intrinsic Motivation		21.84	21.58	22.79	4.2	4.15	3.38	.656	.552	
15- Extrinsic Motivation		24.30	22.06	23.58	3.32	3.88	4.36	2.12	.128	
16- Rehearsal		16.25	17.72	18.24	5.99	4.80	5.37	.815	.447	
17- Elaboration		27.90	28.28	30.68	7.17	7.56	6.24	1.10	.338	
18- Organization		15.95	17.53	19.64	4.97	5.08	5.13	3.01	.056	
19- Critical Thinking		22.63	22.92	23.70	7.21	7.38	6.08	.145	.866	
20- Metacognitive self -regulatory strategy		50.57	51.64	55.32	12.71	11.03	11.17	1.08	.345	

*\*p<0.05*

Females (Achievement in Mathematics) Variables		Mean			SD			F	P	Post hoc comparison
		Low	Moderate	High	Low	Moderate	High			
The School Attitude Assessment Survey (SAAS)										
1- Students' attitudes toward the school		38.6	37.9	40.53	8.60	9.09	7.25	.684	.508	
2- Students' attitudes toward teachers and class		37.7	36.7	38.66	10.73	9.10	8.59	.243	.785	
The Inventory of School Motivation Scale (ISM)										
3- Task		19.00	18.83	18.89	1.44	1.30	1.13	.098	.907	
4- Effort		28.57	28.13	30.00	4.82	3.59	3.49	1.54	.223	
5- Competition		24.09	24.62	26.07	3.59	4.19	2.54	2.15	.125	
6- Social Power		24.4	22.8	23.32	3.45	5.61	4.10	.734	.484	
7- Affiliation		12.04	12.29	11.07	2.57	2.21	2.77	1.64	.201	
8- Social Concern		20.5	20.70	21.00	1.99	3.05	3.35	.216	.806	
9- Praise		21.3	21.00	20.92	3.30	3.24	3.65	.070	.933	
10- Tokens		23.63	23.57	24.14	5.63	5.90	5.46	.078	.925	
11- Mastery Goals		23.00	22.31	22.71	2.30	2.00	2.10	.563	.572	
12- Performance Goals		32.4	31.00	32.46	4.04	4.82	3.64	.941	.395	
13- Social Goals		20.40	20.16	20.17	2.87	3.70	3.53	.037	.964	
The Motivated Strategy for Learning Questionnaire (MSLQ)										
14- Intrinsic Motivation		21.18	21.66	23.14	4.61	3.96	3.03	1.79	.174	
15- Extrinsic Motivation		23.77	22.83	23.00	3.47	4.07	4.33	.358	.700	
16- Rehearsal		17.22	17.45	17.75	6.49	4.53	5.11	.059	.943	
17- Elaboration		27.50	28.34	30.71	9.62	5.65	5.37	1.45	.243	
18- Organization		17.14	17.45	18.64	5.79	4.88	5.10	.576	.565	
19- Critical Thinking		21.50	22.12	25.26	8.81	5.31	6.00	2.18	.122	
20- Metacognitive self -regulatory strategy		51.61	51.26	54.53	13.54	11.57	10.00	.616	.543	

\**p*<0.05

#### **4.2.4.1 Motivation difference among the three levels of achievers**

One of the aims of this study was to determine the difference among the three groups in their use of intrinsic and extrinsic motivation, which were measured using the Motivated Strategies for Learning Questionnaire. The descriptive results and one way ANOVA based upon the Motivated Strategies for Learning Questionnaire (MSLQ-R) are presented in Tables 4.7 and 4.8. In terms of their extrinsic motivation, the results show that there was a significant difference between tenth grade low and moderate achievers in terms of their achievement in Arabic. Also, there was a significant difference between male high achievers and moderate achievers in their extrinsic motivation. However, these results were not considered in this study since this scale showed a low reliability coefficient as shown in chapter 3. The Intrinsic Motivation subscale shows that there were no significant differences among the three levels of achievers across grade and gender whether in terms of their achievement in Arabic or Mathematics.

#### **4.2.4.2 Self-regulation difference among the three levels of achievers**

The descriptive results and one way ANOVA based upon the Motivated Strategies for Learning Questionnaire (MSLQ-R) showed that there was no significant difference among the three achievers in terms of their use of the self-regulatory strategies (see Tables 4.7 and 4.8).

#### **4.2.4.3 Modevotional goals difference among the three levels of achievers**

The descriptive results and one way ANOVA based upon the Inventory of School Motivation Scale -R (ISM) showed that there were significant differences among the three groups in terms of their achievement in Arabic in a number of motivational goals. First, the results show that tenth grade low achievers and moderate achievers differed in competition, with low achievers ( $M = 25.94$ ,  $SD = 3.96$ ,  $p < .05$ ) being more competitive than moderate achievers ( $M = 22.87$ ,  $SD = 4.11$ ,  $p < .05$ ). Second, the results also showed that there was a significant difference between tenth grade low achievers and high achievers in their affiliation, with low achievers ( $M = 12.15$ ,  $SD = 2.87$ ,  $p < .05$ ) being more oriented toward affiliation than high achievers ( $M = 9.31$ ,  $SD = 3.63$ ,  $p < .05$ ). Also, there was a significant difference between tenth grade moderate achievers and high achievers in their affiliation, with moderate achievers ( $M = 11.51$ ,

SD=2.58,  $p<.05$ ) being more oriented toward affiliation than high achievers ( $M =9.31$ ,  $SD=3.63$ ,  $p< .05$ ). Third, there was a significant difference between eleventh grade high and low achievers in terms of their achievement in Arabic in their orientations toward effort, with high achievers ( $M =30.80$ ,  $SD=3.88$ ,  $p<.05$ ) being more oriented toward effort than low achievers ( $M =27.86$ ,  $SD=4.36$ ,  $p< .05$ ). Fourth, there was a significant difference between eleventh grade high and low achievers in terms of their achievement in Arabic in competition, with high achievers ( $M =27.16$ ,  $SD=2.79$ ,  $p<.05$ ) being more competitive than low achievers ( $M =24.07$ ,  $SD=4.86$ ,  $p< .05$ ) (see Tables 4.7 and 4.9).

There were also significant sex differences among the three levels of achievers in terms of their achievement in Arabic in motivation goals. For example, there was a significant difference among male high achievers, moderate and low achievers in their affiliation, with low achievers ( $M=11.75$ ,  $SD=2.79$ ,  $p<.05$ ) being more oriented toward affiliation than high achievers ( $M=9.13$ ,  $SD=3.29$ ,  $p<.05$ ) as well as moderate achievers ( $M=11.81$ ,  $SD=2.56$ ,  $p<.05$ ) being more oriented toward affiliation than high achievers ( $M=9.13$ ,  $SD=3.29$ ,  $p<.05$ ). Finally, in terms of achievement in Mathematics the results show there was a significant sex difference between high achievers and moderate achievers in competition, with male high achievers ( $M=25.57$ ,  $SD=4.16$ ,  $p<.05$ ) being more competitive than moderate achievers ( $M=22.81$ ,  $SD=5.45$ ,  $p<.05$ ) (see Tables 4.8 and 4.9).

**Table 4.9**  
*The Difference in Competition, Effort, and Affiliation for the Three Levels of Achievers within Grade and Gender in terms of Achievement in Arabic and Mathematics*

Variable	10 <sup>th</sup> grade / Math	10 <sup>th</sup> grade/ Arabic	11 <sup>th</sup> grade / Math	11 <sup>th</sup> grade/ Arabic	Males/ Math	Males/ Arabic	Females/ Math	Females/ Arabic
Competition		L>M		H>L	H>M			
Effort				H>L				
Affiliation		L>H M>H				L>H M>H		
Social Concern								

*Note* H: High achievers, M: Moderate achievers, L: Low achievers

**4.2.4.4 Goal orientations difference among the three levels of achievers**

The descriptive results and one way ANOVA based upon the Inventory of School Motivation Scale -R (ISM) showed that there was a significant difference among tenth grade high, moderate, and low achievers in terms of their achievement in Arabic in their orientation toward performance goals with low achievers ( $M=33.78$ ,  $SD=3.37$ ,

$p<.05$ ) being significantly more oriented toward performance goals than high achievers ( $M=28.08$ ,  $SD=7.67$ ,  $p<.05$ ). Also, there was a significant difference between tenth grade low and moderate achievers in their orientation toward performance goals with low achievers ( $M=33.78$ ,  $SD=3.37$ ,  $p<.05$ ) being significantly more oriented toward performance goals than moderate achievers ( $M=29.47$ ,  $SD=5.62$ ,  $p<.05$ ) (see Tables 4.7 and 4.10). Yet, the results show that there were no significant differences among the three levels of achievers across grade and gender in their use of mastery and social goals.

**Table 4.10**

*The Difference in the Orientations toward Performance Goals for the Three Levels of Achievers within Grade and Gender in terms of their Achievement in Arabic and Mathematics*

Variable	10 <sup>th</sup> grade /Math	10 <sup>th</sup> grade/ Arabic	11 <sup>th</sup> grade /Math	11 <sup>th</sup> grade/ Arabic	Males/ Math	Male/ Arabic	Females/ Math	Females/ Arabic
Performance Goals		L>H L>M						

*Note H: High achievers, M: Moderate achievers, L: Low achievers*

#### 4.2.4.5 Attitudes difference among the three levels of achievers

The descriptive results and one way ANOVA based upon the School Attitude Assessment Survey-R (SAAS) showed that there were no significant differences among the three achievers in their attitudes towards their school and teachers and class. Most of the students had positive attitudes toward their school and teachers and classes as shown in Tables 4.7 and 4.8.

#### 4.2.5 Research Question 2: Relationship among motivation, self-regulation, motivational goals, goal orientations, attitudes, and achievement

Scatter plot was run before estimating the relationship between variables because if the dots were not clustered on a straight line, there was no need to run correlation or simple regression. The scatter plot indicated that there were linear relationships between a number of variables, for example, performance goals and social power; performance goals and praise, and elaboration and critical thinking. A Pearson product moment correlation was then conducted to determine the degree of relationship between these variables as shown in Table 4.11.



Pearson Moment Correlations of Motivation, Self-Regulation, Motivational Goals, Goal Orientations, Attitudes, and Achievement in the Jordanian Sample

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Motivational Goals																						
1.Task	-	.469**	.341**	.276**	.157*	.186*	.347**	.208**	.376**	.358**	.238**	.229**	.323**	.118	.211**	.145	.109	.219**	.252**	.281**	.082	-.015
2.Effort	.469**	-	.511**	.274**	.265**	.269**	.277**	.267**	.458**	.424**	.289**	.362**	.187*	.188*	.359**	.267**	.349**	.337**	.336**	.412**	.057	.120
3.Comp	.341**	.511**	-	.524**	.296**	.229**	.494**	.454**	.516**	.651**	.375**	.214**	.385**	.291**	.341**	.240**	.313**	.236**	.264**	.174*	.055	.181*
4.Social/p	.276**	.274**	.524**	-	.354**	.134	.388**	.387**	.398**	.709**	.427**	.106	.228**	.146	.260**	.183*	.161*	.225**	.202*	.154	-.064	-.026
5.Aff	.157*	.265**	.296**	.354**	-	.497**	.259**	.299**	.269**	.427**	.618**	.238**	-.008	.274**	.219**	.331**	.147	.277**	.311**	.216**	-.203**	-.175*
6.Social/C	.186*	.269**	.229**	.134	.497**	-	.134	.078	.251**	.204**	.546**	.249**	-.001	.216**	.237**	.332**	.063	.263**	.232**	.238**	-.145	.003
7.Praise	.347**	.277**	.494**	.388**	.259**	.134	-	.589**	.511**	.656**	.392**	.052	.353**	.254**	.162*	.023	.034	.123	.216**	.139	-.027	-.043
8.Tokens	.208**	.267**	.454**	.387**	.299**	.078	.589**	-	.365**	.679**	.379**	.017	.314**	.322**	.279**	.185*	.142	.228**	.149	.170*	-.004	.065
Goal Orientations																						
9.Mas/G	.376**	.458**	.516**	.398**	.269**	.251**	.511**	.365**	-	.621**	.474**	.273**	.297**	.211**	.270**	.199*	.166*	.239**	.364**	.318**	.048	.026
10.Perf/G	.358**	.424**	.651**	.709**	.427**	.204**	.656**	.679**	.621**	-	.614**	.229**	.374**	.290**	.374**	.269**	.267**	.310**	.339**	.331**	-.095	.039
11.Soc/G	.238**	.289**	.375**	.427**	.618**	.546**	.392**	.379**	.474**	.614**	-	.255**	.167*	.360**	.420**	.412**	.243**	.405**	.408**	.337**	-.093	-.061
Motivation																						
12.Int	.229**	.362**	.214**	.106	.238**	.249**	.052	.017	.273**	.229**	.255**	-	.124	.166*	.408**	.420**	.567**	.428**	.263**	.352**	.004	.143
13.Ext	.323**	.187*	.385**	.228**	-.008	-.001	.353**	.314**	.297**	.374**	.167*	.124	-	.195*	.125	.138	.111	.175*	.093	.215**	.009	.019
Self-Regulation																						
14.Reh	.118	.188*	.291**	.146	.274**	.216**	.254**	.322**	.211**	.290**	.360**	.166*	.195*	-	.609**	.620**	.412**	.682**	.212**	.280**	-.025	-.086
15.Elab	.211**	.359**	.341**	.260**	.219**	.237**	.162*	.279**	.270**	.374**	.420**	.408**	.125	.609**	-	.645**	.714**	.790**	.335**	.323**	.044	.101
16.Org	.145	.267**	.240**	.183*	.331**	.332**	.023	.185*	.199*	.269**	.412**	.420**	.138	.620**	.645**	-	.526**	.748**	.271**	.298**	-.011	-.008
17.Crit	.109	.349**	.313**	.161*	.147	.063	.034	.142	.166*	.267**	.243**	.567**	.111	.412**	.714**	.526**	-	.682**	.329**	.331**	.029	.171*
18.Metcog	.219**	.337**	.236**	.225**	.277**	.263**	.123	.228**	.239**	.310**	.405**	.428**	.175*	.682**	.790**	.748**	.682**	-	.374**	.356**	-.056	-.033
Attitudes toward the school and teachers																						
19.SAS	.252**	.336**	.264**	.202*	.311**	.232**	.216**	.149	.364**	.339**	.408**	.263**	.093	.212**	.335**	.271**	.329**	.374**	-	.598**	-.078	.082
20.SATC	.281**	.412**	.174*	.154	.216**	.238**	.139	.170*	.318**	.331**	.337**	.352**	.215**	.289**	.323**	.298**	.331**	.356**	.598**	-	.014	.089
Achievement																						
21.Ach/ A	.082	.057	.055	-.064	-.203**	-.145	-.027	-.004	.048	-.095	-.093	.004	.009	-.025	.044	-.011	.029	-.056	-.078	.014	-	.414**
22.Ach/ M	-.015	.120	.181*	-.026	-.175*	.003	-.043	.065	.026	.039	-.061	.143	.019	-.086	.101	-.008	.171*	-.033	.082	.089	.414**	-

Note \*\* Correlation is significant at the 0.01 level (2-tailed). \* Correlation is significant at the 0.05 level (2-tailed).

Com: Competition, Social/p: Social Power, Aff: Affiliation, Social/C: Social Concern, Mas/G: Mastery Goals, Perf/G: Performance Goals, Soc/ G: Social Goals, Int: Intrinsic Motivation, Ext: Extrinsic Motivation, Reh: Rehearsal, Elab: Elaboration, Org: Organization, Critical: Critical thinking, Metcog: Metacognitive Self-Regulatory Strategy, SAS: students' attitudes towards school, SATC: Students' attitudes towards teachers and class, Ach/ A: Achievement in Arabic, Ach/ M: Achievement in Mathematics

The Pearson moment correlation showed strong to moderate relationships between the variables of the study. There was a strong relationship between goals and motivational goals, particularly between performance goals and social power ( $r=.71$ ), performance goals and competition ( $r=.65$ ), performance goals and praise ( $r=.66$ ), and performance goals and tokens ( $r=.68$ ) which were all significant at the .01 level. Moreover, there was a positive strong relationship between social goals and affiliation ( $r=.62$ ), social goals and social concern ( $r=.55$ ) which were all significant at the .01 level. Finally, there was a strong positive relationship between mastery goals and competition ( $r=.52$ ), and mastery goals and praise ( $r=.51$ ), which were all significant at the .01 level.

There were also strong positive relationships among the three goals. For example, there was a strong positive relationship between performance goals and mastery goals ( $r=.62$ ), and performance goals and social goals ( $r=.61$ ) which were all significant at the .01 level. Moreover, there was a positive strong relationship between effort and competition ( $r=.51$ ), competition and social power ( $r=.52$ ), social concern and affiliation ( $r=.50$ ), and praise and tokens ( $r=.59$ ), which were all significant at the .01 level.

The results indicated that there were strong positive relationships between elaboration and metacognitive self-regulatory strategy ( $r=.79$ ), elaboration and critical thinking ( $r=.71$ ), elaboration and rehearsal ( $r=.61$ ), and rehearsal and organization ( $r=.61$ ), which were all significant at the .01 level. There was a strong relationship between organization and metacognitive self-regulatory strategy ( $r=.75$ ), and metacognitive self-regulatory strategy and critical thinking ( $r=.68$ ), which were all significant at the .01 level. Also, there was a strong positive relationship between intrinsic motivation and critical thinking ( $r=.57$ ), and critical thinking and organization ( $r=.53$ ) which were all significant at the .01 level. Finally, there was a strong positive relationship between students' attitudes towards school and students' attitudes towards their teachers and class ( $r=.60$ ), which was significant at the .01 level.

As a result, linear regression analysis was used to gain a better understanding of the relationship among these variables and the form of the relationships, using the enter method. Each dependent variable was regressed on the variables with which it had a strong relationship. Table 4.12 presents the results of linear regression for the previously discussed relationships.

Table 4.12

Linear Regression Models of Motivation, Self-Regulation, Motivational Goals, Goal Orientations, and Attitudes in the Jordanian Sample

Linear Regression					
Criterion	Predictors	R	R Square	F	B
Effort	Competition	0.511	0.261	0.000	15.999 0.516
Competition	Effort Social Power Praise Mastery Goals Performance Goals	0.738	0.544	0.000	1.825 0.269 0.164 0.189 0.188 0.166
Social Power	Competition Performance Goals	0.716	0.512	0.000	2.990 0.138 0.538
Affiliation	Social Goals	0.618	0.382	0.000	3.052 0.428
Social Concern	Social Goals	0.546	0.298	0.000	10.703 0.464
Praise	Tokens Mastery Goals Performance Goals	0.721	0.52	0.000	-0.454 0.216 0.319 0.255
Tokens	Praise Performance Goals	0.699	0.489	0.000	-0.953 0.371 0.555
Mastery Goals	Competition Praise Performance Goals	0.666	0.443	0.000	10.632 0.135 0.126 0.184



Linear Regression					
Criterion	Predictors	R	R Square	F	B
Performance Goals	Competition	.905	.818	.000	-4.387
	Social Power				.176
	Social Goals				.417
	Praise				.232
	Tokens				.236
	Mastery Goals				.243
					.297
Social Goals	Affiliation	.722	.596	.000	-.559
	Social Concern				.413
	Performance Goals				.363
					.265
Intrinsic Motivation	Critical Thinking	.567	.322	.000	13.351
					.377
Rehearsal	Elaboration	.709	.503	.000	.520
	Organization				.146
	Metacognitive Self- Regulatory Strategy				.274
					.146
Elaboration	Rehearsal organization	.844	.713	.000	1.770
	Critical Thinking				.221
	Metacognitive Self- Regulatory Strategy				.172
					.402
					.203

Linear Regression					
Criterion	Predictors	R	R Square	F	B
Organization	Rehearsal	.774		.000	.360
	Elaboration				.164
	Critical Thinking				.122
	Metacognitive Self- Regulatory Strategy				.003
Critical Thinking	Rehearsal	.785		.000	.205
	Elaboration				-2.217
	Critical Thinking				.438
	Metacognitive Self-Regulatory Strategy				.413
Metacognitive Self- Regulatory Strategy	Rehearsal	.866		.000	-.133
	Elaboration				.129
	Critical Thinking				6.436
	Metacognitive Self-Regulatory Strategy				.464
Attitudes toward the school	Rehearsal	.598		.000	.524
	Elaboration				.748
	Critical Thinking				.410
	Attitudes toward teachers and class				16.997
			.357		.564

The following table illustrates the outcome of the regression between the variables that showed strong relationship. For example, effort, competition, social power, social goals, praise, tokens, and mastery goals predicted performance goals. Thus, this model is accurate since  $r = .91$  indicates a strong relationship between the criterion variable and the predicted variables. The significant factor that corresponds to the F value is 0.000 and thus there is a linear relationship. The regression equation, which would predict performance goals, is:

Predicted Performance Goals= competition+ social power+ social goals+ praise+ tokens+ mastery goals.

Predicted Performance Goals= .176+.417+.232+.236+.243+.297. Finally, these models were regressed in terms of the achievement in Arabic and Mathematics as predictors using the enter method to see whether achievement levels could predict any of the dependent variables as shown in Table 4.13.

Table 4.13

Linear Regression Models of Motivation, Self-Regulation, Motivational Goals, Goal Orientations, and Attitudes in terms of Achievement in Arabic and Mathematics in the Jordanian Sample

Criterion	Predictors	R	R Square	F	B	p	Beta
1- Task	Achievement in Arabic	0.099	0.018	0.445	0.221	0.209	.167
2- Effort	Achievement in Mathematics				0.119	0.486	-.059
	Achievement in Arabic	0.121	0.015	0.311	0.060	0.906	0.010
3- Competition	Achievement in Mathematics				0.675	0.179	0.116
	Achievement in Arabic	0.182	0.033	0.065	-0.140	-0.778	-0.024
4- Social Power	Achievement in Mathematics				1.086	<b>0.026</b>	0.191
	Achievement in Arabic	0.064	0.004	0.725	-0.439	0.466	-0.064
5- Affiliation	Achievement in Mathematics				0.003	0.997	0.000
	Achievement in Arabic	0.225	0.051	0.014	-0.584	0.065	-0.157
6- Social Concern	Achievement in Mathematics				-0.391	0.206	-0.107
	Achievement in Arabic	0.1603	0.026	0.114	-0.797	<b>0.038</b>	-0.181
7- Praise	Achievement in Mathematics				0.359	0.342	0.082
	Achievement in Arabic	0.044	0.002	0.854	-0.063	0.906	-0.010
8- Tokens	Achievement in Mathematics				-0.233	0.654	-0.039
	Achievement in Arabic	0.074	0.006	0.644	-0.348	0.655	-0.039
9- Mastery Goals	Achievement in Mathematics				0.707	0.350	-0.082
	Achievement in Arabic	0.048	0.002	0.83	0.198	0.605	0.045
10- Performance Goals	Achievement in Mathematics				0.030	0.933	0.007
	Achievement in Arabic	0.128	0.016	0.254	-1.091	0.115	-0.134
11- Social Goals	Achievement in Mathematics				0.754	0.265	0.095
	Achievement in Arabic	0.096	0.009	0.467	-0.436	0.342	-0.081
12- Intrinsic Motivation	Achievement in Mathematics				-0.147	0.744	-0.028
	Achievement in Arabic	0.154	0.024	0.141	-0.368	0.450	-0.064
13- Extrinsic Motivation	Achievement in Mathematics				0.939	<b>0.048</b>	0.019
	Achievement in Arabic	0.019	0.000	0.97	0.010	0.984	0.002
14- Rehearsal	Achievement in Mathematics				0.100	0.836	0.019
	Achievement in Arabic	0.087	0.008	0.537	0.105	0.872	0.014
15- Elaboration	Achievement in Mathematics				-0.682	0.287	-0.092
	Achievement in Arabic	0.101	0.010	0.433	0.008	0.992	0.001
	Achievement in Mathematics				0.973	0.245	0.101

16- Organization	Achievement in Arabic	0.011	0	0.989	-0.067	0.913	-0.009
17- Critical Thinking	Achievement in Mathematics				-0.026	0.966	-0.004
	Achievement in Arabic	0.178	0.032	0.081	-0.499	0.552	-0.052
18- Metacognitive	Achievement in Mathematics				1.648	<b>0.027</b>	0.193
	Achievement in Arabic	0.057	0.003	0.755	-0.882	0.561	-0.051
19- Attitudes toward the School	Achievement in Mathematics				-0.198	0.896	-0.012
	Achievement in Arabic	0.15	0.002	0.163	-1.627	0.112	-0.138
20- Attitudes toward Teachers and class	Achievement in Mathematics				1.625	0.105	0.141
	Achievement in Arabic	0.092	0.008	0.514	-0.308	0.776	-0.025
	Achievement in Mathematics				1.181	0.255	0.099

*\*p< 0.05*

Table 4.13 illustrates the outcome of the regression between the dependent variables (motivation, self-regulation, goal orientations, and attitudes) and independent variables (achievement in Arabic and Mathematics). The results show that there was no strong relationship between any of the dependent variables and the independent variables. However, in multiple regressions other factors such as R Square, the significance F value, and the significance  $p$  value were considered important in interpreting multiple regression models. In social science R Square of 9 % is considered respectable and the significance F and  $p$  value has to be below .05. Therefore, achieving levels predicted some of the dependent variables such as competition, social concern, intrinsic motivation, and critical thinking. Achievement in Mathematics predicted competition with R Square= .033, F= .065,  $p$ = .026. Achievement in Arabic predicted social concern with R Square= .026, F= .114,  $p$ = .038. Achievement in Mathematics predicted intrinsic motivation with R Square= .024, F= .141,  $p$ = .048. Achievement in Mathematics predicted critical thinking with R Square= .032, F= .081,  $p$ = .027. However these models might not be considered strong since the R Square is low.

## **4.3 Results study 2 (Australian)**

### **4.3.1 Comparison of demographic information of high achievers, moderate achievers, and low achievers**

As mentioned previously, the current study employed a comparative design that examined motivation, self-regulation, motivational goals and goal orientations among the three levels of achievers. The demographic characteristics were gathered as part of the questionnaires that the participants completed.

The results indicated that there was a significant age difference among the three levels of achievers in terms of their achievement in English  $\chi^2 (6, N= 197) = 14.674, p=.023$ . Nevertheless, the results show that there was no age difference among the three levels in terms of their achievement in Mathematics  $\chi^2 (6, N=178) = 3.677, p=.72$ . Also, the results indicate that there was no significant difference in the number of females and males in terms of achievement in Mathematics  $\chi^2 (2, N= 178) = .835, p= .66$ . However, the results indicate that there was significant difference in the number of females and males in each group in terms of their achievement in English  $\chi^2 (2, N=197) = 32.289, p=.000$ . Similarly, the results indicate that there was a significant grade difference among the three levels in terms of their achievement in English  $\chi^2 (2, N= 197) = 14.348, p=.001$  but the results show that there was no significant grade difference among the three levels in terms of their achievement in Mathematics  $\chi^2 (2, N=178) = 3.258, p=.20$ .

### **4.3.2 Pretest Differences**

Reliability analysis was employed to determine a good internal consistency reliability coefficient as presented in chapter 3. Univariate analysis was conducted to determine the interactions of the response variables (motivation, self-regulation, motivational goals, goal orientations, and attitudes) on the explanatory variables (achievement in Mathematics and English, sex, and grade) (see Tables 4.5 and 4.6).

### **4.3.3 Differences among high achievers, moderate achievers, and low achievers in their motivation, self-regulation, motivational goals, goal orientation, and attitudes.**

The aim of the study was to compare the three levels of achievers in terms of motivation, self-regulation, motivational goals, goal orientations, and attitudes toward the school and teachers. Univariate analysis was used to uncover the main and interaction effects of explanatory variables (achievement levels, grade, and sex) on the response variables (motivation, self-regulation, motivational goals, goal orientations, and attitudes). The results show that there were interactions between the explanatory variables and the response variables. Therefore, one way ANOVA results were presented in terms of grade, sex, and achievement in English and Mathematics. One way ANOVA using *Bonefferoni* adjustment was used to determine the differences among the three groups. The assumptions that were tested in one way ANOVA were that the dependent variables were normally distributed and the homogeneity of the population. The results through Q-Q plots indicate that the dependent variables are normally distributed. Regarding the homogeneity of the population, Levene's test was used to test this assumption if results were below .05 then other tests such as Welch and Brown- Forsythe were used. If the results in those two tests were not significant below .05 then the assumption has been violated and the results regarding post hoc comparison were not considered. The results of Leven's test indicate that this assumption has not been violated except in Affiliation for the tenth grade students in terms of their achievement in English, male students in terms of their achievement in English and Mathematics. Social Goals for eleventh grade students in terms of their achievement in Mathematics and for male students in terms of their achievement in Mathematics. Finally, in attitudes toward the school for eleventh grade and male students in terms of their achievement in Mathematics (see Appendices K, L, M, N, O, P, Q, R).



#### **4.3.4 Research Question 1: To what extent do gifted high achievers, moderate achievers and low achievers differ on their motivation, self-regulation, motivational goals, goal orientation, and attitudes toward the school and teachers and class?**

This section describes the descriptive results of motivation, self-regulation, motivational goals, goal orientations, and attitudes among the three groups. One way ANOVA using *Boneferroni* adjustment was used to determine the differences among the three groups (see Tables 4.14 and 4.15).

Table 4.14

Descriptive Statistics, ANOVA results, and Post hoc Comparison among Tenth and Eleventh Grades' Three levels of Achievers in their Attitudes, Motivation, Self-Regulation, Motivational Goals, and Goal Orientation ( Australian Study)

Tenth Grade (Achievement in English) Variables		Mean		SD		F	P	Post hoc comparison
		Low	Moderate	High	Low	Moderate	High	
The School Attitude Assessment Survey (SAAS)								
1- Students' attitudes toward the school		32.66	37.71	39.75	8.86	10.00	8.02	2.14 .123
2- Students' attitudes toward teachers and class		30.50	40.32	39.92	8.40	9.29	8.24	3.52 .033*
The Inventory of School Motivation Scale (ISM)								Moderate >Low High >Low
3- Task		16.16	17.00	17.73	2.48	1.93	2.21	2.18 .118
4- Effort		21.50	25.15	26.43	4.23	4.31	4.38	3.91 .023*
5- Competition		15.00	17.39	18.07	7.94	6.12	7.48	.544 .582
6- Social Power		12.66	16.39	15.25	3.01	5.34	5.96	1.14 .323
7- Affiliation		10.66	10.82	10.17	3.07	2.00	3.08	.541 .584
8- Social Concern		05.60	19.57	19.11	2.70	2.86	3.52	3.05 .052
9- Praise		17.60	18.59	18.84	3.20	4.23	4.43	.201 .819
10- Tokens		19.33	18.03	18.13	6.18	6.14	6.70	.102 .903
11- Mastery Goals		18.33	19.62	20.02	2.06	3.32	3.34	.796 .454
12- Performance Goals		21.33	25.28	24.57	7.17	6.10	7.29	.792 .456
13- Social Goals		17.00	18.62	16.32	3.46	4.06	4.31	2.88 .061
The Motivated Strategy for Learning Questionnaire (MSLQ)								
14- Intrinsic Motivation		12.00	16.66	17.26	4.33	5.57	5.17	2.79 .066
15- Extrinsic Motivation		15.66	19.00	19.44	7.86	6.03	6.02	1.05 .353
16- Rehearsal		12.16	14.14	15.44	5.19	5.53	5.44	1.33 .269
17- Elaboration		18.83	23.51	22.30	8.42	7.06	7.28	1.04 .357
18- Organization		9.50	13.66	15.89	3.56	5.26	5.99	4.35 .016*
19- Critical Thinking		15.150	19.07	17.32	5.24	7.06	7.28	1.51 .321
20- Metacognitive self -regulatory strategy		38.00	46.25	46.73	10.86	11.76	11.31	1.62 .204

\*p< 0.05

Tenth Grade (Achievement in Mathematics) Variables		Mean		SD			F	P	Post hoc comparison	
		Low	Moderate	High	Low	Moderate				High
The School Attitude Assessment Survey (SAAS)										
1- Students' attitudes toward the school		34.62	40.43	40.83	9.91	7.44	6.60	5.32	.006*	Moderate >Low
2- Students' attitudes toward teachers and class		36.45	38.72	42.61	9.10	8.17	6.92	4.51	.014*	High > Low
The Inventory of School Motivation Scale (ISM)										
3- Task		16.26	17.88	17.68	2.70	1.90	1.92	4.54	.013*	Moderate > Low
4- Effort		22.63	26.08	27.16	4.80	3.95	4.06	8.15	.001*	High > Low
5- Competition		15.00	17.77	19.41	6.72	7.53	6.46	2.99	.055	High > Low
6- Social Power		14.62	15.22	15.75	5.73	6.08	5.05	.290	.749	
7- Affiliation		9.34	10.59	10.66	2.72	3.22	2.35	1.83	.166	
8- Social Concern		17.87	19.27	19.44	3.76	3.76	2.55	1.77	.176	
9- Praise		17.27	18.06	19.69	5.19	3.39	4.27	2.23	.114	
10- Tokens		17.29	18.48	18.52	5.78	6.48	6.93	.317	.729	
11- Mastery Goals		18.12	19.81	21.14	4.02	2.84	2.62	6.72	.002*	High > Low
12- Performance Goals		23.20	23.72	25.91	6.69	6.96	6.94	1.42	.247	
13- Social Goals		16.33	16.91	17.28	5.41	4.07	3.73	.343	.710	
The Motivated Strategy for Learning Questionnaire (MSLQ)										
14- Intrinsic Motivation		11.00	17.75	19.47	4.40	3.96	4.61	28.41	.000*	Moderate >Low
15- Extrinsic Motivation		12.91	20.27	21.44	5.41	4.60	5.13	20.81	.000*	Moderate >Low
16- Rehearsal		10.72	15.88	16.28	5.41	4.60	5.13	9.68	.000*	Moderate >Low
17- Elaboration		18.52	22.61	24.91	7.07	6.89	6.18	6.37	.003*	High > Low
18- Organization		11.04	15.05	17.28	5.85	5.01	5.27	9.58	.000*	Moderate >Low
19- Critical Thinking		14.30	18.48	19.08	6.73	5.46	5.59	5.15	.008*	High > Low
20- Metacognitive self -regulatory strategy		37.54	47.08	50.70	11.31	9.66	10.05	11.99	.000*	Moderate >Low

\*p< 0.05

Eleventh Grade (Achievement in English) Variables		Mean		SD			F	P	Post hoc comparison	
		Low	Moderate	High	Low	Moderate				High
The School Attitude Assessment Survey (SAAS)										
1- Students' attitudes toward the school		36.61	40.25	39.02	9.04	7.36	8.55	1.03	.360	
2- Students' attitudes toward teachers and class		38.23	42.39	43.57	6.49	6.66	7.42	2.86	.062	
The Inventory of School Motivation Scale (ISM)										
3- Task		16.61	17.83	18.23	2.02	1.48	1.36	5.52	.005*	Moderate > Low High > Low
4- Effort		22.75	24.90	26.37	4.53	4.57	4.03	3.35	.040*	High > Low Moderate > Low High > Low
5- Competition		14.46	19.88	21.31	7.41	5.75	6.15	6.03	.003*	
6- Social Power		13.76	15.26	14.78	6.39	4.42	5.25	.436	.648	
7- Affiliation		11.38	10.09	9.13	2.81	3.03	3.19	2.79	.067	
8- Social Concern		19.53	18.88	18.71	3.82	3.74	3.51	.249	.780	
9- Praise		18.00	19.21	19.08	4.75	3.73	3.74	.843	.434	
10- Tokens		15.30	18.06	16.18	6.83	6.06	6.27	1.41	.249	
11- Mastery Goals		18.61	20.69	20.47	3.37	2.58	2.87	2.82	.065	
12- Performance Goals		21.92	25.65	25.05	7.90	5.37	6.15	1.86	.162	
13- Social Goals		18.69	15.30	15.71	4.02	4.27	4.55	3.10	.050	Low > Moderate
The Motivated Strategy for Learning Questionnaire (MSLQ)										
14- Intrinsic Motivation		17.53	18.32	17.56	2.93	4.97	4.99	.288	.751	
15- Extrinsic Motivation		20.53	22.25	22.28	4.80	3.94	4.78	.862	.426	
16- Rehearsal		14.84	15.38	16.18	6.08	4.14	5.29	.458	.634	
17- Elaboration		22.00	24.85	25.81	6.86	5.90	7.34	1.58	.212	
18- Organization		15.15	16.30	17.78	5.39	4.42	5.47	1.64	.200	
19- Critical Thinking		16.46	17.97	17.36	4.82	5.95	6.58	.326	.723	
20- Metacognitive self-regulatory strategy		17.53	18.32	17.56	2.93	4.97	4.99	2.80	.067	

\*p<0.05

\**p* < 0.05



Eleventh Grade (Achievement in Mathematics)		Mean		SD			F	P	Post hoc comparison
Variables		Low	Moderate	High	Low	Moderate	High		
<b>The School Attitude Assessment Survey (SAAS)</b>									
1- Students' attitudes toward the school		38.18	38.65	40.34	6.77	9.86	5.42	.419	.659
2- Students' attitudes toward teachers and class		40.50	41.43	43.39	4.77	7.87	7.72	.844	.434
<b>The Inventory of School Motivation Scale (ISM)</b>									
3- Task		17.00	17.92	18.34	1.71	1.57	1.63	3.65	.031*
4- Effort		24.12	24.73	27.13	4.28	4.69	3.75	2.93	.059
5- Competition		15.06	19.19	23.17	7.24	5.77	4.31	9.57	.000*
6- Social Power		12.53	14.63	16.08	4.34	4.36	4.97	2.77	.069
7- Affiliation		10.37	10.21	9.69	3.26	3.40	2.81	.368	.765
8- Social Concern		19.25	18.97	19.69	2.86	4.18	3.25	.279	.757
9- Praise		18.07	19.07	19.05	3.61	3.99	3.70	.696	.502
10- Tokens		14.18	14.27	17.73	6.29	6.65	5.87	1.71	.188
11- Mastery Goals		18.93	20.95	20.78	2.64	3.08	2.21	3.18	.047*
12- Performance Goals		21.06	24.30	27.52	5.85	5.95	5.16	6.12	.003*
13- Social Goals		16.25	16.07	17.21	3.92	5.05	3.31	.515	.600
<b>The Motivated Strategy for Learning Questionnaire (MSLQ)</b>									
14- Intrinsic Motivation		16.71	17.23	20.91	3.22	4.57	2.84	7.78	.001*
15- Extrinsic Motivation		19.93	22.51	23.08	5.47	4.21	3.24	2.88	.062
16- Rehearsal		15.06	15.50	16.39	5.69	4.64	3.62	.447	.641
17- Elaboration		23.50	23.56	27.52	4.58	6.50	6.03	3.53	.034*
18- Organization		14.87	17.15	17.34	5.60	4.33	4.46	1.64	.201
19- Critical Thinking		15.50	15.82	20.82	4.96	5.46	6.56	6.49	.003*
20- Metacognitive self -regulatory strategy		40.00	48.61	51.65	9.47	9.41	9.18	1.78	.176

\*p< 0.05

Table 4.15

Descriptive Statistics, ANOVA results, and Post hoc Comparison among Males' and Females' Three levels of Achievers in their Attitudes, Motivation, Self-Regulation, Motivational Goals, and Goal Orientations (Australian Study)

Males (Achievement in English) Variables		Mean		SD			F	P	Post hoc comparison
		Low	Moderate	High	Low	Moderate			
The School Attitude Assessment Survey (SAAS)									
1- Students' attitudes toward the school		35.85	40.44	40.37	8.18	6.71	7.07	2.52	.086
2- Students' attitudes toward teachers and class		36.71	42.13	42.40	7.47	7.75	7.96	3.04	.052
The Inventory of School Motivation Scale (ISM)									
3- Task		16.64	17.59	18.23	2.02	1.56	1.79	4.46	.014*
4- Effort		22.76	25.59	27.00	4.10	4.02	4.53	4.77	.011*
5- Competition		16.71	18.88	22.08	7.17	5.99	6.28	4.50	.014*
6- Social Power		14.85	15.96	17.02	5.46	4.93	6.00	.885	.416
7- Affiliation		11.57	10.94	9.97	2.50	2.27	2.24	2.25	.110
8- Social Concern		18.07	19.40	18.97	4.09	3.36	3.13	.826	.441
9- Praise		18.91	18.87	19.20	4.31	3.95	3.43	.070	.932
10- Tokens		17.85	17.92	19.88	6.68	6.16	6.79	1.043	.356
11- Mastery Goals		18.92	20.29	20.76	2.73	2.85	3.42	1.81	.169
12- Performance Goals		23.35	25.26	27.28	7.20	5.64	6.19	2.37	.099
13- Social Goals		18.28	17.45	16.57	3.72	4.29	4.02	.973	.382
The Motivated Strategy for Learning Questionnaire (MSLQ)									
14- Intrinsic Motivation		16.28	19.06	19.08	3.51	4.32	4.23	2.65	.076
15- Extrinsic Motivation		20.92	21.25	22.14	4.48	4.54	4.34	.557	.575
16- Rehearsal		14.50	15.33	15.61	5.78	4.25	5.35	.261	.771
17- Elaboration		21.14	24.74	25.47	7.24	5.51	7.42	2.30	.106
18- Organization		13.00	15.27	16.11	5.17	4.43	5.71	1.92	.152
19- Critical Thinking		17.07	19.82	20.29	4.49	5.47	6.07	1.74	.180
20- Metacognitive self -regulatory strategy		43.78	49.07	49.30	10.19	9.18	10.33	1.84	.164

\* $p < 0.05$

Males (Achievement in Mathematics) Variables	Mean			SD			F	P	Post hoc comparison
	Low	Moderate	High	Low	Moderate	High			
The School Attitude Assessment Survey (SAAS)									
1- Students' attitudes toward the school	36.52	39.72	41.22	7.96	8.02	5.04	2.58	.083	
2- Students' attitudes toward teachers and class	38.73	39.69	45.12	8.44	8.12	6.26	5.93	.004*	High > Low High > Moderate
The Inventory of School Motivation Scale (ISM)									
3- Task	17.27	17.75	17.90	1.70	1.74	1.80	.733	.483	
4- Effort	23.44	26.20	26.96	4.00	4.20	4.47	4.06	.021*	High > Low
5- Competition	15.57	19.45	21.74	6.33	6.61	5.27	5.94	.004*	High > Low
6- Social Power	16.10	14.83	17.41	4.90	5.53	4.78	2.24	.112	
7- Affiliation	11.05	10.44	10.76	2.06	3.23	2.43	.327	.722	
8- Social Concern	18.61	18.76	19.90	3.79	3.82	2.42	1.25	.292	
9- Praise	18.46	18.28	19.86	3.82	3.97	3.19	1.60	.209	
10- Tokens	17.36	18.47	19.35	6.16	6.92	6.13	.552	.578	
11- Mastery Goals	19.65	20.48	21.16	2.85	3.43	2.33	2.91	.060	
12- Performance Goals	23.57	24.63	27.74	5.82	6.52	5.59	3.47	.035	
13- Social Goals	17.27	16.83	18.06	4.32	4.74	2.90	.798	.453	
The Motivated Strategy for Learning Questionnaire (MSLQ)									
14- Intrinsic Motivation	15.16	18.62	20.93	4.55	4.04	2.94	13.07	.000*	Moderate > Low High > Low High > Moderate
15- Extrinsic Motivation	18.10	22.11	22.54	4.77	4.17	3.69	7.80	.001*	Moderate > Low High > Low
16- Rehearsal	12.68	15.80	16.26	6.15	4.24	3.77	4.05	.021*	High > Low
17- Elaboration	21.68	23.34	26.80	6.06	6.83	4.88	4.89	.010*	High > Low High > Low
18- Organization	12.26	15.40	16.60	5.70	4.85	3.40	5.22	.007*	Moderate > Low High > Low
19- Critical Thinking	17.15	18.61	22.82	5.78	5.39	4.58	8.32	.000*	High > Low High > Moderate
20- Metacognitive self -regulatory strategy	43.42	48.21	51.90	10.59	9.46	7.75	4.97	.009*	High > Low

\**p* < 0.05



Females (Achievement in English) Variables		Mean			SD		F	P	Post hoc comparison	
		Low	Moderate	High	Low	Moderate				High
The School Attitude Assessment Survey (SAAS)										
1- Students' attitudes toward the school		34.00	36.00	39.05	11.76	11.81	8.69	1.28	.284	
2- Students' attitudes toward teachers and class		33.20	40.05	40.69	9.12	7.97	8.17	1.95	.148	
The Inventory of School Motivation Scale (ISM)										
3- Task		16.00	17.31	17.76	2.54	2.05	2.04	1.88	.159	
4- Effort		21.20	22.47	26.11	5.26	4.58	4.08	7.68	.001*	High > Low High > Moderate
5- Competition		8.80	18.94	17.88	4.38	6.11	7.22	4.47	.014*	Moderate > Low High > Low
6- Social Power		9.40	15.00	14.15	3.28	4.47	5.34	2.39	.097	
7- Affiliation		10.00	8.84	9.71	3.67	3.14	3.12	.623	.538	
8- Social Concern		19.40	18.47	18.97	3.64	3.56	3.69	.189	.828	
9- Praise		15.40	19.35	19.14	3.13	3.82	4.51	1.82	.169	
10- Tokens		13.00	18.42	16.28	6.12	5.87	6.21	1.78	.174	
11- Mastery Goals		17.40	20.26	19.91	3.64	3.17	3.03	1.75	.179	
12- Performance Goals		17.20	26.16	23.49	6.94	5.75	6.89	3.67	.031*	Moderate > Low
13- Social Goals		17.80	14.26	15.87	4.60	4.21	4.57	1.56	.217	
The Motivated Strategy for Learning Questionnaire (MSLQ)										
14- Intrinsic Motivation		14.40	13.83	16.54	6.10	5.75	5.28	1.10	.142	
15- Extrinsic Motivation		13.60	20.21	19.64	7.50	6.43	6.19	2.32	.104	
16- Rehearsal		12.60	13.66	15.76	6.30	5.87	5.42	1.59	.209	
17- Elaboration		26.60	23.16	22.62	8.35	8.41	7.36	.222	.801	
18- Organization		14.40	15.27	16.80	6.87	6.21	5.94	.742	.479	
19- Critical Thinking		13.60	14.44	15.88	5.31	5.80	5.97	.689	.505	
20- Metacognitive self -regulatory strategy		34.95	44.11	47.22	15.54	11.12	10.62	3.31	.041*	High > Low

\*p< 0.05



Females (Achievement in Mathematics) Variables		Mean		SD			F	P	Post hoc comparison	
		Low	Moderate	High	Low	Moderate				High
The School Attitude Assessment Survey (SAAS)										
1- Students' attitudes toward the school		35.61	39.22	40.00	9.79	9.76	7.18	1.58	.213	
2- Students' attitudes toward teachers and class		37.57	40.76	40.46	7.21	8.10	7.45	1.16	.320	
The Inventory of School Motivation Scale (ISM)										
3- Task		15.95	18.08	18.00	2.67	1.72	1.69	8.72	.000*	High > Low High > Moderate
4- Effort		23.10	24.39	27.35	5.16	4.44	3.25	6.54	.002*	High > Low High > Moderate
5- Competition		14.54	17.42	19.92	7.35	6.61	6.63	3.84	.025*	High > Low
6- Social Power		11.65	15.00	14.17	4.77	4.87	4.69	3.17	.047*	Moderate > Low
7- Affiliation		8.50	10.34	9.82	3.20	3.43	2.66	2.09	.130	
8- Social Concern		18.27	19.54	19.14	3.25	4.15	3.20	.828	.440	
9- Praise		17.00	19.09	19.48	5.02	3.48	4.79	1.92	.154	
10- Tokens		14.85	17.11	16.96	5.95	6.10	6.77	.956	.389	
11- Mastery Goals		17.90	20.31	20.82	4.02	2.43	2.61	6.47	.002*	Moderate > Low High > Low
12- Performance Goals		21.31	23.29	25.21	6.80	6.35	6.87	2.13	.126	
13- Social Goals		15.50	16.00	16.33	5.15	4.46	4.01	.207	.814	
The Motivated Strategy for Learning Questionnaire (MSLQ)										
14- Intrinsic Motivation		11.26	16.17	19.03	4.42	4.21	4.86	16.99	.000*	Moderate > Low High > Low High > Moderate
15- Extrinsic Motivation		13.60	20.62	21.57	7.42	5.18	5.24	12.66	.000*	Moderate > Low High > Low
16- Rehearsal		12.42	15.52	16.39	5.74	5.05	5.34	3.34	.040*	High > Low
17- Elaboration		19.50	22.82	24.96	7.03	6.53	7.41	3.54	.034*	High > Low Moderate > Low
18- Organization		12.95	17.02	18.07	6.37	4.55	6.13	5.30	.007*	High > Low
19- Critical Thinking		12.55	15.09	16.64	5.49	5.27	5.74	3.25	.044*	High > Low
20- Metacognitive self -regulatory strategy		38.60	47.45	50.18	11.68	9.67	11.46	7.18	.001*	Moderate > Low High > Low

\**p*< 0.05

4.3.4.1 Motivation difference among the three levels of achievers

The descriptive results and one way ANOVA based upon the Motivated Strategies for Learning Questionnaire (MSLQ-R) showed that there were significant mean differences within each of the tenth grade, eleventh grade, males and female students in terms of their achievement in Mathematics in their intrinsic motivation. First, there was a significant mean difference between tenth grade moderate and low achievers in their intrinsic motivation with moderate achievers (M=17.75, SD= 3.96,  $p<.05$ ) being more intrinsically motivated than low achievers (M=11.00, SD= 4.40,  $p<.05$ ). Also, there was a significant difference between tenth grade high achievers and low achievers in their intrinsic motivation with high achievers (M=19.47, SD= 4.61,  $p<.05$ ) being more intrinsically motivated than low achievers (M=11.00, SD= 4.40,  $p<.05$ ) (see Tables 4.14 and 4.16).

Second, there was a significant mean difference between eleventh grade high and moderate achievers in their intrinsic motivation, with high achievers (M=20.91, SD=2.84,  $p<.05$ ) being more intrinsically motivated than moderate achievers (M=17.23, SD=4.57,  $p<.05$ ). Also, there was a significant difference between eleventh grade high achievers and low achievers in their intrinsic motivation, with high achievers (M=20.91, SD=2.84,  $p<.05$ ) being more intrinsically motivated than low achievers (M=16.71, SD=3.22,  $p<.05$ ) (see Table 4.15 and 4.16).

**Table 4.16**  
*The Difference in Intrinsic Motivation for the Three Levels of Achievers within Grade and Gender in terms of Achievement in English and Mathematics*

Variable	10 <sup>th</sup> grade /Math	10th grade / E	11 <sup>th</sup> grade / Math	11th grade / E	Males/ Math	Males/ E	Females/ Math	Females/ E
Intrinsic Motivation	M>L H>L		H>M H>L		H>M H>L M>L		H>M H>L M>L	

*Note:* H: High achievers, M: Moderate achievers, L: Low achievers

Third, there was a significant mean difference between male high and moderate achievers in their intrinsic motivation with high achievers (M= 20.93, SD=2.94,  $p<.05$ ) being more intrinsically motivated than moderate achievers (M=18.62, SD=4.04,  $p<.05$ ). Also, there was a significant mean difference between male high achievers and low achievers in their intrinsic motivation with high achievers (M=20.93, SD=2.94,

$p < .05$ ) being more intrinsically motivated than low achievers ( $M=15.16$ ,  $SD=4.55$ ,  $p < .05$ ). Moreover, there was a significant mean difference between male moderate achievers and low achievers in their intrinsic motivation with moderate achievers ( $M=18.62$ ,  $SD=4.04$ ,  $p < .05$ ) being more intrinsically motivated than low achievers ( $M=15.16$ ,  $SD=4.55$ ,  $p < .05$ ) (see Tables 4.15 and 4.16).

Fourth, there was a significant mean difference between female high and moderate achievers in their intrinsic motivation with high achievers ( $M=19.03$ ,  $SD=4.86$ ,  $p < .05$ ) being more intrinsically motivated than moderate achievers ( $M=16.17$ ,  $SD=4.21$ ,  $p < .05$ ). Also, there was a significant mean difference between female high achievers and low achievers in their intrinsic motivation with high achievers ( $M=19.03$ ,  $SD=4.86$ ,  $p < .05$ ) being more intrinsically motivated than low achievers ( $M=11.26$ ,  $SD=4.42$ ,  $p < .05$ ). Moreover, there was a significant mean difference between female moderate achievers and low achievers in their intrinsic motivation with moderate achievers ( $M=16.17$ ,  $SD=4.21$ ,  $p < .05$ ) being more intrinsically motivated than low achievers ( $M=11.26$ ,  $SD=4.42$ ,  $p < .05$ ) (see Tables 4.15 and 4.16).

In terms of extrinsic motivation, the descriptive results and one way ANOVA based upon the Motivated Strategies for Learning Questionnaire (MSLQ-R) showed that there were significant mean differences within each of the tenth grade, male, and female students in terms of their achievement in Mathematics. First, there was a significant mean difference between tenth grade moderate and low achievers in their extrinsic motivation with moderate achievers ( $M=20.27$ ,  $SD=4.60$ ,  $p < .05$ ) being more extrinsically motivated than low achievers ( $M=12.91$ ,  $SD=5.41$ ,  $p < .05$ ). Also, there was a significant difference between tenth grade high achievers and low achievers in their extrinsic motivation with high achievers ( $M=21.44$ ,  $SD=5.13$ ,  $p < .05$ ) being more extrinsically motivated than low achievers ( $M=12.91$ ,  $SD=5.41$ ,  $p < .05$ ) (see Tables 4.15 and 4.17).

Second, there was a significant mean difference between male moderate and low achievers in their extrinsic motivation with moderate achievers ( $M=22.11$ ,  $SD=4.17$ ,  $p < .05$ ) being more extrinsically motivated than low achievers ( $M=18.10$ ,  $SD=4.77$ ,  $p < .05$ ). Also, there was a significant mean difference between male high achievers and low achievers in their extrinsic motivation with high achievers ( $M=22.54$ ,  $SD=3.69$ ,  $p < .05$ ) being more extrinsically motivated than low achievers ( $M=18.10$ ,  $SD=4.77$ ,  $p < .05$ ) (see Tables 4.15 and 4.17).

Third, there was a significant mean difference between female moderate achievers and low achievers in their extrinsic motivation with moderate achievers ( $M=20.62$ ,  $SD=5.18$ ,  $p<.05$ ) being more extrinsically motivated than low achievers ( $M=13.60$ ,  $SD=7.42$ ,  $p<.05$ ). Also, there was a significant mean difference between female high achievers and low achievers in their extrinsic motivation with high achievers ( $M=21.57$ ,  $SD=5.24$ ,  $p<.05$ ) being more extrinsically motivated than low achievers ( $M=13.60$ ,  $SD=7.42$ ,  $p<.05$ ) (see Tables 4.15 and 4.17).

**Table 4.17**  
*The Difference in Extrinsic Motivation for the Three Levels of Achievers within Grade and Gender in terms of Achievement in English and Mathematics*

Variable	10 <sup>th</sup> grade / Math	10 <sup>th</sup> grade / E	11th grade / Math	11th grade / E	Males/ Math	Males/ E	Females/ Math	Females/ E
Extrinsic Motivation	M>L H>L				M>L H>L		M>L H>L	

*Note: H: High achievers, M: Moderate achievers, L: Low achievers*

#### 4.3.4.2 Self-regulation difference among the three levels of achievers

The descriptive results and one way ANOVA based upon the Motivated Strategies for Learning Questionnaire (MSLQ-R) showed that there was significant difference among the three groups in their use of the self-regulatory strategies in terms of their achievement in English and Mathematics. In terms of their achievement in Mathematics, there was a significant mean difference between tenth grade high achievers and low achievers in their use of rehearsal with high achievers ( $M=16.28$ ,  $SD=5.13$ ,  $p<.05$ ) using rehearsal more frequently than low achievers ( $M=10.72$ ,  $SD=5.41$ ,  $p<.05$ ). Also, there was a significant mean difference between tenth grade moderate achievers and low achievers in their use of rehearsal, with moderate achievers ( $M=15.88$ ,  $SD= 4.60$ ,  $p<.05$ ) using rehearsal more frequently than low achievers ( $M=10.72$ ,  $SD=5.41$ ,  $p<.05$ ).

Moreover, there was a significant mean difference between male high achievers and low achievers in their use of rehearsal with high achievers ( $M=16.26$ ,  $SD=3.77$ ,  $p<.05$ ) using rehearsal more frequently than low achievers ( $M=12.68$ ,  $SD=6.15$ ,  $p<.05$ ). Similarly, there was a significant mean difference between female high achievers and low achievers in their use of rehearsal with high achievers ( $M=16.39$ ,  $SD=5.34$ ,  $p<.05$ )

using rehearsal more frequently than low achievers ( $M=12.42$ ,  $SD=5.74$ ,  $p<.05$ ) (see Tables 4.15 and 4.18).

**Table 4.18**

*The Difference in the Use of Rehearsal for the Three Levels of Achievers within Grade and Gender in terms of Achievement in English and Mathematics*

Variable	10 <sup>th</sup> grade /Math	10th grade / E	11 <sup>th</sup> grade /Math	11 <sup>th</sup> grade / E	Males/ Math	Males/ E	Females/ Math	Females / E
Rehearsal	M>L H>L				H>L		H>L	

*Note:* H: High achievers, M: Moderate achievers, L: Low achievers

There was a significant mean difference between tenth grade high achievers and low achievers in their use of elaboration, with high achievers ( $M=24.91$ ,  $SD=6.18$ ,  $p<.05$ ) using elaboration more frequently than low achievers ( $M=18.52$ ,  $SD=7.07$ ,  $p<.05$ ). Also, there was a significant mean difference between eleventh grade high achievers and moderate achievers in their use of elaboration with high achievers ( $M=27.52$ ,  $SD=6.03$ ,  $p<.05$ ) using elaboration more frequently than moderate achievers ( $M =23.56$ ,  $SD=6.50$ ,  $p<.05$ ). Furthermore, there was a significant mean difference between male high achievers and low achievers in their use of elaboration with high achievers ( $M=26.80$ ,  $SD=4.88$ ,  $p<.05$ ) using elaboration more frequently than low achievers ( $M=21.68$ ,  $SD=6.06$ ,  $p<.05$ ). Similarly, there was a significant mean difference between female high achievers and low achievers in their use of elaboration with high achievers ( $M=24.96$ ,  $SD=7.41$ ,  $p<.05$ ) using elaboration more frequently than low achievers ( $M=19.50$ ,  $SD=7.03$ ,  $p<.05$ ) (see Tables 4.15 and 4.19).

**Table 4.19**

*The Difference in the Use of Elaboration for the Three Levels of Achievers within Grade and Gender in terms of Achievement in English and Mathematics*

Variable	10 <sup>th</sup> grade/ Math	10th grade / E	11 <sup>th</sup> grade/ Math	11 <sup>th</sup> grade/ E	Males/ Math	Males/ E	Females/ Math	Females / E
Elaboration	H>L		H>M		H>L		H>L	

*Note:* H: High achievers, M: Moderate achievers, L: Low achievers

There was a significant mean difference between tenth grade high achievers and low achievers in their use of organization with high achievers ( $M=17.28$ ,

SD=5.27,  $p < .05$ ) using organization more frequently than low achievers ( $M=11.04$ ,  $SD=5.85$ ,  $p < .05$ ). Also, there was a significant mean difference between tenth grade moderate achievers and low achievers in their use of organization with moderate achievers ( $M=15.05$ ,  $SD=5.01$ ,  $p < .05$ ) using organization more frequently than low achievers ( $M=11.04$ ,  $SD=5.85$ ,  $p < .05$ ). Moreover there was a significant mean difference between male high achievers and low achievers in their use of organization with high achievers ( $M=16.60$ ,  $SD=3.40$ ,  $p < .05$ ) using organization more frequently than low achievers ( $M=12.26$ ,  $SD=5.70$ ,  $p < .05$ ). There was a significant mean difference between male moderate achievers and low achievers in their use of organization with moderate achievers ( $M=15.40$ ,  $SD=4.85$ ,  $p < .05$ ) using organization more frequently than low achievers ( $M=12.26$ ,  $SD=5.70$ ,  $p < .05$ )

Furthermore, there was a significant mean differences between female high achievers and low achievers in their use of organization with high achievers ( $M=18.07$ ,  $SD=6.13$ ,  $p < .05$ ) using organization more frequently than low achievers ( $M=12.95$ ,  $SD=6.37$ ,  $p < .05$ ). Additionally, there was a significant mean difference between female moderate achievers and low achievers in their use of organization with moderate achievers ( $M=17.02$ ,  $SD=4.55$ ,  $p < .05$ ) using organization more frequently than low achievers ( $M=12.95$ ,  $SD=6.37$ ,  $p < .05$ ).

In terms of achievement in English, results show that organization was the only significant result. There was a significant mean difference between tenth grade high achievers and low achievers in their use of organization with high achievers ( $M=15.89$ ,  $SD=5.99$ ,  $p < .05$ ) using organization more frequently than low achievers ( $M=9.50$ ,  $SD=3.56$ ,  $p < .05$ ) (see Tables 4.15 and 4.20).

**Table 4.20**  
*The Difference in the Use of Organization for the Three Levels of Achievers within Grade and Gender in terms of Achievement in English and Mathematics*

Variable	10 <sup>th</sup> grade / Math	10 <sup>th</sup> grade /E	11 <sup>th</sup> grade / Math	11th grade/ E	Males/ Math	Males/ E	Females/ Math	Females/ E
Organization	M>L H>L	H>L			H>L M>L		M>L H>L	

*Note: H: High achievers, M: Moderate achievers, L: Low achievers*

In terms of their Achievement in Mathematics there was a significant mean difference between tenth grade high achievers and low achievers in their use of critical thinking with high achievers ( $M=19.08$ ,  $SD=5.59$ ,  $p < .05$ ) using critical thinking more

frequently than low achievers ( $M=14.30$ ,  $SD=6.73$ ,  $p<.05$ ). Also, there was a significant mean difference between tenth grade moderate achievers and low achievers in their use of critical thinking with moderate achievers ( $M=18.48$ ,  $SD=5.46$ ,  $p<.05$ ) using critical thinking more frequently than low achievers ( $M=14.30$ ,  $SD=6.73$ ,  $p<.05$ ). Moreover, there was also a significant mean differences between eleventh grade high achievers and low achievers in their use of critical thinking with high achievers ( $M=20.82$ ,  $SD=6.56$ ,  $p<.05$ ) using critical thinking more frequently than low achievers ( $M=15.50$ ,  $SD=4.96$ ,  $p<.05$ ). Similarly, there was a significant mean difference between eleventh grade high achievers and moderate achievers in their use of critical thinking with high achievers ( $M=20.82$ ,  $SD=6.56$ ,  $p<.05$ ) using critical thinking more frequently than moderate achievers ( $M=15.82$ ,  $SD=5.46$ ,  $p<.05$ ).

In addition, there was a significant mean difference between male high achievers and low achievers in their use of critical thinking with high achievers ( $M=22.82$ ,  $SD=4.58$ ,  $p<.05$ ) using critical thinking more frequently than low achievers ( $M=17.15$ ,  $SD=5.78$ ,  $p<.05$ ). There was also a significant mean difference between male high achievers and moderate achievers in their use of critical thinking with high achievers ( $M=22.82$ ,  $SD=4.58$ ,  $p<.05$ ) using critical thinking more frequently than moderate achievers ( $M=18.61$ ,  $SD= 5.39$ ,  $p<.05$ ). There was a significant mean difference between female high achievers and low achievers in their use of critical thinking with high achievers ( $M=16.64$ ,  $SD=5.74$ ,  $p<.05$ ) using critical thinking more frequently than low achievers ( $M=12.55$ ,  $SD=5.49$ ,  $p<.05$ ) (see Table 4.15 and Table 4.21).

**Table 4.21**  
*The Difference in the Use of Critical Thinking for the Three Levels of Achievers within Grade and Gender in terms of Achievement in English and Mathematics*

Variable	10 <sup>th</sup> grade/ Math	10 <sup>th</sup> grade / E	11 <sup>th</sup> grade / Math	11th grade /E	Males/ Math	Males/ E	Females/ Math	Females/ E
Critical Thinking	M>L H>L		H>L H>M		H>L H>M		H>L	

*Note: H: High achievers, M: Moderate achievers, L: Low achievers*

Finally, in terms of their achievement in Mathematics there was a significant mean differences between tenth grade high achievers and low achievers in their use of metacognitive self- regulatory strategy with high achievers ( $M=50.70$ ,  $SD=10.05$ ,

$p<.05$ ) using this strategy more frequently than low achievers ( $M=37.54$ ,  $SD=11.31$ ,  $p<.05$ ) also, there was a significant mean difference between tenth grade moderate achievers and low achievers in their use of metacognitive self-regulatory strategy with moderate achievers ( $M=47.08$ ,  $SD=9.66$ ,  $p<.05$ ) using this strategy more frequently than low achievers ( $M=37.54$ ,  $SD=11.31$ ,  $p<.05$ ).

Similarly, there was a significant mean difference between male high achievers and low achievers in their use of metacognitive self-regulatory strategy with high achievers ( $M=51.90$ ,  $SD=7.75$ ,  $p<.05$ ) using this strategy more frequently than low achievers ( $M=43.42$ ,  $SD=10.59$ ,  $p<.05$ ). Furthermore, there was a significant mean difference between female high achievers and low achievers in their use of metacognitive self-regulatory strategy with high achievers ( $M=50.18$ ,  $SD=11.46$ ,  $p<.05$ ) using this strategy more frequently than low achievers ( $M=38.60$ ,  $SD=11.68$ ,  $p<.05$ ). Also, there was a significant mean difference between female moderate achievers and low achievers in their use of metacognitive self-regulatory strategy with moderate achievers ( $M=47.45$ ,  $SD=9.67$ ,  $p<.05$ ) using this strategy more frequently than low achievers ( $M=38.60$ ,  $SD=11.68$ ,  $p<.05$ ) (see Tables 4.15 and 4.22).

In terms of their achievement in English, there was a significant mean difference between female high achievers and low achievers in their use of metacognitive self-regulatory strategy with high achievers ( $M=47.22$ ,  $SD=10.62$ ,  $p<.05$ ) using this strategy more frequently than low achievers ( $M=34.95$ ,  $SD=15.54$ ,  $p<.05$ )

**Table 4.22**  
*The Difference in the Use of Metacognitive Self-Regulatory Strategy for the Three Levels of Achievers within Grade and Gender in terms of Achievement in English and Mathematics*

Variable	10th grade/ Math	10th grade/ E	11th grade/ Math	11th grade /E	Males/ Math	Males/ E	Females/ Math	Females/ E
Metacognitive Self-Regulatory Strategy	M>L H>L				H>L		M>L H>L	H>L

*Note:* H: High achievers, M: Moderate achievers, L: Low achievers.

#### 4.3.4.3 Motivational Goals difference among the three levels of achievers

The descriptive results and one way ANOVA based upon the Inventory of School Motivation Scale -R (ISM) showed that there were significant differences among the three groups in terms of their achievement in English in a number of



motivational goals. First, the results showed that tenth grade high achievers and low achievers differed in their effort, with high achievers ( $M=26.43$ ,  $SD=4.38$ ,  $p<.05$ ) being more oriented toward effort than low achievers ( $M=21.50$ ,  $SD=4.23$ ,  $p<.05$ ) (see Table 4.15 and Table 4.26). In addition, there was a significant difference between eleventh grade high and low achievers in their orientation toward effort, with high achievers ( $M=26.37$ ,  $SD=4.03$ ,  $p<.05$ ) being more oriented toward effort than low achievers ( $M=22.75$ ,  $SD=4.53$ ,  $p<.05$ ).

There was a significant difference between male high achievers, and low achievers in their orientation toward effort with high achievers ( $M=27.00$ ,  $SD=4.53$ ,  $p<.05$ ) being more oriented toward effort than low achievers ( $M=22.76$ ,  $SD=4.10$ ,  $p<.05$ ) (see Table 4.14). Similarly, there was a significant difference between female high achievers, and low achievers in their orientation toward effort with high achievers ( $M=26.11$ ,  $SD=4.08$ ,  $p<.05$ ) being more oriented toward effort than low achievers ( $M=21.20$ ,  $SD=5.26$ ,  $p<.05$ ). There was also a significant difference between female high achievers, and moderate achievers in their orientation towards effort with high achievers ( $M=26.11$ ,  $SD=4.08$ ,  $p<.05$ ) being more oriented toward effort than moderate achievers ( $M=22.47$ ,  $SD=4.58$ ,  $p<.05$ ) (see Tables 4.15 and 4.23).

Second, there was a significant difference between eleventh grade high and low achievers in their orientation toward task with high achievers ( $M=18.23$ ,  $SD=1.36$ ,  $p<.05$ ) being more oriented toward task than low achievers ( $M=16.61$ ,  $SD=2.02$ ,  $p<.05$ ). There was also a significant difference between eleventh grade moderate achievers and low achievers in their orientation toward task, with moderate achievers ( $M=17.83$ ,  $SD=1.48$ ,  $p<.05$ ) being more oriented toward task than low achievers ( $M=16.61$ ,  $SD=2.02$ ,  $p<.05$ ). Furthermore, there was a significant difference between male high and low achievers in their orientation toward task with high achievers ( $M=18.23$ ,  $SD=1.79$ ,  $p<.05$ ) being more oriented toward task than low achievers ( $M=16.64$ ,  $SD=2.02$ ,  $p<.05$ ) (see Tables 4.15 and 4.23).

Finally, there was a significant difference between eleventh grade high and low achievers in their orientation toward competition, with high achievers ( $M=21.31$ ,  $SD=6.15$ ,  $p<.05$ ) being more competitive than low achievers ( $M=14.46$ ,  $SD=7.41$ ,  $p<.05$ ). There was also a significant difference between eleventh moderate and low achievers in their orientation toward competition, with moderate achievers ( $M=21.31$ ,  $SD=6.15$ ,  $p<.05$ ) being more competitive than low achievers ( $M=14.46$ ,  $SD=7.41$ ,

$p<.05$ ). Moreover, there was a significant difference between male high achievers and low achievers in their orientation toward competition, with high achievers ( $M=22.08$ ,  $SD=6.28$ ,  $p<.05$ ) being more competitive than low achievers ( $M=16.71$ ,  $SD=7.17$ ,  $p<.05$ ). Finally, there was a significant difference between female high achievers and low achievers in their orientation toward competition with high achievers ( $M=17.88$ ,  $SD=7.22$ ,  $p<.05$ ) being more competitive than low achievers ( $M=8.80$ ,  $SD=4.38$ ,  $p<.05$ ). There was also a significant difference between female moderate achievers, and low achievers in their orientation toward competition with moderate achievers ( $M=18.94$ ,  $SD=6.11$ ,  $p<.05$ ) being more competitive than low achievers ( $M=8.80$ ,  $SD=4.38$ ,  $p<.05$ )

There was a significant difference between tenth grade moderate achievers and low achievers in their orientation toward social concern, with moderate achievers ( $M=19.57$ ,  $SD=2.86$ ,  $p<.05$ ) being more oriented toward social concern than low achievers ( $M=05.60.61$ ,  $SD=2.70$ ,  $p<.05$ ) (see Tables 4.15 and 4.23).

**Table 4.23**  
*The Difference in Effort, Task, and Competition for the Three Levels of Achievers within Grade and Gender in terms of Achievement in English and Mathematics*

Variable	10 <sup>th</sup> grade /Math	10 <sup>th</sup> grade /E	11th grade /Math	11th grade /E	Male/ Math	Male/ E	Female/ Math	Females/ E
Effort	M>L H>L	H>L		H>L	H>L	H>L	H>L H>M	H>L H>M
Task	M>L H>L		H>L	M>L H>L		H>L	M>L H>L	
Competition	H>L		H>L H>M	M>L H>L	H>L	H>L	H>L	M>L H>L
Social Concern		M>L						
Social Power							M>L	

*Note:* H: High achievers, M: Moderate achievers, L: Low achievers

In terms of achievement in Mathematics, the results also showed that there was a significant difference among the three levels of achievers in task, effort, and competition. There was a significant difference between tenth grade high achievers and low achievers in their orientation toward task, with high achievers ( $M=17.68$ ,  $SD=1.92$ ,  $p<.05$ ) being more oriented toward task than low achievers ( $M=16.26$ ,  $SD=2.70$ ,  $p<.05$ ). There was also a significant difference between tenth grade moderate and low achievers

in their orientation toward task, with moderate achievers ( $M=17.88$ ,  $SD=1.90$ ,  $p<.05$ ) being more oriented toward task than low achievers ( $M=16.26$ ,  $SD=2.70$ ,  $p<.05$ ). Moreover, there was a significant difference between eleventh grade high and low achievers in their orientations toward task with high achievers ( $M=18.34$ ,  $SD=1.36$ ,  $p<.05$ ) being more oriented toward task than low achievers ( $M=17.00$ ,  $SD=1.71$ ,  $p<.05$ ).

Finally, there was a significant difference between female high achievers, and low achievers in their orientation toward task with high achievers ( $M=18.00$ ,  $SD=1.69$ ,  $p<.05$ ) being more oriented toward task than low achievers ( $M=15.95$ ,  $SD=2.67$ ,  $p<.05$ ). There was also a significant difference between female moderate achievers and low achievers in their orientation toward task with moderate achievers ( $M=18.08$ ,  $SD=1.72$ ,  $p<.05$ ) being more oriented toward task than low achievers ( $M=15.95$ ,  $SD=2.67$ ,  $p<.05$ ) (see Tables 4.15 and 4.23).

There was a significant difference between tenth grade high achievers and low achievers in their orientation toward effort with high achievers ( $M=27.16$ ,  $SD=4.06$ ,  $p<.05$ ) being more oriented toward effort than low achievers ( $M=22.63$ ,  $SD=4.80$ ,  $p<.05$ ). Also, there was a significant difference between tenth grade moderate achievers and low achievers in their orientation toward effort with moderate achievers ( $M=26.08$ ,  $SD=3.95$ ,  $p<.05$ ) being more oriented toward effort than low achievers ( $M=22.63$ ,  $SD=4.80$ ,  $p<.05$ ).

Moreover, there was a significant difference between male high achievers, and low achievers in their orientation toward effort with high achievers ( $M=26.96$ ,  $SD=4.47$ ,  $p<.05$ ) being more oriented toward effort than low achievers ( $M=23.44$ ,  $SD=4.00$ ,  $p<.05$ ). Finally, there was a significant difference between female high achievers and low achievers in their orientation toward effort with high achievers ( $M=27.35$ ,  $SD=3.25$ ,  $p<.05$ ) being more oriented toward effort than low achievers ( $M=23.10$ ,  $SD=5.16$ ,  $p<.05$ ). There was also a significant difference between female high achievers, and moderate achievers in their effort with high achievers ( $M=27.35$ ,  $SD=3.25$ ,  $p<.05$ ) being more oriented toward effort than moderate achievers ( $M=24.39$ ,  $SD=4.44$ ,  $p<.05$ ) (see Tables 4.15 and 4.23).

There was a significant difference between eleventh grade high and low achievers in their orientation toward competition with high achievers ( $M=23.17$ ,  $SD=4.31$ ,  $p<.05$ ) being more competitive than low achievers ( $M=15.06$ ,  $SD=7.24$ ,  $p<.05$ ). There was also a significant difference between eleventh grade high and

moderate achievers in their orientation toward competition, with high achievers ( $M=23.17$ ,  $SD=4.31$ ,  $p<.05$ ) being more competitive than moderate achievers ( $M=19.19$ ,  $SD=5.77$ ,  $p<.05$ ). Furthermore, there was a significant difference between male high achievers and low achievers in their orientation toward competition with high achievers ( $M=19.41$ ,  $SD=6.46$ ,  $p<.05$ ) being more competitive than low achievers ( $M=15.00$ ,  $SD=6.72$ ,  $p<.05$ ). Similarly, there was a significant difference between tenth grade high and low achievers in their orientation toward competition with high achievers ( $M=23.17$ ,  $SD=4.31$ ,  $p<.05$ ) being more competitive than low achievers ( $M=15.06$ ,  $SD=7.24$ ,  $p<.05$ ). Finally, there was a significant difference between female high achievers and low achievers in their orientation toward competition with high achievers ( $M=19.92$ ,  $SD=6.63$ ,  $p<.05$ ) being more competitive than low achievers ( $M=14.54$ ,  $SD=7.35$ ,  $p<.05$ ).

There was a significant difference between female moderate achievers and low achievers in their orientation toward social power with moderate achievers ( $M=15.00$ ,  $SD=4.87$ ,  $p<.05$ ) being more oriented toward social power than low achievers ( $M=11.65$ ,  $SD=4.77$ ,  $p<.05$ ) (see Tables 4.15 and 4.23).

#### **4.3.4.4 Goal orientations difference among the three levels of achievers**

The descriptive results and one way ANOVA based upon the Inventory of School Motivation Scale -R (ISM) showed that there was a significant difference among tenth grade high, moderate, and low achievers in terms of their achievement in English and Mathematics in their orientation towards performance goals and mastery goals (see Table 4.15).

In terms of their achievement in Mathematics, there was a significant mean difference between tenth grade high achievers and low achievers in their orientations toward mastery goals, with high achievers ( $M=21.14$ ,  $SD=2.62$ ,  $p<.05$ ) being significantly more oriented to mastery goals than low achievers ( $M=18.12$ ,  $SD=4.02$ ,  $p<.05$ ). There was a significant mean difference between eleventh grade moderate achievers and low achievers in their orientations toward mastery goals, with moderate achievers ( $M=20.95$ ,  $SD=3.08$ ,  $p<.05$ ) being significantly more oriented to mastery goals than low achievers ( $M=18.93$ ,  $SD=2.64$ ,  $p<.05$ ).

Also, there was a significant mean difference between eleventh grade high achievers and low achievers in their orientations toward performance goals, with high

achievers ( $M=27.52$ ,  $SD=5.16$ ,  $p<.05$ ) being significantly more oriented to performance goals than low achievers ( $M=21.06$ ,  $SD=5.85$ ,  $p<.05$ ).

There was a significant difference between female moderate and low achievers in their orientation toward mastery goals with moderate achievers ( $M =20.31$ ,  $SD=2.43$ ,  $p<.05$ ) being significantly more oriented toward mastery goals than low achievers ( $M=17.09$ ,  $SD=4.02$ ,  $p<.05$ ). There was also a significant difference between female high and low achievers in their orientation toward mastery goals with high achievers ( $M =20.82$ ,  $SD=2.61$ ,  $p<.05$ ) being significantly more oriented toward mastery goals than low achievers ( $M=17.09$ ,  $SD=4.02$ ,  $p<.05$ ) (see Tables 4.15 and 4.24).

In terms of achievement in English, there was a significant difference between female moderate and low achievers in their orientations toward performance goals with moderate achievers ( $M=26.16$ ,  $SD=5.75$ ,  $p<.05$ ) being significantly more oriented towards performance goals than low achievers.

Finally, there was a significant difference between eleventh grade moderate and low achievers in their orientations toward social goals with low achievers ( $M=18.69$ ,  $SD=4.02$ ,  $p<.05$ ) being significantly more oriented toward social goals than moderate achievers ( $M=15.30$ ,  $SD=4.27$ ,  $p<.05$ ) (see Tables 4.15 and 4.24).

**Table 4.24**  
*The Difference in the Orientations toward Mastery and Performance Goals for the Three Levels of Achievers within Grade and Gender in terms of Achievement in English and Mathematics*

Variable	10 <sup>th</sup> grade/ Math	10 <sup>th</sup> grade/ E	11 <sup>th</sup> grade/ Math	11 <sup>th</sup> grade / E	Males/ Math	Males/ E	Females/ Math	Females/ E
Mastery Goals	H>L						M>L H>L	
Performance Goals			H>L M>L					M>L
Social Goals				L>M				

*Note:* H: High achievers, M: Moderate achievers, L: Low achievers

#### 4.3.4.5 Attitudes difference among the three levels of achievers

The descriptive results and one way ANOVA based upon the School Attitude Assessment Survey-R (SAAS) showed that there was a significant difference among tenth grade students in term of their achievement in English and Mathematics. In terms of their achievement in English there was a significant difference between tenth grade

high and low achievers in their attitudes toward their teachers and class with high achievers ( $M=39.92$ ,  $SD=8.24$ ,  $p<.05$ ) being significantly more positive in their attitudes than low achievers ( $M=30.50$ ,  $SD=9.29$ ,  $p<.05$ ). There was also a significant difference between tenth grade moderate and low achievers in their attitudes toward their teachers and class with moderate achievers ( $M=40.32$ ,  $SD=9.29$ ,  $p<.05$ ) being significantly more positive in their attitudes than low achievers ( $M=30.50$ ,  $SD=8.40$ ,  $p<.05$ ).

In terms of their achievement in Mathematics there was a significant difference between tenth grade moderate and low achievers in their attitudes toward their school with moderate achievers ( $M=40.43$ ,  $SD=7.44$ ,  $p<.05$ ) being significantly more positive in their attitudes than low achievers ( $M=34.62$ ,  $SD=9.91$ ,  $p<.05$ ). There was also a significant difference between tenth grade high and low achievers in their attitudes toward their school with high achievers ( $M=40.83$ ,  $SD=6.60$ ,  $p<.05$ ) being significantly more positive in their attitudes than low achievers ( $M=34.62$ ,  $SD=9.91$ ,  $p<.05$ ). There was a significant difference between tenth grade high and low achievers in their attitudes toward their teachers and class with high achievers ( $M=42.61$ ,  $SD=6.92$ ,  $p<.05$ ) being significantly more positive in their attitudes than low achievers ( $M=36.45$ ,  $SD=9.10$ ,  $p<.05$ ).

Finally, there was a significant difference between male high and low achievers in their attitudes toward their teachers and class with high achievers (Group3,  $M=45.12$ ,  $SD=6.26$ ,  $p<.05$ ) being significantly more positive in their attitudes than low achievers ( $M=38.73$ ,  $SD=8.44$ ,  $p<.05$ ). There was also a significant difference between male high and moderate achievers in their attitudes toward their teachers and class with high achievers ( $M=45.12$ ,  $SD=6.26$ ,  $p<.05$ ) being significantly more positive in their attitudes than moderate achievers ( $M=39.69$ ,  $SD=8.12$ ,  $p<.05$ ) (see Tables 4.15 and 4.25).

**Table 4.25**  
*The Difference in the Attitudes toward School and Teachers for the Three Levels of Achievers within Grade and Gender in terms of Achievement in English and Mathematics*

Variable	10 <sup>th</sup> grade/ Math	10 <sup>th</sup> grade/ E	11 <sup>th</sup> grade/ Math	11 <sup>th</sup> grade / E	Males/ Math	Males/ E	Females/ Math	Females/ E
Attitudes toward the school	H>L M>L							
Attitudes toward teachers and class	H>L	H>L M>L			H>L H>M			

*Note:* H: High achievers, M: Moderate achievers, L: Low achievers

**4.3.5 Research Question 2: Relationship among motivation, self-regulation, motivational goals, goal orientations, attitudes, and achievement**

A scatter plot was run before estimating the relationship between variables. The scatter plot indicated that there was an obvious linear relationship between variables, including metacognitive self-regulatory strategy and elaboration; performance goals and social power; and, intrinsic motivation and extrinsic motivation. A Pearson product moment correlation was then conducted to determine the degree of relationship among these variables as shown in Table 4.26.



**Pearson Moment Correlations of Motivation, Self-Regulation, Motivational Goals, Goal Orientations, Attitudes, and Achievement in the Australian Sample**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
<b>Motivational Goals</b>																						
1.Task	-	.530**	.430**	.279**	-.020	.219**	.427**	.093	.511**	.312**	.064	.418**	.421**	.321**	.254**	.318**	.287**	.373**	.260**	.333**	.210**	.240**
2.Effort	.530**	-	.407**	.356**	.050	.312**	.314**	.041	.560**	.302**	.167*	.485**	.379**	.453**	.369**	.462**	.333**	.488**	.447**	.431**	.269**	.321**
3.Comp	.340**	.407**	-	.519**	-.092	-.060	.396**	.379**	.343**	.653**	.022	.265**	.505**	.219**	.294**	.258**	.294**	.297**	.208**	.276**	.153*	.317**
4.Social/p	.279**	.356**	.519**	-	.150*	.126	.481**	.357**	.294**	.719**	.281**	.175*	.252**	.213**	.270**	.213**	.285**	.260**	.218**	.250**	.038	.147
5.Affil	-.020	.050	-.092	.150*	-	.394**	.148	.179*	.145*	.098	.656**	.129	.134	.186*	.144*	.088	.266**	.183*	.072	.044	-.144	.056
6.Social/C	.219**	.312**	-.060	.126	.394**	-	.302**	-.014	.376**	.121	.555**	.263**	.194**	.280**	.265**	.252**	.251**	.314**	.284**	.211**	.018	.116
7.Praise	.427**	.314**	.396**	.481**	.148	.302**	-	.393**	.480**	.657**	.272**	.268**	.463**	.330**	.364**	.355**	.246**	.385**	.257**	.367**	.076	.186*
8.Tokens	.093	.041	.379**	.357**	.179*	-.014	.393**	-	.156*	.611**	.242**	.105	.218**	.063	.183*	.101	.240**	.186*	.037	.081	.006	.118
<b>Goal Orientations</b>																						
9.Mas/G	.511**	.560**	.343**	.294**	.145*	.376**	.480**	.156*	-	.453**	.328**	.443**	.425**	.434**	.379**	.466**	.313**	.483**	.424**	.485**	.107	.291**
10.Perf/G	.312**	.302**	.653**	.719**	.098	.121	.657**	.611**	.453**	-	.294**	.220**	.339**	.158*	.292**	.228**	.296**	.306**	.312**	.302**	.071	.243**
11.Social/G	.064	.167*	.022	.281**	.656**	.555**	.272**	.242**	.328**	.294**	-	.179*	.170*	.229**	.250**	.144*	.367**	.301**	.064	.167*	-.126	.087
<b>Motivation</b>																						
12.Int	.418**	.485**	.265**	.175*	.129	.263**	.268**	.105	.443**	.220**	.179*	-	.617**	.524**	.545**	.520**	.592**	.582**	.314**	.369**	.055	.497**
13.Ext	.421**	.379**	.505**	.252**	.134	.194**	.463**	.218**	.425**	.339**	.170*	.617**	-	.419**	.446**	.417**	.387**	.461**	.259**	.336**	.035	.381**
<b>Self-Regulation</b>																						
14.Reh	.321**	.453**	.219**	.213**	.186*	.280**	.330**	.063	.434**	.158*	.229**	.524**	.419**	-	.624**	.716**	.448**	.696**	.311**	.307**	.109	.258**
15.Elabor	.254**	.369**	.294**	.270**	.144*	.265**	.364**	.183*	.379**	.292**	.250**	.545**	.446**	.624**	-	.708**	.611**	.758**	.298**	.396**	.052	.298**
16.Org	.318**	.462**	.258**	.213**	.088	.252**	.355**	.101	.466**	.228**	.144*	.520**	.417**	.716**	.708**	-	.356**	.718**	.275**	.346**	.180*	.309**
17.Critical	.287**	.333**	.294**	.285**	.266**	.251**	.246**	.240**	.313**	.296**	.367**	.592**	.387**	.448**	.611**	.356**	-	.603**	.206**	.291**	.001	.307**
18.Metacog	.373**	.488**	.297**	.260**	.183*	.314**	.385**	.186*	.483**	.306**	.301**	.582**	.461**	.696**	.758**	.718**	.603**	-	.236**	.340**	.133	.346**
<b>Attitudes toward the school and teachers</b>																						
19.SAS	.260**	.447**	.208**	.218**	.072	.284**	.257**	.037	.424**	.189**	.187**	.314**	.259**	.311**	.298**	.275**	.206**	.236**	-	.712**	.110	.200**
20.SATC	.333**	.431**	.276**	.250**	.044	.211**	.367**	.081	.485**	.291**	.152*	.369**	.336**	.307**	.396**	.346**	.291**	.340**	.712**	-	.135	.226**
<b>Achievement</b>																						
21.Ach/E	.210**	.269**	.153*	.038	-.144	.018	.076	.006	.107	.071	-.126	.035	.035	.109	.052	.180*	.001	.133	.110	.135	-	.300**
22.Ach/M	.240**	.321**	.317**	.147	.056	.116	.186*	.118	.291**	.243**	.087	.497**	.381**	.258**	.298**	.309**	.307**	.346**	.200**	.226**	.300**	-

Note \*\* Correlation is significant at the 0.01 level (2-tailed). \* Correlation is significant at the 0.05 level (2-tailed).

Comp: Competition, Social/p: Social Power, Social/C: Social Concern, Affi: Affiliation, Mas/G: Mastery Goals, Perfo/G: Performance Goals, Int: Intrinsic Motivation, Ext: Extrinsic Motivation, Reh: Rehearsal, Elabor: Elaboration, Org: Organization, Critical: Critical thinking, Metcog: Metacognitive Self-Regulatory Strategy, SAS: students' attitudes towards school, SATC: Students' attitudes towards teachers and class, Ach/ E: Achievement in English, Ach/ M: Achievement in Math



The Pearson moment correlation showed that there were strong to moderate relationships between the variables of the study. There was a strong positive relationship between performance goals and motivation goals, for example performance goals and social power ( $r=.72$ ), performance goals and competition ( $r=.65$ ), performance goals and praise ( $r=.66$ ), and performance goals and tokens ( $r=.61$ ). Also, there was a positive strong relationship between social goals and affiliation ( $r=.66$ ) and social goals and social concern ( $r=.56$ ). Moreover, mastery goals had a strong positive relationship with task ( $r=.51$ ) and with effort ( $r=.56$ ) which all were significant at the .01 level.

There were strong positive relationships among the self-regulatory strategies, for example, elaboration had a positive strong relationship with metacognitive self-regulatory strategy ( $r=.76$ ), and with organization ( $r=.71$ ). There was a strong relationship between organization and elaboration ( $r=.71$ ), and organization and rehearsal ( $r=.72$ ). Furthermore, the results also showed that there was a positive strong relationship between rehearsal and elaboration ( $r=.62$ ), and rehearsal and metacognitive self-regulatory strategy ( $r=.70$ ). Finally, there was a positive strong relationship between critical thinking and elaboration ( $r=.61$ ), critical thinking and metacognitive self-regulatory strategy ( $r=.60$ ) which all were significant at the .01 level.

There was a strong positive relationship between task and effort ( $r=.53$ ). Also, there was a strong positive relationship between competition and social power ( $r=.52$ ), competition and extrinsic motivation ( $r=.51$ ). Moreover, intrinsic motivation had a strong relationship with a number of variables, including rehearsal ( $r=.52$ ), elaboration ( $r=.55$ ), critical thinking ( $r=.59$ ), organization ( $r=.52$ ), and metacognitive self-regulatory strategy ( $r=.58$ ). Finally, there was a strong positive relationship between intrinsic motivation and achievement in Mathematics ( $r=.50$ ) which all were significant at the .01 level.

As a result, linear regression analysis was used to gain a better understanding of the relationship among these variables and the form of the relationship using the enter method. Each dependent variable was regressed on the variables with which it had a strong relationship. Table 4.27 presents the results of linear regression for the previously discussed relationships.

Linear Regression					
Criterion	Predictors	R	R Square	P	B
Task	Effort Mastery Goals	.580	.336	.000	9.893
					.152
Effort	Task Mastery Goals	.637	.405	.000	.190
					.377
Competition	Social Power Performance Goals Extrinsic Motivation	.726	.528	.000	.732
					.610
Social Power	Competition Performance Goals	.721	.520	.000	-3.392
					.088
Affiliation	Social Goals	.656	.430	.000	.511
					.400
Social Concern	Social Goals	.555	.308	.000	.594
					.054
Praise	Performance Goals	.657	.431	.000	.549
					2.795
Tokens	Performance Goals	.611	.374	.000	.445
					11.804
Mastery Goals	Task Effort	.621	.386	.000	.437
					8.682
					.416
					2.935
					.594
					4.917
					.437
					.292

Linear Regression					
Criterion	Predictors	R	R Square	P	B
Performance Goals	Competition Social Power Praise Tokens	880	.774	.000	.713
					.265
					.446
					.399
					.265
Social Goals	Social Concern Affiliation	734	.538	.000	.199
					.771
Intrinsic Motivation	Extrinsic Motivation Rehearsal Elaboration Critical Thinking Organization Metacognitive Self-Regulatory Strategy Achievement in Mathematics	791	.625	.000	.445
					1.791
					.282
					.090
					-.061
					.141
					.028
					.284
					1.314
Extrinsic Motivation	Competition Intrinsic Motivation	712	.506	.000	4.976
					.300
Rehearsal	Intrinsic Motivation Elaboration Organization Metacognitive Self-Regulatory Strategy	766	.587	.000	.573
					-.559
					.129
					.028
					.382
					.146

Linear Regression					
Criterion	Predictors	R	R Square	P	B
Elaboration	Intrinsic Motivation	.829	.687	.000	-.051
	Rehearsal				.021
	Organization				.011
	Critical Thinking				.466
Organization	Metacognitive Self-Regulatory Strategies				.343
					.205
	Metacognitive Self-regulatory Strategy	.799	.639	.000	-1.690
	Intrinsic Motivation				.120
Critical Thinking	Rehearsal				.032
	Elaboration				.382
					.231
	Elaboration	.689	.475	.000	.231
Metacognitive Self-Regulatory Strategies	Metacognitive Self-Regulatory Strategy				.120
	Intrinsic Motivation				-.119
					.380
	Intrinsic Motivation	.843	.710	.000	14.013
Attitudes toward the school	Rehearsal				.119
	Elaboration				.387
	Organization				.430
	Critical Thinking				.542
Attitudes toward teachers and class					.365
	Attitudes toward teachers and class	.712	.507	.000	8.582
					.745

The following table illustrates the outcome of the regression of the variables that had strong relationships. For example, competition, social power, praise, and tokens predicted performance goals. Thus, this model is accurate since  $R = .88$  indicates a strong relationship between the criterion and the predicted variables. The significant factor that corresponds to the F value is 0.000 and thus there is a linear relationship. The regression equation, which would predict performance goals, is:

Predicted Performance Goals= competition+ social power+ praise+ tokens.

Predicted Performance Goals=  $.713 + .265 + .446 + .399 + .265$ . Finally, these models were regressed in terms of the three groups using the stepwise method to see whether there was a difference in the models in terms of the three groups, as shown in table 4.28.

Table 4.28

Linear Regression Models of Motivation, Self-Regulation, Motivational Goals, Goal Orientations, and attitudes in terms of Achievement in English and Mathematics in the Australian Sample

Criterion	Predictors	R	R Square	F	B	p	Beta
1- Task	Achievement in English	0.269	0.073	0.000	0.380	0.100	0.129
2- Effort	Achievement in Mathematics				0.524	<b>0.012*</b>	0.198
	Achievement in English	0.362	0.131	0.000	1.202	<b>0.021*</b>	0.177
3- Competition	Achievement in Mathematics				1.586	<b>0.001*</b>	0.264
	Achievement in English	0.325	0.105	0.000	0.769	0.320	0.075
4- Social Power	Achievement in Mathematics				2.677	<b>0.000*</b>	0.294
	Achievement in English	0.147	0.022	0.152	0.091	0.883	0.012
5- Affiliation	Achievement in Mathematics				1.000	0.073	0.143
	Achievement in English	0.181	0.033	0.055	-0.822	<b>0.022*</b>	-0.182
6- Social Concern	Achievement in Mathematics				0.461	0.150	0.114
	Achievement in English	0.116	0.013	0.308	-0.049	0.907	-0.009
7- Praise	Achievement in Mathematics				0.560	0.134	0.118
	Achievement in English	0.186	0.035	0.067	0.083	0.872	0.014
8- Tokens	Achievement in Mathematics				1.009	<b>0.031*</b>	0.182
	Achievement in English	0.126	0.016	0.252	-0.448	0.563	-0.046
9- Mastery Goals	Achievement in Mathematics				1.147	0.097	0.132
	Achievement in English	0.292	0.085	0.000	0.140	0.696	0.030
10- Performance Goals	Achievement in Mathematics				1.178	<b>0.000*</b>	0.281
	Achievement in English	0.244	0.060	0.005	0.208	0.486	0.021
11- Social Goals	Achievement in Mathematics				2.006	<b>0.003*</b>	0.237
	Achievement in English	0.169	0.029	0.082	-0.992	0.055	-0.152
12- Intrinsic Motivation	Achievement in Mathematics				0.766	0.097	0.131
	Achievement in English	0.508	0.258	0.000	-0.835	0.112	-1.599
13- Extrinsic Motivation	Achievement in Mathematics				3.582	<b>0.000*</b>	7.598
	Achievement in English	0.396	0.157	0.000	-0.979	0.112	-0.115
14- Rehearsal	Achievement in Mathematics				3.194	<b>0.000*</b>	0.418
	Achievement in English	0.258	0.067	0.003	0.099	0.868	0.013
15- Elaboration	Achievement in Mathematics				1.742	<b>0.001*</b>	0.254
	Achievement in English	0.303	0.092	0.000	0.578	0.461	-0.057
16- Organization	Achievement in Mathematics				2.863	<b>0.000*</b>	0.315
	Achievement in English	0.316	0.10	0.000	0.567	0.358	0.070
	Achievement in Mathematics				2.089	<b>0.000*</b>	0.288

17- Critical Thinking	Achievement in English	0.331	0.110	0.000	-1.19	0.090	-0.130
18- Metacognitive	Achievement in Mathematics				2.849	0.000*	0.348
	Achievement in English	0.347	0.120	0.000	0.429	0.721	0.027
	Achievement in Mathematics				4.824	0.000*	0.338
19- Attitudes toward the School	Achievement in English	0.232	0.054	0.008	1.534	0.110	0.125
	Achievement in Mathematics				1.773	0.039*	0.161
20- Attitudes toward Teachers and class	Achievement in English	0.243	0.059	0.006	1.099	0.241	0.093
	Achievement in Mathematics				2.087	0.014*	0.196

*\*p< 0.05*

Table 4.28 illustrates the outcome of the regression between the dependent variables (motivation, self-regulation, goal orientations, and attitudes) and independent variables (achievement in English and Mathematics). The results show there was no strong relationship between the dependent variables and independent variables except between intrinsic motivation and achievement in Mathematics. In multiple regressions other factors such as R Square, the significance F value, and the significance  $p$  value were considered important in interpreting multiple regression models.

The results show that there were strong models with respectable R Square value and weak models with low R Square value. The strongest models were intrinsic motivation, extrinsic motivation, elaboration, organization, critical thinking, effort, competition, and mastery goals. In all of these models achievement in Mathematics predicted these variables. Achievement in Mathematics predicted intrinsic motivation with  $R\text{ Square} = .258$ ,  $F = .000$ ,  $p = .000$ . Also, achievement in Mathematics predicted extrinsic motivation with  $R\text{ Square} = .157$ ,  $F = .000$ ,  $p = .000$ . Achievement in Mathematics predicted elaboration with  $R\text{ Square} = .092$ ,  $F = .000$ ,  $p = .000$ . Furthermore, achievement in Mathematics predicted organization with  $R\text{ Square} = .100$ ,  $F = .000$ ,  $p = .000$ . Achievement in Mathematics predicted critical thinking with  $R\text{ Square} = .110$ ,  $F = .000$ ,  $p = .000$ . Achievement in Mathematics predicted metacognitive self-regulatory strategies with  $R\text{ Square} = .120$ ,  $F = .000$ ,  $p = .000$ . In addition, Achievement in Mathematics predicted competition with  $R\text{ Square} = .105$ ,  $F = .000$ ,  $p = .000$ . Finally, achievement in Mathematics predicted mastery goals with  $R\text{ Square} = .085$ ,  $F = .000$ ,  $p = .000$ . Most importantly, achievement in Mathematics and English predicted effort with  $R\text{ Square} = .131$ ,  $F = .000$ ,  $p = .001$ ,  $.021$

Similarly, the rest of the models were predicted mostly by achievement in Mathematics, however, these models were considered weak since the R Square is weak. For example, achievement in Mathematics predicted performance goals with  $R\text{ Square} = .060$ ,  $F = .005$ ,  $p = .003$ .



## **4.4 Research Hypotheses**

**Hypothesis (1): Males will score lower than females in motivation, self-regulation, motivational goals, and goal orientations, and attitudes**

To test this hypothesis an independent T test was conducted in each culture to examine whether males scored lower than females in the variables measured in this study (see Tables 4.29 and 4.30).

Table 4.29

*Differences between Females and Males in Motivation, Self-Regulation, Motivational Goals, Goal Orientations, and Attitudes in the Jordanian Sample*

Variables	sex	N	M	SD	F	Sig.	t	df	Sig. (2-tailed)
Task	female	74	18.91	1.27	6.383	0.012	3.159	167	<b>*0.002</b>
	male	95	18.16	1.70			3.271	166.79	0.001
Effort	female	71	28.97	3.99	3.091	0.081	0.794	160	0.428
	male	91	28.41	4.85			0.814	159.50	0.417
Competition	female	72	25.01	3.53	10.931	0.001	1.186	163	0.237
	male	93	24.19	4.98			1.238	161.82	0.218
Social Power	female	71	23.49	4.45	2.526	0.114	0.527	160	0.599
	male	91	23.05	5.80			0.544	159.96	0.587
Affiliation	female	72	11.76	2.56	1.435	0.233	1.348	164	0.179
	male	94	11.17	2.99			1.376	161.81	0.171
Social Concern	female	73	20.74	2.87	2.696	0.103	3.099	163	<b>*0.002</b>
	male	92	19.14	3.59			3.178	162.98	0.002
Praise	female	73	21.05	3.38	14.335	0.000	3.085	161	<b>*0.002</b>
	male	90	18.86	5.27			3.224	153.33	0.002
Tokens	female	71	23.82	5.57	9.115	0.003	0.136	160	0.892
	male	91	23.67	7.62			0.141	159.40	0.888
Mastery Goals	female	72	22.68	2.13	7.338	0.007	1.978	163	0.050
	male	93	21.69	3.82			2.116	149.40	0.036
Performance Goals	female	74	31.96	4.17	15.777	0.000	1.422	166	0.157
	male	94	30.60	7.37			1.512	152.03	0.133
Social Goals	female	74	20.24	3.37	3.145	0.078	1.748	165	0.082
	male	93	19.14	4.52			1.806	164.32	0.073
Intrinsic Motivation	female	72	22.06	3.91	1.334	0.250	-0.801	163	0.425
	male	93	22.60	4.66			-0.819	161.91	0.414
Extrinsic Motivation	female	73	23.18	3.97	0.283	0.596	0.977	162	0.330
	male	91	22.54	4.32			0.986	158.98	0.326
Rehearsal	female	74	17.50	5.32	3.554	0.061	0.532	165	0.595
	male	93	17.02	6.11			0.540	163.59	0.590
Elaboration	female	73	29.00	7.04	1.034	0.311	0.009	164	0.993
	male	93	28.99	7.95			0.009	161.59	0.993
Organization	female	73	17.82	5.22	0.485	0.487	0.826	165	0.410
	male	94	17.12	5.65			0.835	160.14	0.405
Critical Thinking	female	70	23.11	6.83	0.547	0.461	-1.092	158	0.276
	male	90	24.27	6.45			-1.084	144.15	0.280
Metacognitive	female	72	52.64	11.56	5.332	0.022	0.363	156	0.717
	male	86	51.87	14.48			0.370	155.66	0.712
Attitudes toward school	female	71	39.15	8.21	0.989	0.321	0.955	161	0.341
	male	92	37.79	9.60			0.974	159.24	0.331
Attitudes toward teachers	female	69	37.72	9.38	0.427	0.514	-0.368	157	0.714
	male	90	38.28	9.42			-0.368	146.79	0.714

*\*P< .05*

Table 4.29 indicates that in the Jordanian sample males scored lower than females in their orientations toward task with females ( $F= 6.38, p<.05$ ). Also, males scored lower than females in social concern ( $F= 2.67, p<.05$ ). Finally, the results indicate that males scored lower than females in praise ( $F= 14.34, p<.05$ ). Since it is not a null hypothesis the 2-tailed significant results have to be divided by 2. Therefore, these results support the hypothesis that males will score lower than females in terms of task, social concern, and praise.

Table 4.30

*Differences between Females and Males in Motivation, Self-Regulation, Motivational Goals, Goal Orientations, and Attitudes in the Australian Sample*

Variables	sex	N	M	SD	F	Sig.	t	df	Sig. (2-tailed)
Task	female	95	17.57	2.09	0.69	0.41	-0.364	190	0.717
	male	97	17.68	1.76			-0.363	183.47	0.717
Effort	female	92	25.09	4.55	0.06	0.80	-1.261	187	0.209
	male	97	25.91	4.38			-1.259	185.49	0.209
Competition	female	96	17.62	7.16	3.16	0.08	-2.096	194	<b>*0.037</b>
	male	100	19.67	6.48			-2.092	190.23	0.038
Social Power	female	94	14.06	5.19	0.24	0.63	-2.770	192	<b>*0.006</b>
	male	100	16.17	5.38			-2.773	191.88	0.006
Affiliation	female	94	9.55	3.14	4.02	0.05	-2.718	193	<b>*0.007</b>
	male	101	10.69	2.70			-2.703	184.14	0.008
Social Concern	female	96	18.89	3.63	2.70	0.10	-0.367	194	0.714
	male	100	19.08	3.38			-0.367	191.51	0.714
Praise	female	86	18.96	4.37	3.10	0.08	-0.038	172	0.970
	male	88	18.98	3.80			-0.038	167.63	0.970
Tokens	female	95	16.53	6.19	1.10	0.30	-2.253	192	<b>*0.025</b>
	male	99	18.58	6.46			-2.255	192	0.025
Mastery Goals	female	95	19.85	3.11	0.10	0.75	-0.923	192	0.357
	male	99	20.26	3.06			-0.923	191.37	0.357
Performance Goals	female	94	23.67	6.88	2.12	0.15	-2.169	191	<b>*0.031</b>
	male	99	25.70	6.15			-2.163	186.08	0.032
Social Goals	female	94	15.64	4.53	2.60	0.11	-2.591	192	<b>*0.010</b>
	male	100	17.26	4.12			-2.584	187.51	0.011
Intrinsic Motivation	female	93	15.90	5.47	6.62	0.01	-3.898	188	<b>*0.000</b>
	male	97	18.67	4.25			-3.878	173.72	0.000
Extrinsic Motivation	female	94	19.43	6.39	10.17	0.00	-2.649	193	<b>*0.009</b>
	male	101	21.51	4.45			-2.616	164.64	0.010
Rehearsal	female	92	15.18	5.59	0.93	0.33	-0.170	189	0.865
	male	99	15.31	4.84			-0.169	180.60	0.866
Elaboration	female	92	22.62	7.55	2.11	0.15	-1.825	189	0.070
	male	99	24.48	6.56			-1.816	180.78	0.071
Organization	female	94	16.38	6.02	3.57	0.06	1.427	191	0.155
	male	99	15.24	5.05			1.421	181.79	0.157
Critical Thinking	female	92	15.47	5.89	0.56	0.45	-4.926	188	<b>*0.000</b>
	male	98	19.59	5.61			-4.919	185.66	0.000
Metacognitive	female	94	45.96	11.2	0.80	0.37	-1.597	190	0.112
	male	98	48.39	9.80			-1.592	184.17	0.113
Attitudes toward school	female	95	38.17	9.56	4.90	0.03	-1.334	194	0.184
	male	101	39.78	7.15			-1.322	173.81	0.188
Attitudes toward teachers	female	92	40.15	8.26	0.11	0.74	-1.133	191	0.259
	male	101	41.47	7.95			-1.131	187.69	0.260

*\*P< .05*

Table 4.30 indicates that in the Australian sample females scored lower than males in competition, social power, affiliation, tokens, performance goals, intrinsic motivation, extrinsic motivation, and critical thinking. First, females scored lower than males in competition ( $F=3.16, p<.05$ ). Second, females scored lower than males in social power ( $F=.24, p<.05$ ). Third, females scored lower than males in affiliation ( $F=4.02, p<.05$ ). Fourth, females scored lower than males in tokens ( $F=1.10, p<.05$ ). Furthermore, females scored lower than males in performance goals ( $F=2.12, p<.05$ ). Moreover, females scored lower than males in social goals ( $F=2.60, p<.05$ ). Females also scored lower than males in intrinsic motivation ( $F=6.62, p<.05$ ). In addition females scored lower than males in extrinsic motivation ( $F=10.17, p<.05$ ). Finally, females scored lower than males in critical thinking ( $F=.56, p<.05$ ). As a result, this hypothesis was rejected.

**Hypothesis (2): There will be no differences between tenth grade and eleventh grade students in terms of motivation, self-regulation, motivational goals, and goal orientations, and attitudes.**

To test this hypothesis an independent T test was conducted to determine whether there was no difference between tenth and eleventh grade students in each culture in terms of the variables measured in this study (see Tables 4.31 and 4.32).

Table 4.31

*Differences between Tenth and Eleventh grade Students in Motivation, Self-Regulation, Motivational Goals, Goal Orientations, and Attitudes in the Jordanian Sample*

Variables	Grade	N	M	SD	F	Sig.	t	df	Sig. (2-tailed)
Task	10	81	18.42	1.51	0.039	0.844	-0.520	167	0.604
	11	88	18.55	1.63			-0.522	166.99	0.603
Effort	10	75	28.15	4.52	0.002	0.966	-1.340	160	0.182
	11	87	29.09	4.44			-1.338	155.65	0.183
Competition	10	80	23.75	4.29	0.279	0.598	-2.294	163	<b>*0.023</b>
	11	85	25.31	4.42			-2.296	162.85	0.023
Social Power	10	76	22.37	5.63	2.127	0.147	-2.026	160	<b>*0.044</b>
	11	86	24.02	4.77			-2.005	147.76	0.047
Affiliation	10	80	11.06	3.14	7.530	0.007	-1.618	164	0.108
	11	86	11.77	2.46			-1.604	149.66	0.111
Social Concern	10	79	19.13	3.76	3.729	0.055	-2.682	163	<b>*0.008</b>
	11	86	20.51	2.85			-2.651	145.02	0.009
Praise	10	79	19.38	4.74	0.919	0.339	-1.231	161	0.220
	11	84	20.27	4.53			-1.229	159.21	0.221
Tokens	10	77	23.22	6.36	1.389	0.240	-0.918	160	0.360
	11	85	24.20	7.14			-0.923	159.96	0.357
Mastery Goals	10	78	21.77	2.61	1.741	0.189	-1.331	163	0.185
	11	87	22.44	3.68			-1.355	155.05	0.177
Performance Goals	10	80	30.10	6.00	0.089	0.766	-2.214	166	<b>*0.028</b>
	11	88	32.19	6.23			-2.218	165.42	0.028
Social Goals	10	80	18.99	4.35	3.509	0.063	-1.965	165	0.051
	11	87	20.22	3.74			-1.953	156.48	0.053
Intrinsic Motivation	10	78	21.47	4.80	2.052	0.154	-2.530	163	<b>*0.012</b>
	11	87	23.16	3.74			-2.496	145.02	0.014
Extrinsic Motivation	10	77	22.77	4.19	0.265	0.608	-0.164	162	0.870
	11	87	22.87	4.17			-0.164	159.47	0.870
Rehearsal	10	79	17.01	5.68	0.809	0.370	-0.468	165	0.640
	11	88	17.43	5.86			-0.469	164.03	0.640
Elaboration	10	79	27.84	7.86	0.856	0.356	-1.900	164	0.059
	11	87	30.05	7.13			-1.891	158.08	0.060
Organization	10	80	16.69	5.58	0.002	0.966	-1.683	165	0.094
	11	87	18.10	5.30			-1.679	162.01	0.095
Critical Thinking	10	75	22.73	6.42	1.708	0.193	-1.860	158	0.065
	11	85	24.67	6.70			-1.865	156.90	0.064
Metacognitive	10	75	51.39	13.71	0.017	0.896	-0.755	156	0.451
	11	83	52.98	12.75			-0.752	151.43	0.453
Attitudes toward school	10	76	36.88	8.95	<b>0.006</b>	0.937	-2.009	161	0.046
	11	87	39.70	8.93			-2.009	158.00	<b>*0.046</b>
Attitudes toward teachers	10	76	36.64	8.42	2.028	0.156	-1.805	157	0.073
	11	83	39.31	10.06					0.071

*\*P< .05*

Table 4.31 indicates that in the Jordanian sample eleventh grade students scored higher than tenth grade students in competition, social power, social concern, performance goals, intrinsic motivation, and attitudes toward the school. First, eleventh grade students scored higher than tenth grade students in competition ( $F = .28, p < .05$ ). Second, eleventh grade students scored higher than tenth grade students in social power ( $F = 2.13, p < .05$ ). Third, eleventh grade students scored higher than tenth grade students in social concern ( $F = 3.73, p < .05$ ). Fourth, eleventh grade students scored higher than tenth grade students in performance goals ( $F = .089, p < .05$ ). Furthermore, eleventh grade students scored higher than tenth grade students in intrinsic motivation ( $F = 2.05, p < .05$ ). Finally, Eleventh grade students scored higher than tenth grade students in their attitudes toward their school ( $F = .006, p < .05$ ). Overall the results reject the null hypothesis as there is a difference between tenth and eleventh grade students in terms of competition, social power, social concern, performance goals, intrinsic motivation, and attitudes toward the school.

Table 4.32

Differences between Tenth and Eleventh Grade Students in Motivation, Self-Regulation, Motivational Goals, Goal Orientations, and Attitudes in the Australian Sample

Variables	grade	N	Mean	SD	F	Sig.	t	df	Sig. (2-tailed)
Task	10	99	17.44	2.19	9.75	0.00	-1.38	190	0.169
	11	93	17.83	1.59			-1.393	178.93	0.165
Effort	10	98	25.80	4.49	0.01	0.92	0.884	187	0.378
	11	91	25.22	4.47			0.884	186.1	0.378
Competition	10	102	17.71	7.14	1.28	0.26	-2.055	194	<b>*0.041</b>
	11	94	19.71	6.48			-2.063	193.96	0.040
Social power	10	101	15.42	5.69	2.30	0.13	0.717	192	0.474
	11	93	14.86	5.04			0.721	191.72	0.472
Affiliation	10	101	10.39	2.81	2.30	0.13	1.182	193	0.239
	11	94	9.88	3.13			1.177	187.07	0.241
Social Concern	10	102	19.07	3.39	0.83	0.36	0.328	194	0.744
	11	94	18.90	3.63			0.327	189.66	0.744
Praise	10	85	18.71	4.29	0.91	0.34	-0.856	172	0.393
	11	89	19.24	3.88			-0.854	168.36	0.394
Tokens	10	101	18.18	6.48	0.29	0.59	1.354	192	0.177
	11	93	16.94	6.28			1.356	191.48	0.177
mastery Goals	10	100	19.82	3.28	0.66	0.42	-1.124	192	0.262
	11	94	20.32	2.87			-1.129	191.08	0.260
performance Goals	10	102	24.58	6.97	1.48	0.23	-0.304	191	0.761
	11	91	24.87	6.16			-0.307	190.99	0.760
Social Goals	10	100	16.99	4.29	0.15	0.7	1.678	192	0.095
	11	94	15.94	4.46			1.676	190.03	0.095
Intrinsic Motivation	10	100	16.79	5.34	1.38	0.24	-1.511	188	0.132
	11	90	17.90	4.72			-1.521	187.94	0.130
Extrinsic Motivation	10	101	19.10	6.14	9.71	0.00	-3.807	193	<b>*0.000</b>
	11	94	22.03	4.41			-3.851	181.69	0.000
Rehearsal	10	98	14.89	5.48	0.82	0.37	-0.991	189	0.323
	11	93	15.63	4.90			-0.994	188.34	0.322
Elaboration	10	99	22.42	7.30	0.83	0.36	-2.375	189	<b>*0.019</b>
	11	92	24.84	6.70			-2.383	188.97	0.018
Organization	10	100	14.91	5.89	1.73	0.19	-2.325	191	<b>*0.021</b>
	11	93	16.75	5.05			-2.338	189.77	0.020
Critical Thinking	10	97	17.68	6.18	0.38	0.54	0.185	188	0.853
	11	93	17.52	6.04			0.185	187.92	0.853
Metacognitive	10	100	46.08	11.49	2.83	0.09	-1.546	190	0.124
	11	92	48.43	9.41			-1.559	187.56	0.121
Attitudes toward school	10	102	38.77	8.75	0.63	0.43	-0.398	194	0.691
	11	94	39.26	8.10			-0.4	193.99	0.690
Attitudes toward teachers	10	99	39.46	8.78	4.82	0.03	-2.457	191	<b>*0.015</b>
	11	94	42.30	7.10			-2.471	186.37	0.014

\*p< .05



Table 4.32 indicates that in the Australian sample eleventh grade students scored higher than tenth grade students in competition, extrinsic motivation, elaboration, organization, and attitudes toward teachers and class. First, eleventh grade students scored higher than tenth grade students in competition ( $F= 1.28, p<.05$ ). Second, eleventh grade students scored higher than tenth grade students in extrinsic motivation ( $F=9.71, p<.05$ ). Third, eleventh grade students scored higher than tenth grade students in elaboration ( $F=.083, p<.05$ ). Furthermore, eleventh grade students scored higher than tenth grade students in organization ( $F=1.73, p<.05$ ). Finally, Eleventh grade students scored higher than tenth grade students in their attitudes toward their teachers and class ( $F=4.82, p<.05$ ). Overall, the results reject the null hypothesis as there is a difference between tenth and eleventh grade students in terms of competition, extrinsic motivation, elaboration, organization, and attitude toward teachers and class.

**Hypothesis (3): There will be no difference between the Jordanian and Australian samples in terms of motivation, self-regulation, motivational goals, and goal orientations, and attitudes.**

To test this hypothesis an independent T test was conducted to determine whether there was no difference between the Jordanian and Australian samples in terms of the variables measured in this study (see Tables 4.33).

Table 4.33

*The Difference between the Jordanians and the Australians in Motivation, Self- Regulation, Motivational Goals, Goal Orientations, and Attitudes*

Variables	culture	N	M	SD	F	Sig.	t	df	Sig. (2-tailed)
Task	study1	169	18.49	1.57	11.00	0.00	4.583	359	<b>*.000</b>
	study2	192	17.63	1.93			4.644	356.74	.000
Effort	study1	162	28.65	4.49	0.42	0.52	6.536	349	<b>*.000</b>
	study2	189	25.52	4.48			6.534	340.55	.000
Competition	study1	165	24.55	4.41	41.49	0.00	9.46	359	<b>*.000</b>
	study2	196	18.67	6.89			9.807	336.38	.000
Social Power	study1	162	23.25	5.24	0.40	0.53	14.31	354	<b>*.000</b>
	study2	194	15.15	5.38			14.34	345.83	.000
Affiliation	study1	166	11.43	2.82	<b>0.03</b>	0.87	4.188	359	.000
	study2	195	10.14	2.97			4.206	354.87	<b>*.000</b>
Social Concern	study1	165	19.85	3.38	<b>0.06</b>	0.81	2.36	359	.019
	study2	196	18.99	3.50			2.367	352.43	<b>*.018</b>
Praise	study1	163	19.84	4.64	1.59	0.21	1.816	335	.070
	study2	174	18.98	4.08			1.809	322.92	.071
Tokens	study1	162	23.73	6.78	0.87	0.35	8.792	354	<b>*.000</b>
	study2	194	17.58	6.40			8.747	335.06	.000
Mastery Goals	study1	165	22.12	3.22	<b>0.03</b>	0.86	6.166	357	.000
	study2	194	20.06	3.09			6.145	342.7	<b>*.000</b>
Performance Goals	study1	168	31.20	6.19	3.21	0.07	9.591	359	<b>*.000</b>
	study2	193	24.72	6.58			9.633	356.85	.000
Social Goals	study1	167	19.63	4.08	2.66	0.10	7.021	359	<b>*.000</b>
	study2	194	16.48	4.39			7.06	356.92	.000
Intrinsic Motivation	study1	165	22.36	4.35	4.92	0.03	9.991	353	<b>*.000</b>
	study2	190	17.32	5.07			10.1	352.94	.000
Extrinsic Motivation	study1	164	22.82	4.17	10.68	0.00	4.386	357	<b>*.000</b>
	study2	195	20.51	5.56			4.494	352.53	.000
Rehearsal	study1	167	17.23	5.76	3.17	0.08	3.42	356	<b>*.001</b>
	study2	191	15.25	5.20			3.397	337.37	.001
Elaboration	study1	166	28.99	7.54	0.61	0.44	6.972	355	<b>*.000</b>
	study2	191	23.59	7.10			6.942	341.2	.000
Organization	study1	167	17.43	5.46	<b>0.05</b>	0.83	2.791	358	.006
	study2	193	15.80	5.56			2.795	352.33	<b>*.005</b>
Critical Thinking	study1	160	23.76	6.63	0.91	0.34	9.054	348	<b>*.000</b>
	study2	190	17.60	6.10			8.99	326.8	.000
Metacognitive	study1	158	52.22	13.20	8.26	0.00	3.944	348	<b>*.000</b>
	study2	192	47.21	10.58			3.862	298.46	.000
Attitudes toward school	study1	163	38.39	9.02	1.27	0.26	-0.671	357	.503
	study2	196	39.01	8.43			-0.666	335.58	.506
Attitudes toward teachers	study1	159	38.04	9.38	4.37	0.04	-3.011	350	<b>*.003</b>
	study2	193	40.84	8.11			-2.969	314.46	.003

*Note: Study 1= Jordan, Study 2= Australia*

*\*P<.05*

Table 4.33 indicates that there was a significant difference between the Jordanian and Australian samples in almost all of the variables measured in this study. Jordanian gifted students scored higher than the Australian gifted students in task, effort, competition, social power, affiliation, social concern, tokens, mastery goals, performance goals, social goals, intrinsic motivation, extrinsic motivation, rehearsal, elaboration, organization, critical thinking, and metacognitive self-regulatory strategies. However, Australian gifted students scored higher than the Jordanian gifted students in their attitudes toward their teachers. It is important to mention that the values of cronbach's alpha for the Jordanian and the Australian students showed a slightly greater consistency by the Australians in the answers given by the same student in terms of task, competition, intrinsic motivation, extrinsic motivation, and organization.

# **CHAPTER FIVE**

## **DISCUSSION AND CONCLUSION**

### **Introduction**

The main aim of this study was to determine the difference among gifted high, moderate, and low achievers in terms of motivation, self-regulation, motivational goals, goal orientations, and attitudes toward their school and teachers and class. This study is one of the first to investigate all these variables together and within the context of a selective school and cross-cultural perspective. This chapter will discuss the findings from the data analyses described in chapter 4 and draw conclusions to each of the research questions and hypotheses in the first and the second study. It will present recommendations from the findings of this study in terms of the implications for theory, policy, and practice. Finally, this chapter will present the conclusion and limitations of this study.

### **5.1 Research Question 1**

The main research question of the study was to determine the difference among the three groups in terms of motivation, self-regulation, motivational goals, goal orientations, and attitudes toward school and teachers. The descriptive results one way ANOVA as well as post hoc pair wise multiple comparisons using *Boneferroni* test were used to answer this question.

### **5.1.1 Motivation**

One of the aims of this study was to determine the difference among the three groups in their intrinsic and extrinsic motivation, which were measured using the Motivated Strategies for Learning Questionnaire (MSLQ).

#### **5.1.1.1 The difference among the three levels of achievers in intrinsic and extrinsic motivation**

The literature is inconsistent in terms of the effect of intrinsic and extrinsic motivation on gifted students' achievement since some studies showed that extrinsic motivation is related to low achievers and intrinsic motivation is related to high achievers (Yumusak, et al., 2007). In comparison, other studies suggested that intrinsic and extrinsic motivation could coexist in enhancing gifted students' achievement (Hoekman, et al., 2005; Street, 2001). The literature emphasized the importance of intrinsic motivation over extrinsic motivation in relation to gifted students' achievement (Street, 2001). This study has extended previous research by investigating intrinsic and extrinsic motivation among three levels of achievers in a selective school context and from cross cultural perspective.

The findings of this study indicate a clear difference between the Australian and Jordanian gifted students in their intrinsic and extrinsic motivation. The findings in the Australian study indicate that in terms of achievement in Mathematics, tenth grade high and moderate achievers were more intrinsically motivated than low achievers. High and moderate achievers were also more extrinsically motivated than the low achievers. Additionally, in terms of achievement in Mathematics, eleventh grade, male and female high achievers were more intrinsically motivated than moderate and low achievers. However, the results in the Jordanian study indicate that there was no significant difference among the three levels of achievers in their intrinsic and extrinsic motivation. Interestingly, most of the significant results in the Australian study were in terms of achievement in Mathematics which indicates that Mathematics is appreciated in the school. For example high achievers are more likely to be involved in external competition such as Mathematics Olympiad and hence this would affect their extrinsic motivation.

The fact that higher levels of intrinsic and extrinsic motivation were related to high achievers in the Australian study supports the findings of previous research (Hoekman, et al, 2005; Philips & Lindsay, 2006; Street, 2001). Street (2001) found that both intrinsic and extrinsic motivation contribute to the academic success of gifted secondary students with particular emphasis on intrinsic motivation. However, in the current study, the results show that students' motivation to achieve is more likely to be extrinsic than intrinsic, particularly in the Australian sample (see Table 4.33). This finding is consistent with Craven and her colleagues' (2004) study in which they found that the GAT program did not support the increases in intrinsic motivation that were expected in the selective GAT program.

The findings in the Jordanian sample might be explained by the value placed on education in general in Jordan, particularly for gifted students. Also, the sample was drawn from one of the most elite schools in Jordan and to be accepted in this school is considered important to the students socially as well as personally. In other words, Jordanian students want to do well to please their families as well as themselves. Another important point is that the extrinsic motivation subscale rendered a low reliability coefficient in the Jordanian sample (see chapter 3). This indicates that the extrinsic motivation subscale was not sensitive enough to measure students' extrinsic motivation. Also, the culture of school encourages intrinsic and extrinsic motivation through giving the students the chance to select their subjects and activities at the same time as encouraging rewards and competition.

In comparison, in the Australian study the findings were consistent with the literature and suggested that intrinsic and extrinsic motivation were both associated with high achievers. Further, this study illustrates that intrinsic and extrinsic motivation could coexist to promote gifted students' achievement in a selective school environment. This indicates that intrinsic and extrinsic motivation are not mutually exclusive; they are not necessarily in conflict. Students use both types of motivation to boost their achievement. However, the results indicate that students were more extrinsically motivated to achieve than intrinsically motivated. Ryan and Deci's (2000) explanation may be applicable here, as they stressed that because many of the tasks that educators want their students to perform are not inherently interesting or enjoyable, forms of extrinsic motivation became an essential strategy for successful

teaching. Similarly, in the Australian study it is possible to say that teachers make learning more interesting and enjoyable by encouraging extrinsically motivated students through rewarding them and recognizing their achievement. Therefore, this encourages all students whether they are extrinsically motivated or intrinsically motivated to become more involved in competitive performance. Most importantly, the Australian culture in general values academic achievement and competition. Therefore, this may encourage students to become more involved in competitive performance.

### **5.1.2 Self-Regulation**

The second variable that was assessed in this study was self-regulatory strategies. The self-regulatory strategies that were measured in this study were: rehearsal, elaboration, organization, critical thinking, and metacognitive self-regulatory strategies. These variables were measured using the Motivated Strategy for Learning Questionnaire (MSLQ).

#### **5.1.2.1 The difference among the three levels of achievers in their use of self-regulatory strategies**

The literature is inconsistent in terms of the use of self-regulatory strategies among gifted high achievers since some studies showed that self-regulation was related to achievement (Ablard & Lipschultz, 1998; Muir-Broaddus, 1995; Pintrich & De Groot, 1990; Zimmerman & Martinez-Pons, 1986, 1988). In comparison, other studies particularly among Asian students suggested the opposite (Malpass, O'Neil, & Hocevar, 1999; Rao, Moely, & Sachs, 2000). This study has extended previous research by investigating the use of self-regulatory strategies among three levels of achievers in a selective school context and from a cross-cultural perspective.

The findings of this study indicate a clear difference between the Australian and Jordanian gifted students in their use of self-regulatory strategies. In the Australian study, low achievers were low in all types of self-regulatory strategies, particularly tenth grade students in terms of their achievement in Mathematics. However, the results show that in terms of achievement in English tenth grade low achievers were low in organization only. Interestingly, in terms of achievement in

Mathematics, eleventh grade moderate achievers were similar to the low achievers, that is, they were low in their use of elaboration and critical thinking.

These findings are consistent with the literature in the western countries which reported that self-regulation is more evident in high achievers (Ablard & Lipschultz, 1998; McCoach & Siegle, 2003a; Muir-Broaddus, 1995; Pintrich & De Groot, 1990; Zimmerman & Martinez-Pons, 1986, 1988). Moreover, most of the significant results were in terms of achievement in Mathematics which may reflect the ways in which Mathematics compared to other subjects taught in the school, whereby there is more emphasis on explicitly teaching strategic skills.

In the literature there are many theories that explain the lack of the use of self-regulatory strategies among low achievers. Pintrich and De Groot (1990) indicated that the dysfunctional motivational processes act as an important variable in the use of self-regulatory strategies. Purdie and Hattie (1996) suggested that the physical and social contexts of the use of learning strategies together with personal factors, such as the level of one's knowledge and metacognitive awareness, allow students to become self-regulating in learning and therefore optimizing their learning outcomes. In social cognitive theory self-efficacy is considered an important influence on a person's choice of activity and the use of self-regulatory strategies (Zimmerman & Martinez-Pons, 1990).

Other researchers such as Zimmerman (1994) suggested that the nature of the classroom context plays an important role in facilitating self-regulatory strategies. He argued that a classroom that does not allow for much choice of strategies to perform tasks limits the use of self-regulatory strategies. Similarly, Cohen (1994) found that classroom activities can have an important influence on students' motivation and the level of self-regulated learning in the classroom. Ames (1992) found that teachers' practices, methods, and the type of task they ask the students to do can influence the students' motivational goals as well as their self-regulated learning.

Accordingly, there may be a number of reasons why the use of self-regulatory strategies is associated with gifted students' achievement in the Australian study. First, motivation plays an important role in the increased use of self-regulatory strategies and, as the linear regression results indicated, intrinsic motivation is positively related to self-regulation. Therefore, low achievers did not have the intrinsic motivation or the



interest in tasks that allowed them to use self-regulatory strategies for learning and achievement at a high level. Second, it is possible to say that the low achievers' low level of knowledge and awareness of cognitive strategies did not allow them to become self-regulating in their learning. Third, the less frequent use of self-regulatory strategies may be because the environment of the school is not sufficiently demanding. This means that school activities and practices may not encourage them to use the self-regulatory strategies. Also, it might be said that teachers' practices and activities did not influence the students' motivation and this directly affected their use of self-regulatory strategies.

In the Jordanian study, self-regulatory strategies did not differentiate gifted students' achievement in that all gifted students, regardless of their achievement level, used self-regulatory strategies. This finding corresponds with the previous findings in the study by Rao and colleagues (2000) in which they found that high achievers and low achievers did not differ in their use of self-regulatory strategies. They explained that cultural belief of the educational systems might affect the results. Similarly, in the Jordanian sample it might be worth to mention that Jordanian culture emphasizes the importance of education and the importance of examinations for higher education which encourages all students, regardless of their level, to regulate their cognition and use cognitive strategies. Another important reason is related to the fact that most of these students were highly gifted in Mathematics and the environment of school encourages achievement in Mathematics and demands the use of self-regulatory strategies through its activities. Therefore, to be able to master these challenges and activities, students have to use these strategies and, systematically, these strategies become automated and they engage them unconsciously.

In conclusion, the findings of this study demonstrate that culture had an impact on the results of the two studies which correspond with the findings of Purdie and Hattie (1996) and Yumusak and his colleagues (2007) in which they stressed that use of self-regulatory strategies differs across different cultures. Indeed, the culture of the school and its practices also affect students' use of self-regulatory strategies which is obvious in the Jordanian sample in which the emphasis on Mathematics achievement and Mathematics activities demand the students use self-regulatory strategies

regardless of their achievement level and the use of self-regulatory strategies did not differentiate between gifted high achievers and low achievers.

### **5.1.3 Motivational Goals**

The third variable that was assessed in this study was motivational goals. The motivational goals that were measured in this study were task, effort, competition, affiliation, social concern, social power, praise, and tokens. These variables were measured using the Inventory of School Motivation Scale (ISM).

#### **5.1.3.1 The difference among the three levels of achievers in motivational goals**

The literature has indicated that motivational goals such as task, effort, competition, and affiliation differentiated gifted high achievers from low achievers (Albaiali, 2003). This study adds to the findings of previous research by investigating the orientations toward motivational goals in terms of achievement in subject-area, in a selective school context, and from a cross-cultural perspective.

The findings of this study indicated that there are similarities between the Australian and Jordanian high achievers in their orientations toward a number of motivational goals. The results show that Jordanian high achievers considered effort and competition important variables to their achievement in Arabic. Similarly, Australian high achievers considered effort, task, and competition important variables to their achievement in English and Mathematics. All of these findings were consistent with Albaili's (2003) study in which he found that high achievers were more oriented toward task, effort, and competition than low achievers.

Eleventh grade high achievers in both studies were more competitive than low achievers which can be explained by the highly competitive environment of the schools which support and encourage competition in general. Also, in the Australian sample tenth grade high achievers were more competitive than low achievers. Within the Jordanian sample other motivational goals such as affiliation differentiated gifted students' achievement. Tenth grade low achievers considered affiliation an important motivational goal to their achievement in Arabic. This finding supports previous literature (Albaiali, 2003). In comparison, in the Australian sample tenth grade

moderate achievers were more socially concern than low achievers which doesn't support the previous literature (Albaiali, 2003).

#### **5.1.4 Goal Orientations**

The fourth variable that was assessed in this study was goal orientations. In this study, goals were divided into mastery approach goals, performance approach goals and social goals. All these goals were measured using the Inventory of School Motivation Scale (ISM).

##### **5.1.4.1 The difference among the three levels of achievers in the orientations toward mastery, performance, and social goals**

The literature is inconsistent in terms of the orientations of goals since some studies reported that high achievers were more oriented toward mastery goals (Ablard & Lipschultz, 1998; Dweck & Leggett 1988) while other studies suggested that performance is likely to relate to achievement in conjunction with mastery goal orientations (Ee et al, 2003; Pintrich, 2000b). In other words, research has suggested that performance goals might be beneficial under certain conditions such as a competitive environment or a situation where mastery goals are also present (Midgley, Kaplan, & Middleton, 2001). This study has extended the previous literature by comparing three levels of gifted high school students in terms of orientations toward mastery, performance, and social goals in a selective school context and from a cross-cultural perspective.

The results of this study indicate a clear difference between the Australian and Jordanians' three levels of achievers in their orientations toward mastery and performance goals. First, in the Jordanian study, tenth grade low achievers were more likely to hold performance goals than the moderate and high achievers in terms of their achievement in Arabic. In comparison, the Australian eleventh grade high achievers were more oriented toward performance goals than low achievers in terms of their achievement in Mathematics. Second, in the Australian study mastery goals were significantly lower for the low achievers among tenth grade and female students in terms of their achievement in Mathematics. In comparison in the Jordanian sample mastery goals did not differentiate gifted students' achievement. Even though, there

was a cultural difference in the orientations toward mastery and performance goals, social goals did differentiate gifted students' achievement in the Australian sample in which low achievers were more oriented toward social goals than moderate achievers which is in consistent with the literature that support achievement can be influenced by social goals (McInerney et al, 1998).

In relation to performance goals, in the Jordanian sample the findings were consistent with Chessor's (2004) study in which she found that students who experienced low success in an OC class may have been more performance goal oriented or performance avoidance oriented. This finding might be explained by the argument made by goal theory researchers that students motivated by performance goals will be interested in trying their best to get higher grades than others and this might have negatively affected students' focus on the task. Therefore, this would diminish their cognitive ability, task engagement, and performance (Dweck & Leggett, 1988; Linnenbrink & Pintrich, 2002). Accordingly, it might be said that Jordanian low achievers were interested in getting higher grades to please their families as well as themselves and this directly affected their performance. The findings of the Australian study were consistent with the literature that suggested that performance goals are likely to relate to achievement only in conjunction with mastery goal orientations (Ee et al, 2003; Pintrich, 2000b).

The literature has provided explanations for the positive outcomes of performance goals. The literature provided evidence that performance goals have positive effects, particularly in secondary and college contexts (Urden, 1997). Other researchers suggested that either type of goals can promote interest but the effect of these goals depends on personality and contextual factors (Harackiewicz, Barron, & Elliot, 1998). Bouffard and his colleagues (1998) explained that older students understand that not only gaining knowledge but being able to translate this knowledge into academic achievement is an important criterion for accessing high school levels. They further stressed that mastery goals are crucial to younger students but the relevance of performance goals for adaptive function may increase with school levels.

Accordingly, reasons why performance goals were related to eleventh grade high achievers in the Australian study can perhaps be explained by eleventh grade in Australia being characterized as a high stakes, performance-oriented learning

environment which require students to respond to examinations and assignments all within the context of performance and competition (Smith, 2004). Therefore, high school students consider academic achievement as an important criterion for their success in moving to the next level of high school and then college level.

### **5.1.5 Attitudes**

The final variable that was assessed in the first research question was students' attitudes toward school and teachers and class which were measured using the School Attitude Assessment Surveys (SAAS).

#### **5.1.5.1 The difference among the three levels of achievers in their attitudes toward their school and teachers**

The literature has indicated that gifted students' attitudes toward school, teachers and class did affect their achievement and differentiated between gifted high achievers and low achievers. However, most of this literature investigated students' attitudes in a mainstream school setting. This study has extended previous research by investigating students' attitudes toward their school, teachers and class among three levels of gifted high school students in a selective school context and from a cross-cultural perspective.

The results of this study indicated a clear difference between the Australian and Jordanian three levels of achievers in their attitudes toward their selective school and teachers and class. The results indicate that in the Australian study moderate and high achievers were more positive in their attitudes toward the school, teachers and class particularly among male students. This finding is consistent with the literature (Baslanti & McCoach, 2006; McCoach & Siegle, 2003a). However, in the Jordanian study, students were all positive in their attitudes toward their school, teachers and class regardless of their achievement level.

Findings in the Jordanian sample might be explained in relation to the fact that the selective school is one of the elite schools in Jordan and it is considered an achievement in itself to be accepted in this school for its high reputation for the quality of education and teachers. Therefore, students who came from other public schools to

the selective school found a great difference between their former schools and this school in terms of its activities, curriculum, and education.

#### **5.1.6 What do high, moderate, and low achievers look like in terms of motivation, self-regulation, motivational goals, goal orientations, and attitudes**

In line with the previous findings, in the Australian study the results show that most of the variables of the study differentiated the three levels of achievers, although most of these significant differences were in terms of their achievement in Mathematics. In terms of achievement in English, high achievers can be described as students who were using organization as a strategy for learning, were oriented toward effort, task, and competition and were positive in their attitudes toward their teachers and class. Second, moderate achievers can be described as students who were oriented toward task and competition and were positive in their attitudes toward teachers and class. Third, low achievers can be described as students who were not oriented toward effort, task, and competition, did not use self-regulatory strategies particularly organization, and were not positive in their attitudes toward their teachers and class. However, they were oriented toward social goals.

In terms of achievement in Mathematics, high achievers in the Australian study can be described as intrinsically and extrinsically motivated, using all types of self-regulatory strategies, oriented toward mastery and performance goals, task, effort, and competition, and were positive in their attitudes toward their school, teachers and class. Moderate achievers can be described as students who were intrinsically and extrinsically motivated, using all types of self-regulatory strategies, oriented toward task and effort, and were positive in their attitudes toward their school. Low achievers can be described as students, who were not intrinsically or extrinsically motivated, did not use self-regulatory strategies, were not oriented toward mastery and performance goals, task, effort, and competition, and were not positive in their attitudes toward their school, teachers and class.

The results in the Jordanian study show that competition, effort, affiliation, and performance goals were the only variables that differentiated the three levels of achievers. Also, most of these significant differences were in terms of their

achievement in Arabic. In terms of achievement in Arabic, high achievers can be described as students who were not oriented toward performance goals and affiliation. However, they were oriented toward effort and competition. Moderate achievers can be described as those who were not oriented toward performance goals, and competition. However, they were oriented toward affiliation. Low achievers can be described as those who were oriented toward performance goals, and affiliation. They were not competitive in the eleventh grade but they were competitive in the tenth grade.

## **5.2 Research Question Two**

The second question aimed to investigate the relationship among motivation, self-regulation, motivational goals, goal orientations, attitudes toward school and teachers and class, and achievement. This question was answered using Pearson moment correlations and linear regression.

The findings of this study indicate a clear difference between the Australian and Jordanian gifted students in their intrinsic and extrinsic motivation. In the Jordanian study, the results indicated that intrinsic motivation was predicted by critical thinking. This finding suggested that intrinsic motivation is important in the use of self-regulatory strategies particularly in critical thinking. Therefore, teachers and educators need to consider intrinsic motivation in the use of self-regulatory strategies. This finding supported the literature that suggested that intrinsic motivation is related to self-regulatory strategies (Cheong, 2000; Malpass et al, 1999; Pintrich & De Groot, 1990; Pintrich, Roeser, & De Groot, 1994). However, the results show that neither achievement in Arabic nor achievement in Mathematics predicted intrinsic motivation which is inconsistent with the literature that suggested that intrinsic motivation is related to achievement (Yumusak, et al., 2007). This finding suggested that Jordanian students regardless of their achievement level were intrinsically motivated and that students were pressured to do well. In other words they want to do well to please their family and the society in general.

In the Australian study, the results show that intrinsic motivation was predicted by extrinsic motivation, rehearsal, elaboration, and critical thinking. The fact that

intrinsic motivation was predicted by extrinsic motivation suggested that intrinsic and extrinsic motivation among the Australian students were not in conflict but complemented each other. Also, intrinsic motivation was predicted by self-regulatory strategies which indicate again that intrinsic motivation is a vital element in the use of self-regulatory strategies. Most importantly, both intrinsic and extrinsic motivation were predicted by achievement in Mathematics which is consistent with the literature that suggested that intrinsic and extrinsic motivation could coexist to promote gifted students' achievement (Hoekman, et al, 2005; Philips & Lindsay, 2006; Street, 2001). This suggested that among the Australian students intrinsic and extrinsic motivation were both important to boost students' achievement.

The findings of this study indicate mixed results between the Australian and Jordanian gifted students in their use of self-regulatory strategies. In the Jordanian study there was a strong correlation among the self-regulatory strategies measured in this study. Also, the results show that these strategies predicted each other. This indicates that these strategies were not in conflict and they complement each other. This finding might be because all of the Jordanian students were highly gifted in Mathematics and the environment of the school demands the use of these strategies through its challenging activities. Therefore, students use all of these strategies to meet these demands and they might use them unconsciously. However, neither achievement in Arabic nor achievement in Mathematics predicted any of these strategies which is inconsistent with the literature that suggested that self-regulation is related to achievement (Ablard & Lipschultz, 1998; Muir-Broaddus, 1995; Pintrich & De Groot, 1990; Zimmerman & Martinez-Pons, 1986, 1988). This finding might be explained by the importance of education, examination, and higher education in the Jordanian culture. Therefore, this encourages students regardless of their achievement level to regulate their cognition and use cognitive strategies.

In the Australian study the results show that the self-regulatory strategies were strongly correlated and they predicted each other. This indicates that the students use these strategies since the environment demands the use of these strategies through its activities. Unlike the Jordanian study, self-regulatory strategies were predicted by achievement in Mathematics which is consistent with the literature that suggested that



self-regulation is related to achievement (Ablard & Lipschultz, 1998; Muir-Broaddus, 1995; Pintrich & De Groot, 1990; Zimmerman & Martinez-Pons, 1986, 1988).

There were also mixed results between the Jordanian and Australian gifted students in the orientations toward goals. In the Jordanian study the results indicated that performance goals and mastery goals were not adaptive or related to positive outcomes. Performance goals were related to competition, social power, social goals, praise, tokens, and mastery goals. Also, performance goals were predicted neither by achievement in Arabic nor achievement in Mathematics. This finding suggested that performance goals were not adaptive and they were related to negative outcomes. This finding supported the argument advocated in goal theory in which students motivated by performance goals will be interested in getting high grades and this will directly affect their focus on the task and cognitive engagement and therefore will affect their performance. Accordingly, it might be said that Jordanian low achievers were interested in getting higher grades to please their families as well as themselves and this directly affected their performance.

Mastery goals were related to competition, praise, and performance goals. Also, mastery goals were not predicted by achievement. Most importantly there was no relationship between mastery goals and self-regulatory strategies as researchers in goal theory assumed. Interestingly, there was a positive linear relationship among performance goals, mastery goals, and social goals. This finding is consistent with Chan's (2008) study in which he found that learning goals and performance-approach goals were not negatively correlated. This finding indicates that Jordanian gifted students did not perceive these goals as contrasting goals. The conception of success and academic achievement could be a social endeavor in the Jordanian culture with the implication that the three goal orientations could be related through the Jordanian cultural perspective of interdependence and social goals of bringing honour to one's family by working hard.

In the Australian study, the results indicate that performance goals were generally not adaptive. Performance goals were predicted by competition, social power, praise, and tokens. However, performance goals were adaptive or related to positive outcomes when used by high achievers. Most importantly, performance goals were predicted by achievement in Mathematics. Mastery goals were adaptive

since they were predicted by task and effort and used by high achievers. Also, mastery goals were predicted by achievement in Mathematics. This finding is consistent with the literature that suggested that mastery goals were adaptive (Dweck & Leggett, 1988; Linnenbrink & Pintrich, 2002). This finding suggested that task and effort were important elements in the orientations toward mastery goals. However, mastery goals were not adaptive since they were not predicted by self-regulatory strategies. The findings of the Australian study supported the goal theory assumption that students adopt or pursue many types of goals within any academic setting, with an emphasis on mastery and performance-approach goals (Barron & Harackiewicz, 2001).

The results in both studies show that social goals were predicted by social concern and affiliation. Also, social goals in both studies were not predicted by achievement. This suggested that social concern and affiliation were important in the orientations toward social goals.

In conclusion, the results show a clear difference between the Jordanian and Australian sample in the relationship among these variables and consequently achievement. However, there are several marked similarities. First, both studies showed that self-regulation is predicted by intrinsic motivation which suggested the importance of intrinsic motivation in the use of self-regulatory strategies. However, intrinsic and extrinsic motivation were not related to achievement as in the Australian study. Also, the results in the Australian study indicated that intrinsic and extrinsic motivation were not in conflict as they were both important to boost students' achievement. Second, in both studies the self-regulatory strategies had strong correlation with each other which indicates that these strategies were not in conflict but they complement each other and the students use these strategies since the environment demands the use of these strategies through its activities. However, self-regulation in the Australian study was related to achievement, unlike the Jordanian study. Third, performance goals were not adaptive or related to positive outcomes except in the Australian study performance goals were predicted by achievement in Mathematics. Interestingly, in the Jordanian study performance goals, mastery goals, and social goals were strongly correlated which indicates success and academic achievement are related to the Jordanian cultural perspective of interdependence and

social goals of bringing honour to one's family by working hard. Mastery goals in the Jordanian study were not adaptive unlike the Australian study where mastery goals were related to positive outcomes since they were predicted by task and effort. Also, they were predicted by achievement in Mathematics. Fourth, social goals in both studies were predicted by social concern and affiliation and they were not related to achievement.

## **5.3 Research Hypotheses**

### **5.3.1 Hypothesis (1): Males will score lower than females in motivation, self-regulation, motivational goals, goal orientations, and attitudes**

The results in the Jordanian study supported this hypothesis and males scored lower than females in task, social concern, and praise. The findings might be explained in relation to the fact that girls in general value the importance of friendship, relationships, and praise in their lives. However, the results in the Australian study rejected this hypothesis and females scored lower than males in intrinsic motivation, extrinsic motivation, competition, social power, affiliation, tokens, performance goals, social goals, and critical thinking. Findings in the Australian study were all incongruent with the literature. The literature suggested that females would score higher than males in motivation (Tallent-Runnels, Olivárez, Walsh, & Irons, 1994). Also, the literature suggested that gifted girls would use more self-regulatory strategies than gifted boys (Ablard & Lipschultz, 1998; Wolters & Pintrich, 1998; Zimmerman & Martinez-Pons, 1990). In addition, the literature suggested that gifted girls would be oriented more toward performance goals than males (Ziegler, Heller, & Broome, 1996). However, findings that males were more competitive than females were consistent with previous research (Sassen, 1980). Sassen (1980) explained that girls resist competition at the expenses of other things such as the maintenance of friendship. However, this explanation is not applicable in the study since males were more oriented toward affiliation than females.

### **5.3.2 Hypothesis (2): There will be no differences between tenth and eleventh grade students in terms of motivation, self-regulation, motivational goals, goal orientations, and attitudes**

The results in the Jordanian sample rejected this hypothesis and the results indicate that eleventh grade students were higher in intrinsic motivation, competition, social power, social concern, performance goals, and in their attitudes toward their school. Similarly, in the Australian sample the hypothesis was rejected as eleventh grade students were higher in intrinsic motivation, competition, elaboration, organization, and attitudes toward teachers and class.

It is unclear why eleventh grade students were higher in intrinsic motivation, social power, and social concern and attitudes toward the school and teachers and class in the Jordanian and Australian samples. However, it is possible that because eleventh grade students were closer to the end of school, they paid more attention to their studies. Findings related to extrinsic motivation and competition in the Australian sample can be explained as eleventh grade students need to respond to examinations and assignment all within the context of performance and competition to prepare for the high school examinations.

### **5.3.3 Hypothesis (3): There will be no difference between the Jordanian and Australian samples in motivation, self-regulation, motivational goals, goal orientations, and attitudes**

The hypothesis was rejected because the results suggest that there was a significant difference between the Jordanian and Australian students in these variables. Jordanian gifted students scored higher than the Australian gifted students in most of the variables measured in this study, except in the attitudes toward teachers and class.

First, the results clearly favored the Jordanian students over the Australians in intrinsic and extrinsic motivation. This may be because education in general is very important to Jordanian students and particularly to gifted students. In fact, achievement is considered an important priority to students as well as to their families since the Jordanian culture values academic achievement and high achievers. Therefore, students are motivated to achieve and perform well to reach this status in the community. Also, as indicated previously, the sample was drawn from one of the

elite schools in Jordan and this school is known for its high reputation in terms of its activities and curriculum and it is considered an achievement to be accepted in this school.

Second, the results also clearly favored the Jordanian students over the Australians in rehearsal, elaboration, organization, critical thinking, and metacognitive self-regulatory strategies. This finding might be explained again in relation to the environment that demands the use of self-regulatory strategies through its activities and curriculum. The other important point is the Jordanian sample is highly gifted in Mathematics. Therefore, this enables the students to use the self-regulatory strategies to meet these demands and to master these challenges.

Third, the results show that Jordanian gifted students were more oriented toward task, effort, competition, social power, affiliation, social concern, and tokens than the Australian gifted students (see Table 4.33). This finding is consistent with Tuss, Zimmer, and Ho's (1995) study in which they suggested that culture plays an important role in the orientation toward motivational goals. This finding might be explained in relation to the fact that Jordanian culture values the importance of effort to succeed and the importance of the family and strong relationship between the members of the community.

Fourth, the results indicate that Jordanian gifted students were using more mastery, performance, and social goals than Australian gifted students. It might be possible to say that the school environment in the Jordanian study encourages the orientation toward these goals through its activities and practices more than the school in the Australian study. Most importantly, the results show mastery, performance, and social goals were strongly correlated, which means that these goals are related to one another and academic achievement is considered important in the Jordanian culture. Fifth, the results show that Australian gifted students were more positive in their attitudes toward their teachers and class than Jordanian gifted students. This finding might be related to the fact that Jordanian teachers are more authoritarian teachers; they are strict with their students and not social with them.

## **5.4 Implications of the findings of the study**

The findings in this study indicate a number of theoretical and practical implications. Low achievers in this study reported low levels of intrinsic motivation, extrinsic motivation, self-regulatory strategies, task, effort, competition, mastery goals, and performance goals, and negative attitudes toward the school and teachers and class, particularly in the Australian sample. Therefore, school educators and psychologists are urged to consider different ways to enhance the learning environment based on these variables to establish an adaptive behavior. From a theoretical perspective, goal theory researchers have indicated that mastery goals are adaptive and performance goals are maladaptive. The new trend in goal theory has indicated that mastery and performance goals can both be adaptive. Mastery goals were adaptive in the Australian sample, however, in the Jordanian sample mastery goals were not adaptive. Performance goals in both studies were not adaptive. However, performance goals in the Australian sample were adaptive only when used by high achievers.

The findings in the Australian sample indicates performance and mastery goals were used by high achievers which supports the argument made by Barron and Harackiewicz (2001) that students pursue many types of goals within any academic setting, with an emphasis on mastery and performance approach. In addition, the findings in the Australian study indicate that intrinsic and extrinsic motivation were not in conflict, as high achievers were intrinsically and extrinsically motivated. However, in the Jordanian study intrinsic and extrinsic motivation did not differentiate the three levels of achievers. In line with previous findings, culture had a great impact on students' orientations toward goals. Therefore, goal theory needs to be revised to include the importance of culture in affecting students' orientations toward goals. Also, goal theory needs to address the role played by teachers, parents, and peers in shaping students' goals whether these goals are mastery or performance or social goals.

This study points to the strong relationship among the three goals in the Jordanian sample. This indicates that these goals are related to one another and the conception of success and academic achievement could be a social endeavor in the

Jordanian culture. Also, among both samples the results indicate that intrinsic motivation is important in the use of self-regulatory strategies.

This study also point to the importance of task, effort in the orientations toward mastery goals particularly in the Australian sample. Therefore, goal theory can be specifically useful in how to orient students toward mastery goals. Most importantly, the findings of this study point to the importance of including the other type of performance goals, which is avoidance performance goals. Avoidance performance goals are related to avoiding the demonstration of lack of ability.

From a practical perspective, classroom activities have to provide opportunities to work cooperatively with one another and allow the students to use self-regulatory strategies. Similarly, teachers can shape the classroom environment to focus students on mastery, performance goals or both using tasks that are meaningful and challenging as well as using a variety of tasks. Thus, this will allow the students to choose the task that they find personally interesting.

In terms of teachers' instructions, daily instructions should be designed with a sense of purpose and organized to promote students' intrinsic motivation thereby teachers must be acting as a motivating influence. Most importantly, teachers need to consider both motivation and cognition simultaneously and not simply focus on motivating the students without considering the cognitive consequences of motivational enhancement. Therefore, intervention programs must be targeted to increase low achievers' knowledge of self-regulatory strategies. Also, teachers' instructional strategies should promote awareness of their affective orientations in learning, how to implement the instructional strategies that develop quality social environment in the class to reduce the negative attitudes toward the class.

School counselors and teachers must be supportive with the low achievers by working with these students on how to be task committed and spend more effort on the task, and guide and assist them in the use of self-regulatory strategies. Teachers and counselors should explore ways to measure factors that may contribute to low motivation, self-regulation, task, and effort and mastery, and performance goals among gifted students. Similarly, teachers should evaluate different approaches used in teaching and how a particular approach might affect students' motivation, self-regulation, and goal orientations.

In terms of the curriculum, the curriculum in the gifted and talented program must contain activities that enhance gifted students' motivation, and meet their individual needs and interests, in order to reduce their negative attitude toward the school.

## **5.5 Conclusion**

This study aimed to investigate the differences among high achieving, moderate achieving, and low achieving high school students in terms of motivation, self-regulation, motivational goals, goal orientations, and their attitudes toward their school and teachers from gender, grade, cultural, achievement in subject area, and goal theory perspective.

In the Australian study the results show that most of the variables of the study differentiated the three levels of achievers, although most of these significant differences were in terms of their achievement in Mathematics which probably reflects the nature of the discipline. There is a perception that Mathematics performance is objective and convergent, that is, there is a clear correct answer to problems. This compares with English, which may be perceived as being more subjective and divergent, with multiple possibilities for "correctness". The difference in the nature of these disciplines, then, results in different strategies.

In terms of achievement in English, high achievers were using organization as a strategy for learning, were oriented toward effort, task, and competition and were positive in their attitudes toward their teachers and class. Second, moderate achievers were oriented toward task and competition and were positive in their attitudes toward teachers and class. Third, low achievers were not oriented toward effort, task, and competition, did not use self-regulatory strategies particularly organization, and were not positive in their attitudes toward their teachers and class. However, they were oriented toward social goals.

In terms of achievement in Mathematics, high achievers in the Australian study were intrinsically and extrinsically motivated, using all types of self-regulatory strategies, oriented toward mastery and performance goals, task, effort, and competition, and were positive in their attitudes toward their school, teachers and class. Moderate achievers were intrinsically and extrinsically motivated, using all types of



self-regulatory strategies, oriented toward mastery goals, task, social concern, and effort, and were positive in their attitudes toward their school. Low achievers were not intrinsically or extrinsically motivated, did not use self-regulatory strategies, were not oriented toward mastery and performance goals, task, effort, and competition, and were not positive in their attitudes toward their school, teachers and class.

The results in the Jordanian study show that competition, effort, affiliation, and performance goals were the only variables that differentiated the three levels of achievers. Also, most of these significant differences were in terms of their achievement in Arabic. In terms of achievement in Arabic, high achievers were not oriented toward performance goals and affiliation. However, they were oriented toward effort and competition. Moderate achievers were not oriented toward performance goals, and competition. However, they were oriented toward affiliation. Low achievers were oriented toward performance goals and affiliation. They were not competitive in the eleventh grade but they were competitive in the tenth grade.

Overall, in the Jordanian study high, moderate, and low achievers were similar in their characteristics except they differed in motivational goals and performance goals. In comparison, in the Australian study the high and moderate achievers were differentiated from the low achievers in almost of all the variables of the study. Motivation, self-regulation, motivational goals, goal orientations, and attitudes toward school and teachers differentiated gifted high and moderate achievers from low achievers. Indeed, both intrinsic and extrinsic motivation had affected gifted students' achievement and all types of self-regulatory strategies also had an impact on gifted students' achievement. Effort, task, and competition also affected gifted students' achievement. Mastery, performance, and social goals were also found to affect gifted students' achievement. Finally, students' attitudes toward their school and teachers and class also differentiated gifted high and moderate achievers from the low achievers. All of these findings were consistent with the literature that suggested that motivation, self-regulation, motivational goals, goal orientation, and attitudes were important variables that affect gifted students' achievement.

The findings in the Jordanian study can be explained first in the light of the impact of Jordanian culture or the society in general which gives a great emphasis to education in general and Mathematics achievement in particular as well as to the

importance of competition and effort to achievement. Therefore, Jordanian students feel the pressure to do well in school to please their families and themselves. Second, the school environment also had a great impact on the results since this school places a great importance to competition, effort and Mathematics achievement. Hence, the results clearly indicate that most of significant results were in terms of achievement in Arabic.

The results show a clear difference between the Jordanian and Australian sample in the relationship among these variables and consequently achievement but there are several marked similarities. Both studies suggested the importance of intrinsic motivation in the use of self-regulatory strategies since the results indicated the linear relationship between intrinsic motivation and self-regulatory strategies. Intrinsic and extrinsic motivation were not predicted by achievement in the Jordanian study which means that neither intrinsic nor extrinsic motivation did affect students' achievement. On the other hand, in the Australian study intrinsic and extrinsic motivation affected students' achievement. Most importantly, intrinsic and extrinsic motivation in the Australian study were not in conflict as they were both important to boost students' achievement. Also, both studies indicated that the self-regulatory strategies were not in conflict but they complement each other and the students used these strategies since the environment demands the use of these strategies through its activities. However, in the Jordanian study self-regulation did not affect students' achievement unlike the Australian study where self-regulatory strategies were related to achievement. Furthermore, performance goals in both studies were not related to positive outcomes. However, in the Australian study performance goals were predicted by achievement in Mathematics. Interestingly, in the Jordanian study performance goals, mastery goals, and social goals had a linear relationship which is related to the importance of success and academic achievement in the Jordanian culture and the importance of interdependence and social goals of bringing honour to one's family by working hard. Mastery goal in the Jordanian study were not related to positive outcomes but in the Australian study mastery goals were related to positive outcomes such as task and effort as well as achievement in Mathematics. In both studies social concern and affiliation were important in the orientations toward social goals. Also, social goals in both studies were not related to achievement.

The first hypothesis examined gender difference and was accepted for the Jordanian and was rejected for the Australian sample. The results among the Jordanian sample might be related to the fact that males scored lower than females in variables that were more valued by girls than boys such as task, social concern, and praise. Findings in the Australian study were all incongruent with the literature (Ablard & Lipschultz, 1998; Tallent-Runnels, Olivárez, Walsh, & Irons, 1994; Wolters & Pintrich, 1998; Zimmerman & Martinez-Pons, 1990).

The second hypothesis examined grade difference and it was rejected for both samples. There is no explanation why eleventh grade students were higher in intrinsic motivation, social power, and social concern and attitudes toward the school and teachers and class in the Jordanian and Australian samples. However, it can be argued that eleventh grade students were closer to the end of school, and therefore paid more attention to their studies. Also, the finding that eleventh grade students in the Australian sample were high in extrinsic motivation and competition can be explained by their need to respond to examinations and assignments all within the context of performance and competition to prepare for the higher school certificate examinations. Overall, gender and grade played an important role in affecting the results. Therefore, future research needs to investigate the role of gender and grade in terms of these variables.

The third hypothesis examined the difference between the two samples and was also rejected for both the Jordanian and Australian samples. The results clearly favoured the Jordanian students over the Australians in most of the variables measured in this study, except in the attitudes toward teachers and class. This finding might be related to the fact that Jordanian teachers are more authoritarian teachers; they are strict with their students and not social with them. By contrast, Australian teachers were more positive, open, and social with the students. Therefore, Australian students were more positive in their attitudes toward their teachers and class.

In conclusion, cultural difference, contextual factors particularly school environment, and teachers' practices had a great impact on the results of this study as indicated previously. Most importantly, the findings of this study have shown that gifted students are not a homogeneous group; they do differ in their motivation, self-regulation, motivational goals, goal ordinations, and attitudes. Therefore, it is

important to address the individual educational needs of gifted students and match these with a suitable program. Further, gifted students do differ from one culture to another.

## **5.6 Limitations**

The results of this study must be interpreted cautiously in the light of several limitations. First, students' ability is not measured by an IQ score. The participants in both studies were being accepted in their selective schools through school entrance exams. In the Australian study, entry into Selective High Schools in NSW is determined by the students' results in the Selective High Schools Test in English (including reading and writing), Mathematics and general ability, together with their primary school's assessment of their performance in English and Mathematics. Other evidence of academic merit may also be considered. Similarly, in the Jordanian study, a rigorous multiple-criteria system is applied for selecting students in The Jubilee School. Criteria include academic distinction and outstanding accomplishments over the previous five semesters, teachers' ratings of the students' behavioral characteristics and satisfactorily passing the entrance exam which is a scholastic aptitude test that was especially developed in Arabic for the Jubilee School in three areas — Mathematics, verbal and logical thinking — in addition to a personal interview.

Second, this study focused on investigating personality characteristics of gifted students among three levels of achievers. Evidence related to students' learning disability, emotional or psychological problems were not included, even though, literature has shown that underachievement might be related to these factors (Dowdall & Colangelo, 1982; Pendarvis, et al., 1990; Reis & McCoach, 2000). Similarly, other information related to socioeconomic backgrounds was not included and it is possible that socioeconomic background might affect the results.

Third, the sample in both studies was not similar, the Jordanian sample were highly gifted in Mathematics and was drawn from one of the elite schools in Jordan and in the region. Students in this school were accepted from various socioeconomic backgrounds and geographic regions in Jordan. A special consideration is always given to students who come from the remote and underprivileged areas of the

kingdom. In comparison, in the Australian study the sample were not selected on performance in Mathematics alone. Students in this selective school excel in activities like sports and drama, even though, it is primarily a school acclaimed for academic achievement.

Fourth, the use of self-report to measure students' perceptions of their motivation, self-regulation, motivational goals, goal orientations, and attitudes toward the school can be effective, however, the results need to be replicated with other measures such as observation and interviews. Interview and classroom observation may give more depth and details to how teachers' practices might affect students' goals and self-regulation.

Fifth, even though the Motivated Strategies for Learning Questionnaire is a valid and reliable instrument used to measure students' motivation and self-regulation in different cultures, Pintrich (2004) indicated that the instrument does not contain scales that measure the use of strategies to control motivation and affect as well as the influence of the context on motivation and self-regulation.

Finally, using Pearson moment correlations and linear regressions to explain the relationship among motivation, self-regulation, motivational goals, goal orientations, and attitudes toward the school is not adequate to explain this relationship. Whilst robust statistical analyses that were adequate do not provide casual direction. Further research using research designs that permit the use of statistical procedures that allow conclusions to be drawn about casual pathways is needed

## **5.7 Recommendations for Future Research**

Although a great deal of research has already been conducted on students' personality characteristics there is a clear need for additional research in this area. This study has shown that low achievers were negative in their attitudes toward their school and teachers and class. Therefore, educational research is urged to further examine how specific features of the classroom environment might affect a variety of aspects of students' motivation. Research should also examine the existing education system and policy makers or classroom practices. Future research might investigate the effects of

instructional methods on motivation as well as the role of teachers' goals in students' orientations toward mastery or performance goals. Second, future research might also consider the collection of longitudinal data to explore the environment's role in affecting gifted students' achievement.

This study has indicated that gender had an impact on the study and most of these findings were inconsistent with the literature. Thus, future research needs to investigate conflicting research findings regarding gender and motivational variables to determine the pattern of gender differences in various domains as well as in various grade levels and cultures.

Further, this study has shown that performance goals can be adaptive for secondary school students whose promotion to higher levels of education requires good academic achievement. Future research should explore this development. Also, future research might also explore the role played by performance avoidance goals in affecting gifted students' achievement in a selective school context. It would be worthwhile also to explore the role played by self-concept in affecting the use of self-regulation.

This study focused on comparing three levels of achievers in a selective school context. Future research should be conducted comparing different types of programs such as acceleration, pullout programs as well comparing different types of giftedness and from achievement in other subject areas. Finally, there is a need to investigate the role of learning disability, emotional or psychological problems, and socioeconomic backgrounds in affecting gifted students' motivation and consequently their achievement. Most importantly, there is a need to explore how motivation varies in different cultures since this study has shown Jordanian gifted students were different in their motivation, self-regulation, motivational goals, goal orientations, and attitudes from the Australians. It would be interesting to see how the results differ across other cultures.

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**APPENDICES**

# APPENDIX A

*The Univariate Analysis of Motivation, Self-Regulation, Motivational Goals, Goal Orientations, and Attitudes in terms of Achievement in Language*

Responses																					
Motivation		Self-Regulations						Motivational Goals							Goal Orientations				Attitudes		
Explanatory Variables	Intr	Extr	Reh	Elab	Org	Crit	Met	Task	Eff	Comp	S/P	Aff	S/C	Praise	Tok	M/G	P/G	S/G	SAS	SATC	
Sex	.000*	.000*	.037*	.011*	.000*	.000*	.008*	.780	.060	.003*	.062	.521	.184	.867	.085	.372	.097	.912	.042*	.022*	
Grade	.000*	.000*	.013*	.000*	.000*	.021*	.012*	.024*	.116	.006*	.242	.717	.019*	.043*	.991	.013*	.047*	.742	.001*	.000*	
Achievement in language	.006*	.000*	.024*	.009*	.011*	.044*	.028*	.002*	.001*	.000*	.491	.027*	.837	.002*	.000*	.030*	.152	.225	.201	.015*	
Culture	.000*	.000*	.000*	.000*	.000*	.000*	.000*	.000*	.000*	.000*	.000*	.004*	.006*	.412	.606	.000*	.000*	.000*	.043*	.992	
sex * grade	.049*	.013*	.113	.028*	.266	.428	.085	.131	.417	.821	.647	.782	.969	.392	.592	.352	.365	.988	.051	.186	
sex * achievement in language	.042*	.213	.060	.485	.026*	.810	.008*	.320	.545	.242	.869	.018*	.268	.001*	.208	.878	.140	.599	.117	.641	
grade * achievement in language	.108	.289	.349	.825	.678	.624	.481	.032*	.621	.217	.611	.811	.503	.298	.242	.589	.706	.014*	.785	.469	
sex * grade * achievement in language	.158	.086	.359	.009*	.081	.058	.301	.042*	.568	.373	.525	.443	.941	.086	.530	.054	.263	.278	.080	.645	
sex * culture	.001*	.000*	.032*	.028*	.212	.024*	.007*	.001*	.044	.001	.025*	.035*	.065	.505	.254	.005*	.008*	.166	.009*	.222	
grade * culture	.023*	.000*	.015*	.053	.006*	.888	.028*	.065	.783	.248	.503	.312	.778	.736	.377	.314	.950	.082	.286	.215	
sex * grade * culture	.115	.032*	.029*	.058	.134	.163	.244	.378	.900	.279	.330	.747	.553	.440	.462	.346	.186	.551	.093	.378	
Achievement in language * culture	.018*	.002*	.090	.166	.019*	.528	.006*	.007*	.016*	.002*	.082	.527	.120	.105	.186	.140	.003*	.961	.008*	.028*	
sex * achievement in language * culture	.263	.046*	.147	.906	.411	.244	.817	.281	.275	.342	.716	.833	.594	.306	.377	.395	.339	.791	.212	.633	
grade * achievement in language * culture	.014*	.020*	.160	.518	.087	.225	.586	.303	.111	.639	.256	.168	.134	.534	.123	.176	.096	.294	.001*	.039*	
sex * grade * achievement in language * culture	.370	.035*	.109	.524	.131	.688	.232	.173	.754	.715	.196	.352	.279	.194	.759	.163	.884	.882	.200	.480	

Note Intr: Intrinsic, Extr: Extrinsic, Reh: Rehearsal, Elab: Elaboration, Org: Organization, Crit: Critical Thinking, Met: Metacognitive, Eff: Effort, S/P: Social Power, Aff: Affiliation, S/C: Social Concern, M/G: Mastery Goals, P/G: performance Goals, S/G: Social Goals, SAS: Students' attitudes toward school, SATC: students' attitudes toward teachers and class.

\*p<05

# APPENDIX B

The Univariate Analysis of Motivation, Self-Regulation, Motivational Goals, Goal Orientations, and Attitudes in terms of Achievement in Mathematics

Responses																									
Explanatory Variables		Motivation		Self-Regulations						Motivational Goals										Goal Orientations				Attitudes	
		Intr	Extr	Reh	Elab	Org	Crit	Met	Task	Eff	Comp	S/P	Aff	S/C	Praise	Tok	M/G	P/G	S/G	SAS	SATC				
Sex		.003*	.132	.942	.414	.198	.000*	.339	.213	.943	.497	.052	.234	.108	.096	.182	.682	.570	.506	.810	.290				
Grade		.000*	.000*	.157	.003*	.012*	.412	.075	.102	.292	.012*	.901	.474	.036*	.335	.443	.069	.253	.369	.260	.013*				
Achievement in math		.000*	.000*	.000*	.000*	.001*	.000*	.000*	.000*	.000*	.000*	.000*	.000*	.037*	.014*	.000*	.000*	.000*	.000*	.551	.005*				
Culture		.000*	.001*	.601	.002*	.026*	.000*	.079	.024*	.000*	.000*	.335	.085	.674	.280	.410	.026*	.012*	.988	.082	.058				
sex * grade		.803	.281	.403	.280	.138	.946	.676	.643	.769	.994	.592	.204	.207	.904	.699	.706	.425	.835	.960	.858				
sex * achievement in math		.094	.018*	.871	.566	.488	.021	.534	.017*	.372	.057	.008*	.008*	.080	.039*	.120	.020*	.016*	.011*	.301	.471				
grade * achievement in math		.672	.002*	.455	.631	.497	.258	.479	.701	.386	.733	.030*	.100	.212	.614	.075	.611	.233	.070	.429	.826				
sex * grade * achievement in math		.874	.566	.365	.527	.697	.614	.880	.798	.133	.325	.389	.298	.680	.366	.859	.636	.329	.849	.366	.809				
sex * culture		.722	.518	.433	.679	.530	.842	.290	.271	.639	.998	.080	.232	.467	.142	.543	.913	.916	.876	.988	.358				
grade * culture		.008	.080	.292	.413	.331	.724	.222	.410	.270	.701	.427	.462	.630	.817	.433	.419	.185	.765	.391	.435				
sex * grade * culture		.063	.748	.908	.541	.813	.329	.312	.766	.079	.716	.219	.973	.300	.217	.276	.623	.438	.297	.681	.786				
Achievement in math * culture		.000*	.000*	.004*	.258	.011*	.470	.009*	.009*	.118	.024*	.086	.204	.586	.140	.451	.022*	.087	.351	.381	.496				
sex * achievement in math * culture		.956	.199	.225	.668	.621	.305	.525	.207	.790	.544	.360	.359	.728	.941	.998	.606	.985	.793	.883	.456				
grade * achievement in math * culture		.353	.226	.241	.471	.374	.492	.601	.310	.750	.371	.819	.355	.612	.433	.860	.105	.787	.822	.283	.121				
sex * grade * achievement in math * culture		.688	.039*	.284	.983	.899	.987	.491	.903	.285	.617	.973	.526	.182	.258	.448	.789	.945	.486	.233	.858				

Note Intr: Intrinsic, Extr: Extrinsic, Reh: Rehearsal, Elab: Elaboration, Org: Organization, Crit: Critical Thinking, Met: Metacognitive, Eff: Effort, S/P: Social Power, Aff: Affiliation, S/C: Social Concern, M/G: Mastery Goals, P/G: performance Goals, S/G: Social Goals, SAS: Students' attitudes toward school, SATC: students' attitudes toward teachers and class.

\*p<.05

Homogeneity of Variance tests for Tenth Grade Students in terms of their Achievement in Arabic (Jordanian Study)

Variables	Leven's	Welch	Brown-Forsythe
1- Task	.467		
2- Effort	.066		
3- Competition	.629		
4- Social Power	.242		
5- Affiliation	.036*	.023*	.010*
6- Social Concern	.025*	.156	.165
7- Praise	.824		
8- Tokens	.782		
9- Mastery Goals	.155		
10- Performance Goals	.037*	.000*	.004*
11- Social Goals	.072		
12- Intrinsic Motivation	.914		
13- Extrinsic Motivation	.127		
14- Rehearsal	.702		
15- Elaboration	.255		
16- Organization	.347		
17- Critical Thinking	.521		
18- Metacognitive	.364		
19- Attitudes toward the School	.110		
20- Attitudes toward Teachers and class	.843		

\* $p < .05$

APPENDIX D

Homogeneity of Variance tests for Tenth Grade Students in terms of their Achievement in Mathematics (Jordanian Study)

Variables	Leven's	Welch	Brown-Forsythe
1- Task	.134		
2- Effort	.445		
3- Competition	.582		
4- Social Power	.410		
5- Affiliation	.397		
6- Social Concern	.042*	.758	.820
7- Praise	.134		
8- Tokens	.288		
9- Mastery Goals	.450		
10- Performance Goals	.384		
11- Social Goals	.004*	.431	.367
12- Intrinsic Motivation	.947		
13- Extrinsic Motivation	.956		
14- Rehearsal	.666		
15- Elaboration	.339		
16- Organization	.963		
17- Critical Thinking	.820		
18- Metacognitive	.605		
19- Attitudes toward the School	.777		
20- Attitudes toward Teachers and class	.373		

\*p<05



APPENDIX E

Homogeneity of Variance tests for Eleventh Grade Students in terms of their Achievement in Arabic (Jordanian Study)

Variables	Leven's	Welch	Brown-Forsythe
1- Task	.601		
2- Effort	.842		
3- Competition	.134		
4- Social Power	.118		
5- Affiliation	.520		
6- Social Concern	.010*	.912	.911
7- Praise	.601		
8- Tokens	.197		
9- Mastery Goals	.129		
10- Performance Goals	.120		
11- Social Goals	.134		
12- Intrinsic Motivation	.262		
13- Extrinsic Motivation	.032*	.160	.239
14- Rehearsal	.939		
15- Elaboration	.671		
16- Organization	.316		
17- Critical Thinking	.351		
18- Metacognitive	.134		
19- Attitudes toward the School	.560		
20- Attitudes toward Teachers and class	.104		

\*p<05

# APPENDIX F

*Homogeneity of Variance tests for Eleventh Grade Students in terms of their Achievement in Mathematics (Jordanian Study)*

Variables	Leven's	Welch	Brown-Forsythe
1- Task	.016*	.238	.270
2- Effort	.199		
3- Competition	.135		
4- Social Power	.841		
5- Affiliation	.963		
6- Social Concern	.063		
7- Praise	.311		
8- Tokens	.416		
9- Mastery Goals	.420		
10- Performance Goals	.658		
11- Social Goals	.797		
12- Intrinsic Motivation	.004*	.672	.707
13- Extrinsic Motivation	.033*	.160	.239
14- Rehearsal	.637		
15- Elaboration	.774		
16- Organization	.418		
17- Critical Thinking	.464		
18- Metacognitive	.341		
19- Attitudes toward the School	.160		
20- Attitudes toward Teachers and class	.849		

\**p*<.05

# APPENDIX G

*Homogeneity of Variance tests for Male Students in terms of their Achievement in Arabic (Jordanian Study)*

Variables	Leven's	Welch	Brown-Forsythe
1- Task	.785		
2- Effort	.603		
3- Competition	.977		
4- Social Power	.056		
5- Affiliation	.259		
6- Social Concern	.010*	.071	.052
7- Praise	.694		
8- Tokens	.722		
9- Mastery Goals	.732		
10- Performance Goals	.148		
11- Social Goals	.126		
12- Intrinsic Motivation	.786		
13- Extrinsic Motivation	.334		
14- Rehearsal	.952		
15- Elaboration	.376		
16- Organization	.780		
17- Critical Thinking	.767		
18- Metacognitive	.744		
19- Attitudes toward the School	.351		
20- Attitudes toward Teachers and class	.441		

\**p*<.05

# APPENDIX H

*Homogeneity of Variance tests for Male Students in terms of their Achievement in Mathematics (Jordanian Study)*

Variables	Leven's	Welch	Brown-Forsythe
1- Task	.227		
2- Effort	.406		
3- Competition	.641		
4- Social Power	.869		
5- Affiliation	.963		
6- Social Concern	.662		
7- Praise	.297		
8- Tokens	.572		
9- Mastery Goals	.944		
10- Performance Goals	.567		
11- Social Goals	.205		
12- Intrinsic Motivation	.147		
13- Extrinsic Motivation	.121		
14- Rehearsal	.730		
15- Elaboration	.449		
16- Organization	.720		
17- Critical Thinking	.538		
18- Metacognitive	.712		
19- Attitudes toward the School	.644		
20- Attitudes toward Teachers and class	.973		

*\*p<.05*

# APPENDIX I

*Homogeneity of Variance tests for Female Students in terms of their Achievement in Arabic (Jordanian Study)*

Variables	Leven's	Welch	Brown-Forsythe
1- Task	.210		
2- Effort	.775		
3- Competition	.821		
4- Social Power	.339		
5- Affiliation	.529		
6- Social Concern	.100		
7- Praise	.554		
8- Tokens	.348		
9- Mastery Goals	.878		
10- Performance Goals	.111		
11- Social Goals	.236		
12- Intrinsic Motivation	.534		
13- Extrinsic Motivation	.421		
14- Rehearsal	.351		
15- Elaboration	.559		
16- Organization	.981		
17- Critical Thinking	.737		
18- Metacognitive	.764		
19- Attitudes toward the School	.141		
20- Attitudes toward Teachers and class	.353		

*\*p<05*

APPENDIX J

Homogeneity of Variance tests for Female Students in terms of their Achievement in Mathematics (Jordanian Study)

Variables	Leven's	Welch	Brown-Forsythe
1- Task	.888		
2- Effort	.362		
3- Competition	.042*	.080	.135
4- Social Power	.055		
5- Affiliation	.456		
6- Social Concern	.058		
7- Praise	.795		
8- Tokens	.936		
9- Mastery Goals	.598		
10- Performance Goals	.488		
11- Social Goals	.315		
12- Intrinsic Motivation	.131		
13- Extrinsic Motivation	.677		
14- Rehearsal	.249		
15- Elaboration	.003*	.207	.268
16- Organization	.624		
17- Critical Thinking	.051		
18- Metacognitive	.418		
19- Attitudes toward the School	.679		
20- Attitudes toward Teachers and class	.707		

\*p<05

# APPENDIX K

*Homogeneity of Variance tests for Tenth Grade Students in terms of their Achievement in English (Australian Study)*

Variables	Leven's	Welch	Brown-Forsythe
1- Task	.538		
2- Effort	.972		
3- Competition	.210		
4- Social Power	.261		
5- Affiliation	<b>.035*</b>	.515	.575
6- Social Concern	.280		
7- Praise	.480		
8- Tokens	.823		
9- Mastery Goals	.481		
10- Performance Goals	.406		
11- Social Goals	.540		
12- Intrinsic Motivation	.587		
13- Extrinsic Motivation	.843		
14- Rehearsal	.908		
15- Elaboration	.891		
16- Organization	.401		
17- Critical Thinking	.740		
18- Metacognitive	.926		
19- Attitudes toward the School	.502		
20- Attitudes toward Teachers and class	.402		

*\*p<.05*

APPENDIX L

Homogeneity of Variance tests for Tenth Grade Students in terms of their Achievement in Mathematics (Australian Study)

Variables	Leven's	Welch	Brown-Forsythe
1- Task	.254		
2- Effort	.257		
3- Competition	.385		
4- Social Power	.418		
5- Affiliation	.332		
6- Social Concern	.225		
7- Praise	.166		
8- Tokens	.374		
9- Mastery Goals	.174		
10- Performance Goals	.726		
11- Social Goals	.167		
12- Intrinsic Motivation	.866		
13- Extrinsic Motivation	.585		
14- Rehearsal	.315		
15- Elaboration	.844		
16- Organization	.750		
17- Critical Thinking	.270		
18- Metacognitive	.892		
19- Attitudes toward the School	.221		
20- Attitudes toward Teachers and class	.298		

\* $p<.05$



# APPENDIX M

*Homogeneity of Variance tests for Eleventh Grade Students in terms of their Achievement in English (Australian Study)*

Variables	Leven's	Welch	Brown-Forsythe
1- Task	.364		
2- Effort	.354		
3- Competition	.541		
4- Social Power	.488		
5- Affiliation	.441		
6- Social Concern	.738		
7- Praise	.629		
8- Tokens	.983		
9- Mastery Goals	.494		
10- Performance Goals	.175		
11- Social Goals	.986		
12- Intrinsic Motivation	.185		
13- Extrinsic Motivation	.372		
14- Rehearsal	.111		
15- Elaboration	.282		
16- Organization	.525		
17- Critical Thinking	.628		
18- Metacognitive	.364		
19- Attitudes toward the School	.588		
20- Attitudes toward Teachers and class	.650		

\**p*<.05

# APPENDIX N

*Homogeneity of Variance tests for Eleventh Grade Students in terms of their Achievement in Mathematics (Australian Study)*

Variables	Leven's	Welch	Brown-Forsythe
1- Task	.537		
2- Effort	.319		
3- Competition	.023*	.000*	.001*
4- Social Power	.777		
5- Affiliation	.629		
6- Social Concern	.196		
7- Praise	.754		
8- Tokens	.788		
9- Mastery Goals	.173		
10- Performance Goals	.596		
11- Social Goals	.019*	.516	.545
12- Intrinsic Motivation	.074		
13- Extrinsic Motivation	.349		
14- Rehearsal	.132		
15- Elaboration	.417		
16- Organization	.414		
17- Critical Thinking	.575		
18- Metacognitive	.920		
19- Attitudes toward the School	.018*	.497	.584
20- Attitudes toward Teachers and class	.172		

\**p*<.05

# APPENDIX O

*Homogeneity of Variance tests for Male Students in terms of their Achievement in English (Australian Study)*

Variables	Leven's	Welch	Brown-Forsythe
1- Task	.675		
2- Effort	.457		
3- Competition	.478		
4- Social Power	.606		
5- Affiliation	.022*	.169	.122
6- Social Concern	.267		
7- Praise	.717		
8- Tokens	.554		
9- Mastery Goals	.194		
10- Performance Goals	.329		
11- Social Goals	.775		
12- Intrinsic Motivation	.713		
13- Extrinsic Motivation	.967		
14- Rehearsal	.082		
15- Elaboration	.224		
16- Organization	.329		
17- Critical Thinking	.520		
18- Metacognitive	.589		
19- Attitudes toward the School	.437		
20- Attitudes toward Teachers and class	.895		

\**p*<.05

APPENDIX P

Homogeneity of Variance tests for Male Students in terms of their Achievement in Mathematics (Australian Study)

Variables	Leven's	Welch	Brown-Forsythe
1- Task	.986		
2- Effort	.903		
3- Competition	.355		
4- Social Power	.574		
5- Affiliation	.041*	.674	.679
6- Social Concern	.112		
7- Praise	.719		
8- Tokens	.666		
9- Mastery Goals	.089		
10- Performance Goals	.577		
11- Social Goals	.033*	.381	.439
12- Intrinsic Motivation	.234		
13- Extrinsic Motivation	.420		
14- Rehearsal	.010*	.087	.041*
15- Elaboration	.474		
16- Organization	.089		
17- Critical Thinking	.349		
18- Metacognitive	.655		
19- Attitudes toward the School	.044*	.079	.086
20- Attitudes toward Teachers and class	.155		

\*p<.05

APPENDIX Q

Homogeneity of Variance tests for Female Students in terms of their Achievement in English (Australian Study)

Variables	Leven's	Welch	Brown-Forsythe
1- Task	.998		
2- Effort	.748		
3- Competition	.049*	.003*	.003*
4- Social Power	.498		
5- Affiliation	.879		
6- Social Concern	.804		
7- Praise	.348		
8- Tokens	.982		
9- Mastery Goals	.828		
10- Performance Goals	.591		
11- Social Goals	.808		
12- Intrinsic Motivation	.819		
13- Extrinsic Motivation	.623		
14- Rehearsal	.678		
15- Elaboration	.675		
16- Organization	.625		
17- Critical Thinking	.936		
18- Metacognitive	.303		
19- Attitudes toward the School	.074		
20- Attitudes toward Teachers and class	.798		

\*p<05

# APPENDIX R

*Homogeneity of Variance tests for Female Students in terms of their Achievement in Mathematics (Australian Study)*

Variables	Leven's	Welch	Brown-Forsythe
1- Task	.173		
2- Effort	<b>.018*</b>	<b>.002*</b>	<b>.004*</b>
3- Competition	.988		
4- Social Power	.854		
5- Affiliation	.240		
6- Social Concern	.208		
7- Praise	.186		
8- Tokens	.916		
9- Mastery Goals	.184		
10- Performance Goals	.978		
11- Social Goals	.377		
12- Intrinsic Motivation	.922		
13- Extrinsic Motivation	.073		
14- Rehearsal	.741		
15- Elaboration	.913		
16- Organization	.113		
17- Critical Thinking	.930		
18- Metacognitive	.499		
19- Attitudes toward the School	.317		
20- Attitudes toward Teachers and class	.784		

*\*p<.05*

APPENDIX S

THE MOTIVATED STRATEGY FOR LEARNING QUESTIONNAIRE (MSLQ)

The following questions ask about your motivation and attitudes. Remember there are no right or wrong answers, just answer as accurately as possible. Use the scale below to answer the questions, if you think the statement is very true of you circle 7; if a statement is not all true of you, circle 1. If the statement is more or less true of you, find the number between 1 and 7 that best describes you.

Statement	Not all true of me	2	3	4	5	6	Very true of me
1- In class like this, I prefer material that really challenges me so I can learn new things	1	2	3	4	5	6	7
2- If I study in appropriate ways, then I will be able to learn the material in this class.	1	2	3	4	5	6	7
3-When I take a test, I think about how poorly I am doing compared with other students.	1	2	3	4	5	6	7
4- I think I will be able to use what I learn in this class in other classes.	1	2	3	4	5	6	7
5- I believe I will receive an excellent grade in this class.	1	2	3	4	5	6	7
6- I'm certain I can understand the most difficult material presented in the readings for this class.	1	2	3	4	5	6	7
7- Getting a good grade in this class is the most satisfying thing for me right now.	1	2	3	4	5	6	7
8- When I take a test I think about items on other parts of the test I can't answer.	1	2	3	4	5	6	7
9- It is my own fault if I don't learn the material in this class.	1	2	3	4	5	6	7
10- It is important for me to learn the course material in this class.	1	2	3	4	5	6	7

11- The most important thing for me right now is improving my final school results, so my main concern in this class is getting a good grade.										
12- I'm confident I can learn the basic concepts taught in this class.	1	2	3	4	5	6				7
13- If I can, I want to get better grades in this class than most of the other students.	1	2	3	4	5	6				7
14- When I take tests I think of the consequences of failing.	1	2	3	4	5	6				7
15- I'm confident I can understand the most complex material presented by the teacher in this class.	1	2	3	4	5	6				7
16- In a class like this, I prefer material that arouses my curiosity even if it is difficult to learn.	1	2	3	4	5	6				7
17- I am very interested in the content area of this class.	1	2	3	4	5	6				7
18- If I try hard enough then I will understand the material of this class.	1	2	3	4	5	6				7
19- I have an uneasy upset feeling when I take an exam.	1	2	3	4	5	6				7
20- I'm confident I can do an excellent job on the assignments and tests in this class.	1	2	3	4	5	6				7
21- I expect to do well in this class.	1	2	3	4	5	6				7
22- The most satisfying thing for me in this class is trying to understand the content as thoroughly as possible.	1	2	3	4	5	6				7
23- I think the material in this class is useful for me to learn.	1	2	3	4	5	6				7
24- When I have the opportunity in this class, I choose assignments that I can learn from even if they don't guarantee a good grade.	1	2	3	4	5	6				7
25- If I don't understand the material being taught in this class, it is because I didn't try hard enough.	1	2	3	4	5	6				7
26- I like the subject matter of this class.	1	2	3	4	5	6				7
27- Understanding the subject matter of this class is very important to me.	1	2	3	4	5	6				7
28- I feel my heart beating fast when I take an exam.	1	2	3	4	5	6				7
29- I'm certain I can master the skills being taught in this class.	1	2	3	4	5	6				7
30- I want to do well in this class because it is important to show my ability to my family, friends, or others.	1	2	3	4	5	6				7
31- Considering the difficulty of this class, the teacher, and my skills, I think I will do well in this class.	1	2	3	4	5	6				7
32- When I study the readings of this class, I outline the material to help me organize my thoughts.	1	2	3	4	5	6				7
33- During class time I often miss important points because I'm thinking of other things.	1	2	3	4	5	6				7
34- When studying for this class, I often try to explain the material to a classmate or a friend.	1	2	3	4	5	6				7
35- I usually study in a place where I can concentrate on my work for this class.	1	2	3	4	5	6				7
36- When reading for this class, I make up questions to help focus my reading.	1	2	3	4	5	6				7
37- I often feel so lazy or bored when I study for this class that I quit before I finish what I planned to do.	1	2	3	4	5	6				7



38- I often find myself questioning things I hear or read in this class to get better understanding and convincing.										
39- When I study for this class, I practice saying the material to my self over and over.	1									
40- Even if I have trouble learning material in this class, I try to do the work on my own, without help from anyone.	1									
41- When I become confused about something I'm reading for this class, I go back and try to figure it out.	1									
42- When I study for this class, I go through the readings and my class notes and try to find the most important ideas.	1									
43- I make good use of my study time for this class.	1									
44- If the readings of this class are difficult to understand, I change the way I read the material.	1									
45- I try to work with other students from this class to complete the assignments of this class.	1									
46- When studying for this class, I read my class notes and the readings over and over again.	1									
47- When a theory, interpretation, or conclusion is presented in class or in the readings, I try to decide if there is good supporting evidence.	1									
48- I work hard to do well in this class even if I don't like what we are doing.	1									
49- I make simple charts, diagrams, or tables to help me organize subject material.	1									
50- When studying for this class, I often set aside time to discuss the material with a group of students from the class.	1									
51- I treat this class material as a starting point and try to develop my own ideas about it.	1									
52- I find it hard to stick to a study schedule.	1									
53- When I study for this class, I pull together information from different sources, such as readings and discussion.	1									
54- Before I study new material thoroughly, I often skim it to see how it is organized.	1									
55- I ask my self questions to make sure I understand the material I have been studying in this class.	1									
56- I try to change the way I study in order to fit this class requirements and the teacher's teaching style.	1									
57- I often find that I have been reading for this class but I don't know what it was all about.	1									
58- I ask the teacher to clarify concepts I don't understand well.	1									
59- I memorize key words to remind me of important concepts in this class.	1									
60- When work in this class is difficult, I either give up or only study the easy parts.	1									
61- I try to think through a topic and decide what I am supposed to learn from it rather than just reading it over when studying for this class.	1									
62- I try to relate ideas in this class to those in other classes whenever possible.	1									

63- When I study for this class, I go over my class notes and make an outline of important concepts.	1	2	3	4	5	6	7
64- When reading for this class, I try to relate the material to what I already know.	1	2	3	4	5	6	7
65- I have a regular place to set aside for studying.	1	2	3	4	5	6	7
66- I try to play around with ideas of my own related to what I am learning in this class.	1	2	3	4	5	6	7
67- When I study for this class, I write brief summaries of the main ideas from the readings and my class notes.	1	2	3	4	5	6	7
68- When I can't understand the material in this class I ask another student in this class for help.	1	2	3	4	5	6	7
69- I try to understand the material in this class by making connections between the readings and the concepts from this class.	1	2	3	4	5	6	7
70- I make sure that I keep up with the weekly readings and assignments for this class.	1	2	3	4	5	6	7
71- Whenever I read or hear an assertion or conclusion in this class, I think about the possible alternatives.	1	2	3	4	5	6	7
72- I make lists of important items for this class and memorize the lists.	1	2	3	4	5	6	7
73- I attend this class regularly.	1	2	3	4	5	6	7
74- Even when the class materials are dull and uninteresting, I manage to keep working until I finish.	1	2	3	4	5	6	7
75- I try to identify students in this class whom I can ask for help if necessary.	1	2	3	4	5	6	7
76- When studying for this class I try to determine which concepts I don't understand well.	1	2	3	4	5	6	7
77- I often find that I don't spend very much time on this class because of other activities.	1	2	3	4	5	6	7
78- When I study for this class, I set goals for myself in order to direct my activities in each study period.	1	2	3	4	5	6	7
79- If I get confused taking notes in class, I make sure I sort it out afterwards.	1	2	3	4	5	6	7
80- I rarely find time to review my notes or readings before an exam.	1	2	3	4	5	6	7
81- I try to apply ideas from the class readings in other class activities such as discussion in class.	1	2	3	4	5	6	7

THE INVENTORY OF SCHOOL MOTIVATION SCALE (ISM)

This survey interested in finding out about how students like to work at school. I want you to tell me how much you yourself agree with this. You can say that you **STRONGLY DISAGREE** (1) with the statement, **DISAGREE** (2) with the statement, are **NOT SURE** (3), **AGREE** (4) with the statement or **STRONGLY AGREE** (5) with the statement. The numbers 1, 2, 3, 4, 5 each stand for a level of disagreement or agreement. **TO INDICATE YOUR LEVEL OF AGREEMENT, YOU WILL CIRCLE THE APPROPRIATE ANSWER.**

Let's give an example –

How students like to work at school		Strongly disagree	Disagree	Not sure	Agree	Strongly agree
<i>Circle your response for each one.</i>						
Ex.	I enjoy doing history at school	1	2	3	4	5

If you **Strongly agree** with this then you would circle **5**.  
If you **Strongly disagree** with this then you would circle **1**.

**MAKE SURE THAT YOU CIRCLE THE ANSWER THAT SHOWS HOW MUCH YOU AGREE OR DISAGREE WITH THE STATEMENT.**

**-REMEMBER THIS IS NOT A TEST. THERE ARE NO RIGHT OR WRONG ANSWERS. I AM JUST INTERESTED IN FINDING OUT HOW YOU LIKE TO WORK AT SCHOOL. IT MAY SEEM THAT I AM ASKING THE SAME QUESTIONS OVER AND OVER, BUT THIS IS IMPORTANT TO VALIDATE THE STUDY.**

Interest in working at school Circle your response for each one.					Strongly disagree	Disagree	Not sure	Agree	Strongly agree
1. I like being given the chance to do something again to make it better					1	2	3	4	5
2. I try harder with interesting work					1	2	3	4	5
3. I like to see that I am improving in my schoolwork					1	2	3	4	5
4. I need to know that I am getting somewhere with my schoolwork					1	2	3	4	5
5. I don't mind working a long time at schoolwork that I find interesting					1	2	3	4	5
6. I try hard to make sure that I am good at my schoolwork					1	2	3	4	5
7. When I am improving in my schoolwork I try even harder					1	2	3	4	5
8. The harder the problem the harder I try					1	2	3	4	5
9. I try hard at school because I am interested in my work					1	2	3	4	5
10. I work hard to try to understand new things at school					1	2	3	4	5
11. I am always trying to do better my schoolwork					1	2	3	4	5
12. Winning is important to me					1	2	3	4	5
13. Coming first is very important to me					1	2	3	4	5
14. I like to compete with others at school					1	2	3	4	5
15. I work harder if I'm trying to be better than others					1	2	3	4	5
16. I want to do well at school to be better than my classmates					1	2	3	4	5
17. I am only happy when I am one of the best in class					1	2	3	4	5
18. I work hard at school that I will be put in charge of a group					1	2	3	4	5
19. I want to feel important in front of my school friends					1	2	3	4	5
20. At school I like being in charge of a group					1	2	3	4	5
21. It is very important for me to be a group leader					1	2	3	4	5
22. I work hard at school because I want the class to notice me					1	2	3	4	5
23. I often try to be the leader of a group					1	2	3	4	5
24. I do my best work at school when I am working with others					1	2	3	4	5
25. I try to work with friends as much as possible at school					1	2	3	4	5
26. I prefer to work with other people at school rather than alone					1	2	3	4	5
27. It is very important for students to help each other at school					1	2	3	4	5
28. I like to help other students do well at school					1	2	3	4	5

29. I care about other people at school					
30. I enjoy helping others with their schoolwork even if I don't do so well myself					
31. It makes me unhappy if my friends aren't doing well at school	1	2	3	4	5
32. Praise from my teachers for my good schoolwork is important to me	1	2	3	4	5
33. Praise from my friends for good schoolwork is important to me	1	2	3	4	5
34. At school I work best when I am motivated	1	2	3	4	5
35. I want to be praised for my good schoolwork	1	2	3	4	5
36. Praise from my parents for good schoolwork is important to me	1	2	3	4	5
37. I work best in class when I can get some kind of reward	1	2	3	4	5
38. I work hard in class for rewards from the teacher	1	2	3	4	5
39. I work hard at school for presents from my parents	1	2	3	4	5
40. Getting a reward for my good schoolwork is important to me	1	2	3	4	5
41. Getting merit certificates helps me work harder at school	1	2	3	4	5
42. Praise for good work is not enough: I like a reward	1	2	3	4	5
43. If I got rewards at school I would work harder	1	2	3	4	5
44. I am most motivated when I see my work improving	1	2	3	4	5
45. I am most motivated when I am good at something	1	2	3	4	5
46. I am most motivated when I am solving problems	1	2	3	4	5
47. I am most motivated when I am becoming better at my work	1	2	3	4	5
48. I am most motivated when I am confident that I can do my schoolwork	1	2	3	4	5
49. I am most motivated when I receive rewards	1	2	3	4	5
50. I am most motivated when I receive good marks	1	2	3	4	5
51. I am most motivated when I am noticed by others	1	2	3	4	5
52. I am most motivated when I am competing with others	1	2	3	4	5
53. I am most motivated when I am in charge of a group	1	2	3	4	5
54. I am most motivated when I am praised	1	2	3	4	5
55. I am most motivated when I am doing better than others	1	2	3	4	5
56. I am most motivated when I became a leader	1	2	3	4	5
57. I am most motivated when I work with others	1	2	3	4	5
58. I am most motivated when I am in a group	1	2	3	4	5

59. I am most motivated when I work with friends at school	1	2	3	4	5
60. I am most motivated when I am helping others	1	2	3	4	5
61. I am most motivated when I am showing concern for others	1	2	3	4	5

## THE SCHOOL ATTITUDE ASSESSMENT SURVEY (SAAS)

**Part I:** Please rate how strongly you agree or disagree with the following statements. In answering each question, use a range from (1) to (7) where (1) stands for **strongly disagree** and (7) stands for **strongly agree**. Please circle only one response choice per question.

Statement	Strongly Disagree	Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Agree	Strongly Agree
1. I am glad that I go to this school.	1	2	3	4	5	6	7
2. This is a good school.	1	2	3	4	5	6	7
3. This school brings out the best in me.	1	2	3	4	5	6	7
4. This school is a good match for me.	1	2	3	4	5	6	7
5. I like my teachers.	1	2	3	4	5	6	7
6. My teachers make learning interesting.	1	2	3	4	5	6	7
7. I like this school.	1	2	3	4	5	6	7
8. Most of the teachers at this school are good teachers.	1	2	3	4	5	6	7
9. I like my classes.	1	2	3	4	5	6	7
10. I am proud of this school.	1	2	3	4	5	6	7
11. This is a good school for me	1	2	3	4	5	6	7
12. I relate well to my teachers.	1	2	3	4	5	6	7
13. My teachers care about me.	1	2	3	4	5	6	7
14. My teachers seem to like me.	1	2	3	4	5	6	7
15. My classes are interesting.	1	2	3	4	5	6	7

**PART 1I: Please choose only one response choice per question.**

**1. Age:** 14    15    16    17

**2. Gender:** Male                  Female

**3- Grade**    10                  11

**4- What country was your father born in?**

.....

**5- What country your mother was born in?**

.....

**6- What language\ is spoken at home?**

.....

**-YOU NEED NOT WORRY AS YOUR INDIVIDUAL ANSWERS WILL NOT BE SEEN BY ANYONE AT THIS SCHOOL.  
PLEASE BE TRUTHFUL ABOUT YOUR FEELINGS**



## APPENDIX V

### THE MOTIVATED STRATEGIES FOR LEARNING QUESTIONNAIR (MSLQ) IN ARABIC

عزيزي الطالب عزيزتي الطالبة يهدف هذا الاستبيان الى التعرف على مدى دافئتك و تحفزك أرجو تحديد مدى موافقتكم مع كل من العبارات بحيث اذا كنت تعتقد أن العبارة كلها صحيحة بالنسبة لك ضع دائره حول الرقم ٧ . اما اذا كانت العبارة ليست كلها صحيحة بالنسبة لك ضع دائره حول الرقم ١ . واذا كانت العبارة تقريبا كلها غير صحيحة بالنسبة لك أو تقريبا كلها صحيحة بالنسبة لك جد الرقم ما بين ١ و ٧ الذي يصفك بشكل أفضل و ضع دائره حوله .

كله صحيحا بالنسبة لي							ليس كله صحيحا بالنسبة لي	العبارة
٧	٦	٥	٤	٣	٢	١	١	١- أحب أن تتحدثني مادة التعلم لكي أتعلم شيء جديد.
٧	٦	٥	٤	٣	٢	١	١	٢- أكون قادرا على التعلم اذا درست بالطرق المناسبة
٧	٦	٥	٤	٣	٢	١	١	٣- أفكر بمقارنة أدائي مع الطلاب الآخرين عند التقدم للامتحان.
٧	٦	٥	٤	٣	٢	١	١	٤- أعتقد أنني سأكون قادرا على استخدام ما تعلمته في هذا الصف في صفوف أخرى .
٧	٦	٥	٤	٣	٢	١	١	٥- أعتقد أنني سوف أحصل على علامه ممتازة في هذا الصف .

٧	٦	٥	٤	٣	٢	١	٧	٧- الحصول على علامة جيدة في هذا الصف يعتبر من أهم الإشياء المرغوبة بالنسبة لي في الوقت الحالي .
٧	٦	٥	٤	٣	٢	١	٧	٨- عندما أقدم امتحانا أفكر في البنود أو الأجزاء من الامتحان التي لم أستطع الإجابة عليها .
٧	٦	٥	٤	٣	٢	١	٧	٩- أشعر بالذنب اذا لم أتعلم المادة الدراسية التي تدرس في هذا الصف .
٧	٦	٥	٤	٣	٢	١	٧	١٠- من المهم بالنسبة لي تعلم مادة هذا الصف .
٧	٦	٥	٤	٣	٢	١	٧	١١- أهم شيء بالنسبة لي حاليا هو تحسين معدلي العام في جميع المواد لذلك اهتمامي الأساسي في هو الحصول على علامة جيدة .
٧	٦	٥	٤	٣	٢	١	٧	١٢- أنا واثق بانتي قادر على تعلم المفاهيم الأساسية التي تدرس في هذا الصف .
٧	٦	٥	٤	٣	٢	١	٧	١٣- اذا استطعت أريد الحصول على علامات أفضل من معظم الطلاب الاخرين في هذا الصف .
٧	٦	٥	٤	٣	٢	١	٧	١٤- عند التقدم للامتحانات أفكر في عواقب الفشل .
٧	٦	٥	٤	٣	٢	١	٧	١٥- أنا واثق بانتي قادر على فهم أصعب المواضيع المطروحة من قبل المعلم في هذا الصف .
٧	٦	٥	٤	٣	٢	١	٧	١٦- في صف مثل هذا أفضل مادة الصف التي تثير فضولي حتى اذا كانت صعبة التعلم .
٧	٦	٥	٤	٣	٢	١	٧	١٧- أنا مهتم بمحتويات المادة الدراسية .
٧	٦	٥	٤	٣	٢	١	٧	١٨- اذا بذلت جهدا كاف سوف أفهم مادة هذا الصف .
٧	٦	٥	٤	٣	٢	١	٧	١٩- أشعر بالقلق وشعور بالاضطراب عند التقدم للامتحان .
٧	٦	٥	٤	٣	٢	١	٧	٢٠- أنا واثق بانتي قادر على أن أقوم بعمل ممتاز في الواجبات و الامتحانات في هذا الصف .
٧	٦	٥	٤	٣	٢	١	٧	٢١- أتوقع أن أعمل جيدا في هذا الصف .
٧	٦	٥	٤	٣	٢	١	٧	٢٢- أهم شيء مرضي بالنسبة لي في هذا الصف هو محاولة فهم محتويات المادة تماما على قدر الامكان .
٧	٦	٥	٤	٣	٢	١	٧	٢٣- أعتقد بأن مادة هذا الصف مفيدة لي في التعلم .
٧	٦	٥	٤	٣	٢	١	٧	٢٤- عندما تكون لدي فرصة اختيار الواجبات أختار الواجبات التي أستطيع أن أتعلم منها حتى اذا كنت لا أضمن العلامة الجيدة .
٧	٦	٥	٤	٣	٢	١	٧	٢٥- اذا لم أفهم مادة هذا الصف يعود ذلك لأنني أبذل جهدا كاف .
٧	٦	٥	٤	٣	٢	١	٧	٢٦- أحب مادة هذا الصف .
٧	٦	٥	٤	٣	٢	١	٧	٢٧- فهم مادة هذا الصف مهم بالنسبة لي .
٧	٦	٥	٤	٣	٢	١	٧	٢٨- أخاف كثيرا عندما أقدم امتحانا .

٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٣٠- إبراز قدراتي لمعائتي و أصدقائي ولآخرين مهم بالنسبة لي .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٣١- نظرا للصعوبات التي أواجهها في هذا الصف الا أنني قادر على التحدي و الاستمرار .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٣٢- عندما أقرأ كتاب هذا الصف أقوم بوضع خطه للمادة أنساعدي في تنظيم افكاري .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٣٣- خلال وقت الحصة غالبا ما أضيق أهم النقاط لأنني أفكر في أشياء أخرى .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٣٤- أساعد الآخرين في فهم المادة .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٣٥- دائما أبحث عن المكان المناسب لاستطيع أن أركز فيه على عمل الصف .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٣٦- أحضر دائما أسئلته تساعدي في التركيز في قراءتي للمادة .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٣٧- غالبا أشعر بالكسل أو بالملل عندما أدرس لهذا الصف .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٣٨- أبحث دائما عن المعلومات بنفسي لأجدها مقنعة .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٣٩- عندما أدرس لهذا الصف أقوم بمراجعة المادة عن طريق ذكرها لنفسي مرارا وتكرارا .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٤٠- أعتمد على نفسي في فهم المادة .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٤١- عندما أختار في موضوع معين أحاول البحث واكتشافه بنفسي .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٤٢- عندما أدرس لهذا الصف أقوم بالرجوع الى قراءة كتاب المادة و ملاحظاتي الصفيه و محاولة إيجاد أهم الأفكار .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٤٣- أقوم باستغلال جيد لوقتي الدراسي في هذا الصف .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٤٤- اذا كانت صعوبة الفهم أستخدم عدة وسائل لفهم المادة .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٤٥- لانتهاء واجبات هذا الصف أتعاون مع الطلاب الآخرين .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٤٦- عندما أدرس لهذا الصف أقوم بقراءة ملاحظاتي الصفيه و كتاب المادة مرارا وتكرارا .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٤٧- اذا كانت المادة تبحث في نظريه أو تفسير أو نتيجة أحاول البحث عن مايساندنها .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٤٨- دائما أبتذل جهدا حتى يكون أدائي جيدا حتى اذا لم أحب ما فعله في هذا الصف .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٤٩- لتنظيم مادة الصف أستخدم الخرائط بسيطة والرسوم البيانية أو الجداول .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٥٠- غالبا أضيق وقتا جانبيا لمناقشة مادة الصف مع مجموعة من الطلاب من هذا الصف .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٥١- أعامل مادة هذا الصف كنقطة بدايه وأحاول أن أطور افكاري عنها .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٥٢- أجد من الصعوبه أن ألتزم ببرنامج دراسي .
٧	٦	٦	٥	٥	٤	٣	٢	٢	١	١	٥٣- عندما أدرس لهذا الصف أجمع معلومات من مصادر مختلفة مثل الدروس التي تعطى في الصف و قراءتي لكتاب هذا الصف و المناقشات الصفيه .

٥٥-	لأؤكد من فهمي للمادة التي أضع أسئلة لطلابي في الفهم .	١	٢	٣	٤	٥	٦	٧
٥٦-	أحاول أن أغير طريقة دراستي حتى تلائم متطلبات هذا الصف و أسلوب تدريس المعلم .	١	٢	٣	٤	٥	٦	٧
٥٧-	غالبًا ما أجد صعوبة في فهم بعض نقاط من الدرس .	١	٢	٣	٤	٥	٦	٧
٥٨-	أسأل المعلم حتى يوضح لي المفاهيم التي لا أفهمها جيدًا .	١	٢	٣	٤	٥	٦	٧
٥٩-	أقوم بحفظ الكلمات الأساسية في مادة هذا الصف حتى تذكرني بهم المفاهيم	١	٢	٣	٤	٥	٦	٧
٦٠-	عندما تكون المادة صعبة إما أتوقف أو أدرس فقط الأجزاء السهلة .	١	٢	٣	٤	٥	٦	٧
٦١-	عندما أدرس لهذا الصف أقوم بالتفكير في الموضوع بتركيز و تقرير ما المقترض أن أتعلم منه بدلًا من قراءته فقط	١	٢	٣	٤	٥	٦	٧
٦٢-	أربط ما بين أفكار هذه المادة مع تلك الأفكار في الصفوف الأخرى كلما كان ممكنًا .	١	٢	٣	٤	٥	٦	٧
٦٣-	عندما أدرس لهذا الصف أراجع ملاحظاتي الصفيه و أعمل ملخصًا بهم المفاهيم .	١	٢	٣	٤	٥	٦	٧
٦٤-	دائمًا أربط ما بين أفكار و الأفكار الجديدة التي أتعلّمها في هذه المادة .	١	٢	٣	٤	٥	٦	٧
٦٥-	عندي مكان مخصص للدراسة .	١	٢	٣	٤	٥	٦	٧
٦٦-	أطور و أتلاعب بأفكار تعلّمها في هذا الصف .	١	٢	٣	٤	٥	٦	٧
٦٧-	الخص دائمًا المادة التي أقرأها .	١	٢	٣	٤	٥	٦	٧
٦٨-	عندما لا أفهم مادة هذا الصف أسأل طالب آخر في هذا الصف ليساعدني .	١	٢	٣	٤	٥	٦	٧
٦٩-	أحاول أن أفهم مادة هذا الصف عن طريق عمل علاقات و صلات ما بين قراءتي للكتاب و المفاهيم التي تدرس في هذا الصف .	١	٢	٣	٤	٥	٦	٧
٧٠-	أؤكد بأنني أراجع المادة الدراسية أسبوعيا .	١	٢	٣	٤	٥	٦	٧
٧١-	أفكر بالبدائل الممكنة لأي نتيجة حتمية في المادة .	١	٢	٣	٤	٥	٦	٧
٧٢-	أصنع قوائم بأهم المواضيع في هذا الصف وأحفظ هذه القوائم .	١	٢	٣	٤	٥	٦	٧
٧٣-	أحضر هذا الصف بشكل منظم	١	٢	٣	٤	٥	٦	٧
٧٤-	أتابع العمل في الصف حتى لو كان العمل مملا .	١	٢	٣	٤	٥	٦	٧
٧٥-	أتعرف على الطلاب المميزين لأطلب المساعدة في الوقت المناسب	١	٢	٣	٤	٥	٦	٧
٧٦-	عندما أدرس لهذا الصف أحاول أن أعدد المفاهيم التي لا أفهمها جيدًا .	١	٢	٣	٤	٥	٦	٧
٧٧-	لا أجد الوقت الكافي للدراسة بسبب النشاطات الأخرى	١	٢	٣	٤	٥	٦	٧
٧٨-	دائمًا أضع أهداف لنفسني من أجل توجيه نشاطاتي في كل حصه دراسية .	١	٢	٣	٤	٥	٦	٧
٧٩-	إذا صرت مشوشًا في أخذ ملاحظاتي في الصف أؤكد بأنني صنفتها فيما بعد .	١	٢	٣	٤	٥	٦	٧
٨٠-	نادرا ما أجد وقتًا لمراجعة ملاحظاتي الصفيه وقراءة كتاب هذا الصف قبل الامتحان .	١	٢	٣	٤	٥	٦	٧
٨١-	دائمًا أحضر المادة لأكون مستعدًا في تطبيقها في أي نشاط من نشاطات الصف .	١	٢	٣	٤	٥	٦	٧

APPENDIX W

THE INVENTORY OF SCHOOL MOTIVATION SCALE (ISM) IN ARABIC

الجزء الأول : هذا الاستبيان يهتم بايجاد مدى محبة الطلاب للعمل المدرسي . أريد منك أن تخبرني كم بشده توافق على ذلك . تستطيع أن تقول أنك غير موافق بشده مع العبارة بوضع دائره حول الرقم ( ١ ) . اذا كنت غير موافق مع العبارة ضع دائره حول الرقم (٢) . اذا كنت غير متأكد ضع دائره حول الرقم (٣) . اذا كنت موافق مع العبارة ضع دائره حول الرقم (٤) . اما اذا كنت موافق بشده مع العبارة ضع دائره حول الرقم (٥).

كل من الارقام ١-٢-٣-٤-٥ تمثل مستوى معين من الموافقه أو غير الموافقه .

حتى تبين مستوى الموافقه الرجاء ضع دائره حول الاجابه المناسبه .  
مثال على ذلك :

مدى محبة الطلاب للعمل المدرسي ضع دائره حول الاجابه المناسبه لكل عباره .	غير موافق بشده	غير موافق	غير متأكد	موافق	موافق بشده
مثال(١) أحب دراسة التاريخ في المدرسه	١	٢	٣	٤	٥

اذا كنت موافق بشده مع هذه العبارة سوف تضع دائره حول رقم ٥  
اذا كنت غير موافق بشده مع هذه العبارة سوف تضع دائره حول رقم ١

موافق يشده	موافق	غير متأكد	غير موافق	غير موافق بشده	الاهتمام بالعمل المدرسي ضع دائره حول الاجابه المناسبه لكل عباره .
٥	٤	٣	٢	١	١- أحب أن أعطي الفرصه ثانيه لعمل شيء ما مره أخرى بشكل أفضل .
٥	٤	٣	٢	١	٢- أبتذل جهدي عندما يكون العمل ممتعاً .
٥	٤	٣	٢	١	٣- أحب أن أرى تحسن في عملي المدرسي .
٥	٤	٣	٢	١	٤- أحتاج لأن أعرف أنني أحقق شيء ما من عملي المدرسي .
٥	٤	٣	٢	١	٥- لا أمانع من العمل لوقت طويل في عملي المدرسي الذي أجده ممتعاً .
٥	٤	٣	٢	١	٦- أبتذل جهداً حتى أضمن أنني جيد في عملي المدرسي .
٥	٤	٣	٢	١	٧- أبتذل جهد عندما أتحسن في عملي المدرسي .
٥	٤	٣	٢	١	٨- أبتذل جهد كلما كانت المشكله صعبه .
٥	٤	٣	٢	١	٩- أبتذل جهداً لأنني مهتم في عملي المدرسي .
٥	٤	٣	٢	١	١٠- أبتذل جهد حتى أحاول فهم الأشياء الجديده التي تدرس لي في المدرسه .
٥	٤	٣	٢	١	١١- أبتذل جهداً حتى أعمل عملي المدرسي بشكل أفضل .
٥	٤	٣	٢	١	١٢- النجاح مهم بالنسبه لي .
٥	٤	٣	٢	١	١٣- أن أكون الأول مهم بالنسبه لي .
٥	٤	٣	٢	١	١٤- أحب منافسة الآخرين في المدرسه .
٥	٤	٣	٢	١	١٥- أبتذل جهداً كبيراً لأعمل أفضل من الآخرين .
٥	٤	٣	٢	١	١٦- أبتذل جهداً لتحقيق نتائج عاليه .
٥	٤	٣	٢	١	١٧- أكون سعيداً فقط عندما أكون واحداً من المتميزين في الصف .
٥	٤	٣	٢	١	١٨- أبتذل جهداً لأكون مسؤولاً عن مجموعه من الطلاب .
٥	٤	٣	٢	١	١٩- أحب أن أشعر بأنني مهم أمام اصدقائي في المدرسه .
٥	٤	٣	٢	١	٢٠- أحب أن أكون مسؤولاً عن مجموعه من الطلاب .
٥	٤	٣	٢	١	٢١- من المهم بالنسبه لي أن أكون قائداً لمجموعه ما .
٥	٤	٣	٢	١	٢٢- أبتذل جهداً لأظهر أو أكون بارزاً في الصف .

٢٤-	أقدم أفضل ما عندي في المدرسة عندما أعمل مع الآخرين .	١	٢	٣	٤	٥
٢٥-	أحاول أن أعمل مع أصدقائي كلما كان ممكنا في المدرسة.	١	٢	٣	٤	٥
٢٦-	أفضل العمل مع أشخاص آخرين بدلا من العمل وحيدا .	١	٢	٣	٤	٥
٢٧-	من المهم للطلاب أن يساعدوا بعضهم البعض في المدرسة .	١	٢	٣	٤	٥
٢٨-	أحب مساعدة الطلاب الآخرين ليحققوا نتائج جيدة في المدرسة .	١	٢	٣	٤	٥
٢٩-	أهتم بالأشخاص الآخرين في المدرسة .	١	٢	٣	٤	٥
٣٠-	أستمتع بمساعدة الآخرين في عملهم المدرسي ليحققوا نتائج أفضل حتى لو لم أحقق ذلك .	١	٢	٣	٤	٥
٣١-	أكون غير سعيد اذا أصدقائي لم يحققوا النجاحات في المدرسة .	١	٢	٣	٤	٥
٣٢-	من المهم لدي تلقي المديح من المعلمين على أدائي الجيد .	١	٢	٣	٤	٥
٣٣-	من المهم لدي تلقي المديح من أصدقائي على أدائي الجيد .	١	٢	٣	٤	٥
٣٤-	تلقي التعزيز أو المديح في المدرسة يدفعني لبذل أفضل ما لدي من جهد .					
٣٥-	أريد أن أمدح لأدائي الجيد .	١	٢	٣	٤	٥
٣٦-	من المهم لدي تلقي المديح من أهلي .	١	٢	٣	٤	٥
٣٧-	أقدم أفضل ما عندي عندما أحصل على نوع من المكافاة .	١	٢	٣	٤	٥
٣٨-	أبذل جهدا في الصف للحصول على مكافآت من المعلمين .	١	٢	٣	٤	٥
٣٩-	أبذل جهدا في الصف للحصول على هدايا من أهلي.	١	٢	٣	٤	٥
٤٠-	الحصول على مكافاة لأدائي الجيد في المدرسة مهم بالنسبة لي .	١	٢	٣	٤	٥
٤١-	الحصول على شهادة جداره يساعدني على بذل الجهد أكثر في المدرسة .	١	٢	٣	٤	٥
٤٢-	المدح لعملي الجيد ليس كافيا فانا أحب المكافاة.	١	٢	٣	٤	٥
٤٣-	اذا حصلت على مكافآت في المدرسة سوف أبذل جهد أكثر.	١	٢	٣	٤	٥
٤٤-	تكون لدي دافعيه عندما أرى أدائي يتحسن .	١	٢	٣	٤	٥
٤٥-	تكون لدي دافعيه عند العمل في شئىء أتقنه .	١	٢	٣	٤	٥
٤٦-	تكون لدي دافعيه عندما أحل المشاكل.	١	٢	٣	٤	٥
٤٧-	تكون لدي دافعيه عندما يتحسن عملي.	١	٢	٣	٤	٥
٤٨-	تكون لدي دافعيه عندما تكون لدي الثقة بأنني قادرا على أداء عملي المدرسي .	١	٢	٣	٤	٥
٤٩-	تكون لدي دافعيه عاليه عندما أحصل على مكافآت.	١	٢	٣	٤	٥
٥٠-	تكون لدي دافعيه عاليه عندما أحصل على علامات جيدة.	١	٢	٣	٤	٥

٥٢	٤	٣	٢	١	١	١	٥٢- تكون لدي دافعيه عاليه عندما انتافس مع الاخرين .
٥٣	٤	٣	٢	١	١	١	٥٣- تكون لدي دافعيه عاليه عندما أصبح مسؤولا عن مجموعته.
٥٤	٤	٣	٢	١	١	١	٥٤- تكون لدي دافعيه عاليه عندما أمدح .
٥٥	٤	٣	٢	١	١	١	٥٥- تكون لدي دافعيه عاليه عندما أقدم أداء أفضل من الاخرين .
٥٦	٤	٣	٢	١	١	١	٥٦- أكون محفزا كثيرا عندما أصبح قائدا لمجموعه.
٥٧	٤	٣	٢	١	١	١	٥٧- تكون لدي دافعيه عاليه عندما أعمل مع الاخرين .
٥٨	٤	٣	٢	١	١	١	٥٨- تكون لدي دافعيه عاليه عندما أكون في مجموعته .
٥٩	٤	٣	٢	١	١	١	٥٩- تكون لدي دافعيه عاليه عندما أعمل مع اصدقائي في المدرسه.
٦٠	٤	٣	٢	١	١	١	٦٠- تكون لدي دافعيه عاليه عندما أساعد الاخرين .
٦١	٤	٣	٢	١	١	١	٦١- تكون لدي دافعيه عاليه عندما أظهر اهتمامي بالآخرين .



# APPENDIX X

## THE SCHOOL ATTITUDE ASSESSMENT SURVREY (SAAS) IN ARABIC

الجزء الأول : الرجاء قيم كم أنت بشده موافق أو غير موافق مع كل من العبارات التالية. في اجابتك لكل سؤال استخدم مدى من (١) الى (٧) حيث (١) تعني غير موافق بشده و (٧) تعني موافق بشده . الرجاء ضع دائرة فقط حول اجابة خيار واحد لكل سؤال .

موافق بشده	موافق	موافق بقله	لا موافق ولا غير موافق	غير موافق بقله	غير موافق	غير موافق بشده	العبارة
٧	٦	٥	٤	٣	٢	١	١- أنا سعيد لدراستي في هذه المدرسة .
٧	٦	٥	٤	٣	٢	١	٢- هذه المدرسة جيدة .
٧	٦	٥	٤	٣	٢	١	٣- ساعدت هذه المدرسة في ابراز قدراتي .
٧	٦	٥	٤	٣	٢	١	٤- أشعر بأن هذه المدرسة تناسبني .
٧	٦	٥	٤	٣	٢	١	٥- أحب معلمي .
٧	٦	٥	٤	٣	٢	١	٦- يجعل المعلمون التعليم متعاً في مدرستي
٧	٦	٥	٤	٣	٢	١	٧- أحب هذه المدرسة .
٧	٦	٥	٤	٣	٢	١	٨- معظم المعلمين في هذه المدرسة معلمين جيدين .
٧	٦	٥	٤	٣	٢	١	٩- أحب جميع حصصي .
٧	٦	٥	٤	٣	٢	١	١٠- أنا فخور بهذه المدرسة .
٧	٦	٥	٤	٣	٢	١	١١- هذه المدرسة مدرسه جيدة بالنسبة لي .
٧	٦	٥	٤	٣	٢	١	١٢- علاقتي جيدة مع جميع المعلمين .
٧	٦	٥	٤	٣	٢	١	١٣- يظهر المعلمون اهتمامهم بي .
٧	٦	٥	٤	٣	٢	١	١٤- يحبني المعلمين .
٧	٦	٥	٤	٣	٢	١	١٥- جميع حصصي متعة .

الجزء الثاني : الرجاء الاجابة على الأسئلة التالية :

1- الاسم :

2- العمر :

3- الجنس : ذكر

4- الصف : ١٠

انثى

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5- الجنسيه :

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