THE UNIVERSITY OF HULL

A STUDY OF ACADEMIC ACHIEVEMENT, SOCIOECONOMIC STATUS, INTELLIGENCE, GENDER, AND THEIR RELATIONS TO GENERAL AND ACADEMIC SELF-CONCEPT OF TWELFTH GRADE STUDENTS IN THE UNITED ARAB EMIRATES.

being a Thesis submitted for the degree of

Doctor of Philosophy

in the University of Hull

by

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November 1991.

ABSTRACT

This study is based on a multifaceted model of self-concept and aimed to explore the intricacies of the multidimensional nature of self-concept and its relationship to students' academic achievement, socioeconomic status and their intelligence. Sex differences in various facets were also investigated as a major concern of this study. The subjects of this study were 157 boys and 177 girls, drawn from 12th Grade students from five educational zones in the United Arab Emirates. Three instruments were used to assess students' self-concept. The Self-Description Questonnaire (SDQ) was utilised to assess students' self-concept of Arabic language, chemistry, mathematics, peer relations, parent relations, physical ability and physical appearance. The Brokeover Self-Concept of Academic Ability Scale (SCAA) was administered to assess students' self-concept of general academic ability. Students' general self-concept was measured by the Coopersmith Self-Esteem Inventory. The Raven Progressive Matrix Test assessed students' general IQ and Socioeconomic Status (SES), measured by the sum of four demographic variables related to parents' education, occupation, housing and income. Students' achievement level was assessed by the mid-term examination grades in Arabic language, mathematics and chemistry. The major statistical tools used were independent t-test, simple correlation, partial regression, stepwise regression and canonical correlation analysis. The findings of this study reveal that girls had higher self-concept of mathematics, chemistry, general academic ability and physical appearance and boys had higher self-concept of physical ability. No sex differences, however, were recorded in the areas of Arabic language, parent relations, peer relations and general self-concept. Furthermore, a significant low correlation was observed between IQ and some dimensions of self-concept (mathematics, general and general academic ability). A weak association was found between students' socioeconomic status and their general and academic self-concepts. The relationships between self-concept dimensions and each of IQ and SES were different for boys and girls. Students' achievement scores in mathematics and chemistry were strongly correlated with their self-concept in corresponding areas, but

showed almost no correlatation with their non-academic self-concepts. A few recommendations are forwarded for further study and some implications are outlined at the end of this thesis.

TO

LULWA   SALEH

Without her warmth I could not have found my real-self, and whose unending help and encouragement made this work come into being.

ACKNOWLEDGEMENTS

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LIST OF ABBREVIATIONS.

SDQ   Self-Description Questionnaire.

SCARAB   Self-concept in Arabic language.

SCMATH   Self-concept in mathematics.

SCCHEM   Self-concept in chemistry.

SCPRNT   Self-concept of Parent relations.

SCPEER   Self-concept of peer relation.

SCAPPRC   Self-concept of physical appearance.

SCPHYS   Self-concept of physical ability.

SCT   Sum of SCARAB + SCMATH + SCCHEM + SCPRNT +

                SCPEER + SCAPPRC + SCPHYS

GSC   General Self-concept.

SCGAA   Self-concept of general Academic Ability.

IQ   Intelligence Quotient.

ARABIC   Achievement Scores in the Arabic language.

MATH   Achievement Scores in mathematics.

CHEM   Achievement Scores in chemistry.

SES   Socioeconomic Status.

SC   Self-concept.

SEI   Coopersmith Self Esteem Inventory.

SPM   Standard Progressive Matrix.

SCAA   Brookover Self-concept of Academic Ability

                Scale.

UAE   United Arab Emirates.

CHAPTER ONE

INTRODUCTION

STATEMENT OF THE PROBLEM :

There is a great deal of literature on self-concept and evidence indicates a continued interest in this topic among researchers. It is believed that an individual's self-concept is a determining factor in explaining his behaviour (James, 1890; Mead, 1934; Rogers, 1951; Combs and Snygg, 1959).

Because of the importance of the self-concept in guiding and directing human behaviour, there has been considerable research into the relationship between self-concept and other variables such as locus of control (Gordon, 1977; Ames, 1978; Kanoy, et al. 1980), socioeconomic status (Trowbridge, 1972; Sherman, 1973; Cartwright, 1974, Edwards, 1974; Osborne, 1982), intelligence (Dean, 1977; Neufeld and Cozac, 1980; Bracken, 1980; Karnes and Wherry, 1981; Lehman and Erdwin, 1981; Brody and Benbow, 1986), and academic achievement (O'Malley and Bachma, 1979; Hare, 1980; West, Fish and Stevens, 1980; Jordon, 1981; Hansford and Hattie, 1982; Marsh et al., 1983; Marsh, 1984; Song and Hattie, 1984; Marsh et al., 1983; Marsh, 1984; Song and Hattie, 1985; Mboya, 1986). In addition to these, sex differences in self-concept have been tested by several researchers (Schroeden, 1973; Louden, 1980; Zuckerman, 1980; Chapman et al., 1984; Olowa, 1985; Richman et al., 1985; Calhoun and Sethi, 1987).

Thus, the self-concept literature reveals a plethora of studies which examine the relationship between self-concept and other variables. In spite of the abundance of studies, no clear-cut outcome has been produced, the results being not always consistent. One of the main reasons for the contradictory results obtained in previous studies, according to various researchers (Wylie, 1974; Shavelson et al. 1976; Shavelson and Bolus, 1982) has been the lack of a theoretical basis for defining and

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interpreting the construct and the poor quality of the instruments used to measure it. This inadequacy is reflected in the lack of acceptable reliability and validity characteristics, as well as in the global nature of most self-concept scales.

While the idea of the multidimensionality of the self-concept dates back to the writings of James (1890), Cooley (1902), and Mead (1934), most of the empirical work in the area of self-concept and its relation to academic achievement has concentrated on specific aspects of the self-concept such as the self-concept of the academic ability (Brookover, Le Pere, Hamachek, Thomas and Erickson, 1965; Jordon, 1981; Boersma and Chapman, 1978; Burns, 1982; Shavelson and Bolus, 1982). However, only a few studies have related academic achievement to the multidimensionality of self-concept (Seller, 1981; Chapman et al., 1984; Marsh et al., 1983 and Marsh 1986). Similarly, the results of studies testing sex differences in self-concept are contradictory, and most of them are based on the total scores rather than on comparison with various aspects of the self-concept among the different sexes.

In addition, the only frequently - used measure of academic self-concept noted in the literature was the Self-concept of Ability Scale. This was developed by Brookover et al. in 1965, for use with high school students. It seems to be related to self-estimate of ability rather than self-concept of achievement. Self-estimates of ability are a part of self-concept of ability; they are not the total (Wylie, 1979; Song and Hattie, 1985). Moreover, Brookover's Self-concept Ability Scale form "A", which is frequently used in research, is general and does not attempt to measure a wide range of self-concept of abilities.

Several variables that could have significant effects on both academic achievement and self-concept, such as socioeconomic status and IQ, have not been taken into account in many studies. The study of self-concept generally has been limited to an examination of a few variables. Only a few studies have related more than two variables of the self-concept scores (Leonardson, 1986).

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While self-concept studies have formed an important area of research in western countries, they have received little attention in the Arab world in general and in the United Arab Emirates in particular. There is, therefore, a need for such a study to be undertaken in the United Arab Emirates.

The above reviews concerning self-concept indicate that many of these studies are of limited scope. Hence, this study attempts to take a step further to investigate the multifaceted structure of self-concept and its relation to other variables.

PURPOSE OF THE STUDY :

The major purpose of this study was to investigate the relationship between various facets of self-concept (SCARAB, SCMATH, SCCHEM, SCPRNT, SCPEER, SCAPPR, SCPHYS, GSC and SCGAA) and academic achievement (the Arabic language, chemistry and mathematics) in male and female government high school students in the United Arab Emirates. An additional purpose was to compare boys' global self-concept, their self-concept of academic ability, and other facets of self-concept with those of girls. Other objectives were the following :

1)   To examine the relationship between self -concept and socioeconomic status.

2)   To investigate the relationship between self-concept and intelligence.

3)   To test the assumption of the multidimensional structure of self-concept.

4)   To determine which of the variables contributed most to the achievement of the students.

5)   To translate and develop an instrument to measure self-concept for high school students in the United Arab Emirates.

6)   To develop an instrument to assess socioeconomic

status within the society of the United Arab
Emirates.

THEORETICAL FRAMEWORK FOR THE STUDY :

The study was based on the assumption of several theories that self-concept is a critical factor in determining human behaviour (James, 1890; Mead, 1934; Rogers, 1951; Combs and Snygg, 1959).

The most important aspect of self-concept theory is the relationship between this construct and learning behaviour. Researchers have recognised self-concept as a valued educational outcome, and conversely, they have assumed that the improvement of self-concept may lead to enhanced academic achievement for students (Purkey, 1978; Burns, 1979; Shavelson and Bolus, 1982).

The major theoretical support underlying this research is the Shavelson model. Shavelson et al. (1976) argued that self-concept is a multidimensional structure. They claim that general self-concept appears at the apex and is divided into academic and non-academic self-concepts at the next subsidiary level. Academic self-concept is subdivided into particular subject areas such as mathematics and English. Nonacademic self-concept, also, has its particular subject areas, these being social, emotional, and physical self-concepts. Social self-concept can be divided into the sub-areas of peer and parent, as they relate to self-concept. Physical self-concept can be divided into sub-areas of physical abilities and physical appearance. Thus, in Shavelson's model, self-concept is an organised, hierarchical, multifaceted structure.

Most studies that have examined the multidimensionality of self-concept have found support for this multifaceted interpretation (Fleming and Watts, 1980; Marsh, Parker, and Smith, 1983; Shavelson and Bolus, 1982; Marsh, Relich, and Smith,

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1983). This research based on Shavelson's model assumes that academic achievement will be more positively correlated with academic self-concept than with non-academic self-concept, and that mathematics and science achievement will be more highly correlated with self-concept in matching content areas than with other facets of self-concept.

RESEARCH HYPOTHESES

1) There will be no significant differences betweenboys and girls in their mean scores on each of the

   Self Description Questionnaire sub-tests (self-concept) of the Arabic language, mathematics,

   chemistry, physical ability, physical appearance, parental relations and peer relations.

2) There will be no significant differences between boys and girls in their mean scores on total self-concept as measured by the Self-description Questionnaire Scale.

3) There will be no significant differences between boys and girls in their mean scores on general self-concept as measured by the Self-Esteem Inventory.

4) There will be no significant differences between boys and girls in their mean scores on Self-Concept of general academic ability as measured by the self-concept of Academic Ability Scale.

5) There will be no significant relationships between, on one hand, students' self-concepts as measured by the Self-Description Questionnaire (SDQ), the Coopersmith Self-Esteem Inventory (SEI), the Self-concept of Academic Ability (SCAA), and, on the other hand, their general intelligence level, "IQ", as measured by the Standard Progressive Matrices (SPM).

6) There will be no significant relationship between students' self-concepts scores as measured by the SDQ, SEI and SCAA, and their socioeconomic status as measured by the SES Index.

7) There will be no significant relationship between student's achievement scores in Arabic Language and their self-concept of Arabic after partialing out the effects of other independent variables (self-concept, IQ and SES).

8) There will be no significant relationship between students' achievement scores in chemistry and their self-concept of chemistry after partialing out the effects of other independent variables (self-concept, IQ and SES).

9) There will be no significant relationship between students' achievement scores in mathematics and their self-concept of mathematics after partialing out the effects of other independent variables (self-concept, IQ and SES).

RESEARCH QUESTIONS :

1) What is the relative importance of the contributions of the independent variables of self-concepts, IQ, SES to the variance of the dependent variable of academic achievement in Arabic language?

2) What is the relative importance of the contributions of the independent variables of self-concept, IQ and SES to the variance of the dependent variable of academic achievement in chemistry?

3) What is the relative importance of the contributions of the independent variables of self-concepts, IQ and SES to the variance of the dependent variable of facademic achievement in mathematics?

4) What will be the relationship between all the independent variables of self-concept (as measured by the Self-Description Questionnaire, Self-Esteem Inventory and Self-concept of Academic Ability Scale), taken together and all the dependen variables of academic achievement in the Arabic language, mathematics and chemistry taken together?

DEFINITION OF TERMS:

The term 'self-concept' as used by many investigators, educators and psychologists has many different uses. Purkey, (1970, p.7), defines 'self-concept' as a "complex and dynamic system of beliefs with a corresponding value". On the other hand, Combs and Snygg, (1959, p. 124) hold self-concept to be " perception of self which the individual regards as part or characteristic of his being". This definition includes all the perceptions an individual has differentiated as descriptive of self and to which he/she refers as 'I' or 'me'.

A survey of the existing literature, however, reveals that there is no universally accepted definition of the self-concept. Shevelson et al. (1976) have, therefore, attempted to amalgamate existing operational definitions of the construct of self-concept. In this process they have identified 17 conceptual dimensions, on which the varied definitions could be compared and classified. Moreover, their study has identified seven characteristics vital to construct a definition of the self-concept, which include organization, multidimensionality, hierarchy, stability, development, evaluation and differentiation. Shevelson et al. (1976) broadly define the self-concept as "A person's perception of himself/herself and formed through the experience with an interaction of their own environment."

The following facets of the self-concept were utilized in the present investigation :

General self-concept, general academic self-concept, self-concept of the Arabic language, self-concept of mathematics, self-cnoncept of chemistry, self-concept of parental relationship, self-concept of peer relationships, self-concept of physical ability and self-concept of physical appearance.

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The definitions of these terms are as follows :

1) General self-concept : the student's perception of himself/herself as effective, capable and proud; such as confidence that he/she is satisfied with the way he/she is.

2) General academic self-concept : the student's perception of himself/herself as a student or his/her ability to learn in school. General academic self-concept in this study refers to the student's estimate of his/her learning ability in school. However, this term does not attempt to measure a wide range of the self-concept.

3) Self-concept of the Arabic language : the student's perception of his/her own ability in, enjoyment of and interest in the Arabic language.

4) Self-concept of mathematics : the student's perception of his/her ability in, enjoyment of and interest in mathematics.

5) Self-concept of chemistry : the student's perception of his/her ability in, enjoyment and interest in chemistry.

6) Self-concept of parental relationships : the student's perception of how well he/she thinks he/she gets along with his/her parents, how well he/she likes his/her parents and the extent to which he/she is conscious of parental acceptance and approval.

7) Self-concept of peer relationships : the student's perception regarding his/her popularity with peers, how easily the student believes himself/herself to make friends and be wanted by others as a friend.

8)   Self-concept of physical ability : the student's perception of his/her ability in physical activities, sports and games.

9)   Self-concept of physical appearance : the student's perception of his/her physical attractiveness as compared with others and the perception of how others think he/she looks.

10)   Socioeconomic status : in this study , it is a sum of four demographic variables related to parents' education, income, occupation and housing.

11)   Academic achievement : in this study, the term refers to the student's performance in three selected subjects (the Arabic language, chemistry and mathematics) in the mid-term examination.

12)   Intelligence : the student's immediate observation, clear thinking, capacity to apprehend meaningless figures and ability to recall acquired information in the Raven Standard Progressive Matrix Tests.

LIMITATIONS OF THE STUDY :

This investigation was limited in some ways because of the size of the sample, this comprising Twelfth Grade Science students between the ages of 17 and 20 during the academic year 1989-90, from five selected educational zones of the United Arab Emirates. The study was also limited by the instruments used, which provide reasonably valid measures; these were Self-Description Questionnaire, the Coopersmith Self-Esteem Inventory, the Self-concept of Academic Ability Scale and the Raven Progressive Matrix. Moreover, the study was limited due to the subjects' imperfect awareness of their exact feelings during the time of testing.

CHAPTER TWO

REVIEW OF THE LITERATURE

INTRODUCTION:

Many researchers have recognised self-concept to be an important psychological construct which influences almost every aspect of human personality. Similarly, many theorists on the subject believe that an individual's self-concept is the determining factor in explaining his/her behaviour. Particularly, they further argue that it is an important determinant of students' academic achievement.

In order to understand the main problems in studying self-concept, this chapter firstly illustrates the historical background of the self-concept. This has been carried out by reviewing significant theories : those of James (1890), Cooley (1902), Mead (1934), Adler (1927), Sullivan (1953), Combs and Snygg (1959), Rogers (1951), Epstein (1973) and Allport (1955).

Secondly, the chapter attempts to examine the relationship between students' self-concepts and their academic achievement. This has been reviewed with comparisons of academic achievement associations with general self, academic self and other facets of self. Gender differences in the relationship between self-concept and academic achievement are also a concern of this chapter. Moreover, the direction of causality between self-concept and academic achievement is discussed. Sex differences in self-concept are also reviewed. In addition, an attempt is made to shed light on various studies examining the effect of socioeconomic status and intelligence on self-concept.

THEORIES OF SELF:

Psychologists have always been interested in the concept of the self. They have systematically tried to unveil its myth and mystery. Fortunately, their efforts

have indeed shed some light on the value of the self as a key to understanding human behaviour and personality. Scholars have come to believe in the importance of the self as a psychological construct, and as a result they have tried to investigate every angle and aspect of the self. As a prelude to such investigations, they have had to attempt basic definitions of the construct of the self and how it develops.

Although many schools of thought in psychology have dealt with the concept of the self and produced a huge amount of literature, it is necessary to begin with the most influential theories and to discuss their impact. The several sections that follow each review theories of the self postulated by well-known scholars. These include William James (1890), Cooley (1902), Mead (1934), Adler (1927), Sullivan (1953), Combs and Snygg (1959), Rogers (1951), Epstein (1973)and Allport (1955).

Certainly one of the most important junctures in modern thinking about the self is represented by the work of William James (1890). William James was one of the first psychologists to concentrate on the 'self' as a psychological construct. In fact, one of the longest chapters in his two-volume work entitled <u>Principles of Psychology</u> is called "The Consciousness of Self". James defined the self in the widest possible sense. "A man's self is the sum total of all that he can call his, not only his body and his physical powers, but his clothes and his house, his wife and children, his ancestors and friends, his reputation and work, his land and horses, and yacht and bank account" (1890, p. 291). James distinguished between the self as a knower and the self as an object of what is known. He regarded the knower-self as pure ego, having an executive function, and argued that it had no value for understanding behaviour and that knower-self should rather be the concern of philosophy. However, the self as an object of what is known could be viewed as the sum of everything that one can call one's own.

According to James, the content of the self as object of knowledge includes the three categories of the material self, the social self, and the spiritual self. The

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"material" self, in James's view, consists of the body, the clothes, the immediate family, the home and the things in the environment with which one identifies and which one feels belongs to him. For some people, the material self is a significant portion of their entire self-concept. In fact, many people define themselves by what they own rather than by what they do.

The social self, according to James, consists of the recognition one gets from his peers. An individual has many different social selves. James stated that "A man has as many different social selves as there are individuals who recognise him and carry an image of him in their mind". (1890, p. 294). James' conception of the different social selves involved in an individual's interpersonal relations led him to emphasise the conflict among these social selves, but the most important were those related to the people we love.

The spiritual self was described by James as "A man's inner being or subjective being, this his psychic faculties or disposition ... that which we most verily seem to be". (1890, p. 296). James considered the spiritual self as the active element in all consciousness; its centre. It is the source of interest, effort and/or attention. Self-feeling is a concept introduced by James as part of spiritual self. Self-feeling refers to the position an individual holds in the world, dependent on his success or failure, which determines his self-esteem. Thus, an individual's feelings depend on how the individual sees himself in relation to others.

It is apparent that James' conception of the material, social and spiritual selves reflected a way of subdividing the significant aspects of how people conceptualize themselves.

Other thinkers, such as Cooley (1902), emphasised the importance of social interactions in developing the self. Cooley believed that the self-concept develops and emerges from the social interaction process. Cooley thus considered feedback from

others as the most important element and source of data about the self. He introduced the Looking-Glass-Self Theory which suggests that an individual's self-concept is significantly influenced by what he believes others think about him. Cooley (1902) stated that "The kind of feeling one has is determined by the attitude toward this, attributed to that other mind. A social self of this sort might be called the reflected or looking-glass self. Each to each a looking glass reflects the other that doth pass" (1902, p. 152).

The "ideal self", according to Cooley, has three major elements "The imagination of our appearance to the other person, the imagination of his judgement of that appearance, and some sort of self-feeling such as pride or mortification" (1902, p. 152).

Thus, the self is actually a looking-glass self. The process of knowing about the self involves examining what we believe about how others view us. It is self-perception as a function of feedback from other significant people, that provides a basis for viewing ourselves.

In a later period, Mead (1934) built on and expanded the notion of social environment and its influence on the self. The concept of self was a major part of her theoretical writings. Mead (1934) described how the self is developed through interaction with the environment. For Mead, the self was a social phenomenon. She argued that social behaviour must be viewed as an aging process of social interaction through which mind, self, and society develop. The self, according to Mead (1934) develops as a result of an individual relating to the process of social structure arising out of social experience. Once formed, it can provide social experience for itself. Mead believed that the self is not in existence at birth, "but arises in the process of social experience ... through the individual's relations with the entire process and to individuals within the social construct" (1934, p. 139).

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Mead proposed the concepts of the "I" and the "Me". These terms refer to phases of activity rather than to agents. The "Me" is the object one forms of oneself from one's own standpoint. The "I" is the reaction of the individual to the situation as he perceives it.

Mead suggested that the individual's self-concept is in large part a function of other people's reactions towards him. Thus, the self-concept of an individual is primarily a reflection of the views of other significant people. Like Cooley, Mead believed that self-perceptions develop in the context of social interaction, and in most cases are influenced by the feedback an individual gets from others. Mead stated about the self that "it is the social process of influencing others in a social act, and then taking the attitude of the others aroused by the stimulus, and then reacting in turn to this response which constitute a self" (p. 17). Thus, for Mead, the self was a learned structure.

The concept of lifestyle is the basic theme of Adler's (1927) personality theory. Adler believed that an individual is born into the world feeling incomplete, with a deep sense of inferiority. Thus, striving for superiority becomes the goal for every individual. Self-assertion is motivated by the fear of inferiority. In order to achieve the goal or to achieve self-assertion, every individual develops a lifestyle which is unique to that individual. The lifestyle depends on the individual order of birth and the nature of the relationship between the parent and the child. The lifestyle aims either to overcome the defect or compensate for it. Thus, the lifestyle in this sense is the creative power of the self, which is the ability of the individual to create an appropriate lifestyle.

According to Adler (1927), the self is created by the individual through experiences. The experiences themselves are not so important in creating the self. Adler (1927) stated that the person does not relate himself to the outside world in a predetermined manner, but rather always according to his own interpretation of

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himself. Thus, for Adler neither heredity nor environment determines personality. Nevertheless, the way we experience these influences provides the basis for the creative construction of our attitude towards life and self.

Sullivan's (1953) description of the self is very close to those of Cooley (1902) and Mead (1934), who emphasised the function of symbolization in the development of the self. According to Sullivan (1953), an individual's personality emerges only in the context of interpersonal relationships; the self-concept is developed through relationships with significant others. He believes that the self-system is a means of protecting oneself from anxiety and to get satisfaction. The self-system is "an organisation of educative experience called into being by the necessity to avoid or to minimize incidents of anxiety" (1953, p. 165). Thus, the self is entirely a learned phenomenon and develops as a result of parental appraisal.

Another notable influence in reintroducing the concept of the self into psychology and education was the writing of Combs and Snygg (1959). They place major importance on the way in which an individual sees himself and his world. They believe that what people think and how they behave are, in large part, determined by the concept they hold about themselves and their ability. Combs and Snygg defined self-concept as the "perception of self which the individual regards as part or characteristic of his being. They include all perceptions the individual has differentiated as descriptive of the self he calls "I" or "Me" (1959, p. 124). Thus, the self is the central core around which all other perceptions are organised.

Combs and Snygg consider the self to be a social product which develops through social interaction. An individual learns about himself from his own explorations. However, the largest part of an individual is self-learned through his relationships with others. The way an individual is treated by those who surround him is a source of the individual's knowledge about himself.

The family is the first step in developing self-concept. Combs and Snygg believe that the family provides early experience of adequacy or inadequacy. In addition, the family provides experience of acceptance. Thus, it has a great effect on one's self-concept.

In the work of Carl Rogers (1951), self is the central aspect of personality, and of fundamental importance to human adjustment. His theory of personality is known as "self-theory". The structure of the personality, according to Rogers (1951), is based on two constructs : the organism and the self. The organism is conceived to be the locus of experience. Experience includes everything available to awareness and all that occurs within the organism. The self is a portion of the phenomenal field. Thus, the self or self-concept refers to that structured set of perceptions which are self-referential, or in other words, those sets that refer to "I" or "Me".

For Rogers, the self is a basic factor in the formation of personality. He defines self-concept as, "an organised configuration of perceptions of the self. It is composed of such elements as the perceptions of one's characteristics and abilities, the percept and concept of self in relation to others and to the environment, the value qualities which are perceived as associated with experiences and objects, and goals and ideals which are perceived as having positive or negative valence." (1951, p. 136). From the above definition of the self it is clear that Rogers' views the self as a structure formed out of an individual's experiences which the individual can attribute to his body or behaviour. Thus, the self is essentially self-awareness.

Rogers introduced the concept of ideal self as playing a very important role. The ideal self is "the self-concept which the individual would most like to possess, and upon which he places the highest value for himself", (1959, p. 200).

According to Rogers (1959), the development of the self-concept as an infant depends upon a period of unconditional positive regard, whereby the parents give

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their affection to the child unconditionally. Once this need for positive regard from external sources is satisfied, children internalize these attitudes and develop regard within themselves. This is called self-regard, which the child uses to define his condition of self-worth. Rogers places special emphasis on two needs (positive-regard and self-regard) which he believes are important for the development of the self. The need for positive-regard and self-regard are both learned needs. Rogers believes that an individual's self-regard is dependent on the distance or closeness between the individual's present or social self and the individual's ideal self, thus interfering with the process of self-actualization.

According to Rogers (1951), there are two tendencies in actualization. One is to actualize the organism and the other is to self-actualize. If the self-image and the organism are in congruence, the actualizing tendencies remain unified, otherwise the self-actualizing tendency and the tendency to actualize the organism may each work to the detriment of the other. Rogers believes that all people desire to actualize, to have their real self or essence emerge and to replace any false aspects of their personality.

Epstein (1973) views the self-concept as a self theory. This theory evolves as a result of an interplay of the individual's experiences and his functioning self. Accordingly, Epstein states : "It is a theory that the individual has unwittingly constructed about himself as an experiencing, functioning individual, and it is part of a broader theory which he holds with respect to his entire range of significant experience" (1973, p. 407).

Epstein argues that the self-theory basically serves three vital functions. First, it tries to optimize the pleasure/pain balance of the individual over the course of a lifetime. Second, it attempts to facilitate the maintenance of self-esteem. Finally, it organises the data of experience in a way that can be employed effectively. Moreover,

Epstein (1973) argues that a self theory should maintain a distinction between the subjective world of self and the objective world of nonself.

Subsequently, Epstein presents three developmental aspects of the self theory. The first aspect has to do with the development of a body self. This requires a simple act of concept formation on the part of a child to recognise his body in relation to other bodies around him.

The second aspect involves the development of an inferred inner self. This aspect is developed after the establishment of the body self and it requires a greater conceptual ability because the elements are more abstract. However, the process of building an inferred inner self proceeds in a similar manner to that of developing a body self. Also, this aspect concerns the development of personality identity.

The third aspect concerns the development of a moral self. This facet of the self theory is constructed in order to satisfy the need for obtaining approval and avoiding disapproval. In fact, the moral self is essential in leading a normal life and gaining social acceptance.

Gordon Allport (1955) developed his theory of self, based on the idea of purposeful rational individuals, who control their destiny through their aspirations. Allport's theory is based on the "proprium", which is his term for the self and which refers to "all the regions we regard as intimately and essentially ours" (1955, p. 13). This term is derived from "propriate", by which Allport means "central to our state of existence" (1955, p. 38). This includes those aspects of personality distinctive and vital to one's emotional life.

From the above definition, Allport builds a hierarchy of seven developmental stages leading to maturity. They are : (a) bodily self, (b) self identity of self, (c) self-

esteem, (d) extension of self, (e) self-image, (f) self as rational coper/rationality, and (g) propriate striving- behaviour motivated toward self-enhancement.

In Allport's hierarchical arrangement, each stage of development builds on the previous stage. The first stage, bodily sense, develops as sensations recur through the infant's interactions with his environment. Self-identity, the second stage, is the sense of continuity considered by many to be the self. It is clear that, this sense of who he is, is often incomplete in the young child, and it is especially evident in his inability to separate fantasy from reality. The contrariness and the "me-do" period the toddler passes through are the beginnings of the third stage of development in Allport's system, that of self-esteem. The toddler has a compulsion to explore and manipulate his environment. This, along with his open rebellion whenever he is thwarted in this compulsion, results in a very negative attitude and even in the child becoming extremely counter-suggestible.

These aspects of the proprium continue to develop and become more clearly defined as the extension of the self and the self-image appears. The extension of the self is best described as the sense of possession. It is the identification of oneself through those things (and persons) which are integral to oneself. The self-image results from interaction of the individual with those around him and through which he begins to attain an awareness of others.

Allport ties these seven aspects of selfhood together. He writes,

> They are all states of self-relevance that we feel. Each in its way is an intimate region of personality involved in matters of importance to the organised emotional life of the individual. Together they compose the me as felt and known. So it seems appropriate to unite these aspects ... under a single name ... proprium ... to cover the self "as object" of knowledge and feeling (1961, p. 127)

While Allport's concept of the proprium is derived from experiences of which the individual is aware, he believes that it is not at all times conscious. The stages of the proprium evolve at different stages of life. They do not function separately, however, but coexist.

AN OVERVIEW OF THE THEORIES OF SELF :

From a review of the major significant theories on the nature of self-concept, it can be inferred that all of these theories are different, yet all make similar assertions about the nature of personality. Comparing the various perspectives, one may find that there is more agreement than disagreement. It can be seen that these different theories are based, to some degree, on the ideas presented by William James (1890).

James's chapter on the self stands as one of the classic texts of psychological literature. His theory of the self was and is still very important to the development of self-theories. James envisaged the structure of the self as hierarchic, with different aspects (material, social and spiritual selves). The different aspects interact with one another and with the Pure Ego. James's conception of the three structural levels of self has been presented again in many other theories, in what may be somewhat different wording (body-self, looking-glass-self, self-system, the "I" and the "Me", the proprium etc.), and with emphasis on specific aspects, but with the same basic notions surviving into the present. It is no wonder that there are similarities between theories of self, since they have used the same source (James) to develop their theories.

Rogers' (1951) self-actualization is similar to what James called "self-seeking" and "self-preservation", and is defined as more or less the "reflex actions and movement of alimentation and defence" that have a mainly instinctual, biological basis. In Allport's (1955) theory, the concepts of bodily self and self-identity are both terms similar to James's concept of material self, which includes one's clothes and body and the things in one's environment. Sullivan's (1953) interpersonal theory of

personality emphasises self to be central to human personality. Combs and Snygg's (1959) theory of self attaches great importance to people's vision of themselves and their environment. Epstein (1973), considers an individual's behaviour to be the result of his unique interpretation of his own environment.

Like James, most of the theorists believe that the development of self occurs through social interaction with the environment (Mead, Cooley, Rogers, and Sullivan). In addition, most theories regard self as multifaceted and divide it into various categories, such as body self, social self, material self, spiritual self and ideal self.

From the review of the self-concept theories, the following characteristics have been inferred :

1) Self is a part of a system which is internally consistent and hierarchically organised.

2) Self embodies certain empirical selves, such as a material self, a spiritual self and a social self.

3) Self has a dynamic structure which grows with experience.

4) Self develops through social interaction with the environment.

5) Self is of utmost importance for an individual's well-being in order to maintain the organisation of the self-concept.

6) Self-Esteem is a basic need which satisfies all aspects of the self-concept.

7) The self-concept satisfies two fundamental functions. It tries to fulfil the needs of the individual while avoiding stress and disapproval.

8) The self-concept is comprehended from the personal, self-referent vantage point.

9) The self plays a significant role in the enhancement of motivation.

SELF-CONCEPT AND ACADEMIC ACHIEVEMENT STUDIES:

Various investigations using different instruments have reported a significant positive relationship between general self-concept and academic achievement. Coopersmith (1959) reported a correlation of 0.36 between Self-Esteem Inventory (SEI) scores and the Iowa Achievement Test. In a sample of 2,213 tenth-grade students, Bachman (1970) found a significant correlation of 0.23 between an idiosyncratic global self-concept based on Rosenberg's Self-Esteem Scale and self-reported grades.

Kunce, Getsinger, and Miller (1972) correlated the grade point average (GPA) of 247 ninth-grade students for the first, second, and third academic quarters, with scores on a modified 15-item version of Coopersmith's Self-esteem Inventory. The correlations between general self-concept scores and GPA in the three academic quarters were 0.20, 0.15, and 0.15 respectively. Although these values were small, all the correlations were significant.

Trowbridge (1972) found correlations ranging from 0.35 to 0.45 between SEI scores and reading level scores for children within different socioeconomic levels. Significant correlations of 0.30 and 0.42 were also reported by Lewis and Adank (1975) between general self-concept as measured by SEI and a composite of raw scores from the Stanford Achievement Test in fourth-, fifth-, and sixth-graders.

Several other studies, as reported below, also found a significant positive relationship between students' global self-concept and their academic achievement.

Prendergast and Binder (1975) used three self-concept instruments to study the relationship between self-concept and academic achievement in mathematics and reading for 336 ninth-grade students. They found that the correlation between the

Tennessee self-concept and reading achievement was 0.98 and that between this self-concept and mathematics achievement was 0.31. For Rosenberg's Self-Esteem Scale the correlations were 0.35 for reading and 0.57 for mathematics. The correlations, however, using Brookover's Self-concept of Academic Ability were 0.53 for reading and 0.15 for mathematics.

Rubin (1978) found a significant correlation of 0.42 between students' general self-concept, as measured by Coopersmith's Self-Esteem Inventory, and their academic achievement as measured by the Standard Achievement Test. The subjects of this study were 380 students whose ages ranged from nine to fifteen years.

Leonardson (1986) examined the usefulness of selected academic and personal variables in predicting the self-concept scores of 165 high school students. The Piers-Harris Children's Self-Concept Scale was used to measure self-concept; cumulative GPA was used as an index for academic achievement. A significant positive correlation of 0.47 was found between self-concept and GPA.

Despite the fact that the above-mentioned studies found low but significant correlations between general self-concept and academic achievement, other studies were not able to support these findings. Actually, these later studies came to the conclusion that the relationship between general self-concept and academic achievement was rather insignificant.

Hall (1972), and Albott and Haney (1972), conducted research on college students and concluded that there was no significant effect of general self-concept on achievement. Another study which reported no significant relation between general self-concept and achievement was done by Marx and Winne (1975) with subjects from the fifth and sixth grades, using the Stanford Achievement Test and revised Sears Self-Concept Inventory.

Also Chang (1976), in his study of 198 students, using the Piers-Harris Children's Self-Concept Scale, found that the self-concept scores were not correlated significantly with the scores of reading and mathematics. He also found that there were no sex differences in the relationship of self-concept and academic achievement.

Keith, Pottebaum and Eberhard (1986) studied the effect of self-concept on academic achievement with a large sample of high school students. They concluded that self-concept seems to have no meaningful influence on a student's achievement, but it could have indirect effects on achievement through locus of control. However, the indirect effect is reportedly quite small (0.22).

Other studies have assessed dimensions other than general self-concept, such as academic self-concept and its relationship with academic achievement, and compared these results to the relationship between general self-concept and academic achievement. In fact, the bulk of the studies have found no correlations or low ones, between general self-concept and academic achievement. In order to clarify this point a number of studies will be presented.

Brookover et al. (1965), found a correlation between grade points average and self-concept of ability of over 1,000 students ranging from 0.56 to 0.65 in a study of seventh- to tenth-graders, even when IQ was statistically controlled.

In a study of 877 college-level students, conducted by Jones and Greinick (1970), a significant positive relation of 0.43 was found between students' self-concept and their academic achievement. Self-concept was measured by the Self-Expectations Inventory and the Self-Concept of Academic Ability Scale (SCAA), while academic achievement was measured by grade points average and the Scholastic Aptitude Test. The authors found that, among other measures, the SCAA was the best predictor of academic achievement.

The relationship between academic achievement and six non-academic variables on a sample of 128 tenth-grade students was studied by Zarb (1981). The results indicated that among six non-academic variables (study habits, family, peer and academic self-concept, school acceptance, and general achievement motivation), the academic self-concept was the strongest predictor of academic achievement. Also, the findings of this study suggest that no significant relationship exists between academic achievement and peer self-concept or family self-concept.

In a study of 328 eighth-grade students, Jordan (1981) found a low positive correlation for both sexes (0.19 for males and 0.14 for females) between global self-concept as measured by the Rosenberg Self-Esteem Scale and academic achievement based on grade points average. Jordan also found a correlation of 0.56 for males and 0.42 for females between academic achievements and self-concept of academic ability. Jordan concluded that the multi-faceted nature of the self-concept must be given consideration if adequate explanations of variance were to be achieved.

In a meta-analysis, Hansford and Hattie (1982) examined 130 correlations between self-concept and academic achievement. They found that general self-concept correlated at about 0.2 with academic achievement, while academic self-concept correlated about 0.4 with academic achievement.

Still other studies also indicate a very low correlation between general self-concept and academic ability.

A recent study by Byrne (1986) investigated the relationships between general self-concept, self-concept of academic ability, and academic achievement, using a sample of 929 high school students. He employed Coopersmith's Self-Esteem Inventory and Rosenberg's Self-Esteem Scale as measures of general self-concept and Brookover's Self-Concept of Academic Ability Scale, and the Self-Esteem Inventory School Academic Subscale as measures of academic self-concept. Academic

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achievement in this study was measured by the Reading Comprehension Cooperative English Test for Grades 9-12 (ETS). The findings of Byrne's study indicated that the relations between academic self-concept and academic achievement were the strongest (r = 0.40), followed by those between academic self-concept and general self-concept (r = 0.39). However, the relationship between general self-concept and academic achievement was the weakest (r = 0.16).

Three instruments were used in a study by Mboya (1986) to investigate the relationship between self-concept and academic achievement for 211 high school students. Global self-concept was measured by the Coopersmith Self-Esteem Inventory (SEI), self-concept of academic ability was measured by the Brookover Self-Concept of Ability Scale (SCAA), and academic achievement was measured by the California Achievement Test (CAT). Mboya found that there was no significant relationship between global self-concept and academic achievement for both sexes (r = 0.04); however, he did find a significant correlation between self-concept of ability and academic achievement (r = 0.46).

Another study, which is in agreement with that of Mboya, conducted by Pottebaum, Keith, and Ehly (1986), based on a large sample of high school students (n=23,280) found a very low correlation between general self-concept and academic achievement. The authors investigated the correlations in two studies in 1980 and 1981; the correlations were 0.11 and 0.12 respectively. The findings suggest that there is little significant relationship between general self-concept and academic achievement.

Recently, some researchers have argued that because of the multi-faceted and hierarchic structure of self-concept, one should expect a higher correlation between academic achievement and academic self-concept than between academic achievement and general self-concept; and above all, one should expect the strongest correlation between academic self-concept in specific areas such as mathematics and

academic achievement in mathematics. Also, one would assume the existence of a weaker relationship between self-concept in mathematics and academic achievement in a different subject such as English (Shavelson et al., 1976). Accordingly, some researchers have examined these assumptions and have found strong supportive evidence.

Based on multi-faceted and hierarchical models of self-concept Shavelson and Bolus (1982) found that grades in mathematics, English and science for 99 junior high school students were more highly correlated with self-concepts in the corresponding areas than with general self-concept.

Marsh, Relich, and Smith (1983) studied the relationship between self-concept and academic achievement. They found that mathematics achievement was strongly correlated with mathematics self-concept (r = 0.55); however, the correlation between mathematics achievement and verbal self-concept was only 0.21, and the achievement in mathematics correlated at lower value of 0.43 with general school self-concept. Further, their results showed that there was no significant correlation between mathematics achievement and either physical or social self-concept.

In another study by Marsh (1986), mathematics and verbal achievement proved to be significantly correlated with mathematics and verbal self-concept respectively, less correlated with other areas of academic achievement, and had almost no correlation at all with non-academic facets of self-concept.

In Seller's research (1981), positive correlations were obtained between students' self-concept in science and their achievement in biology (r = 0.33), and there were no sex differences in self-concept of science. The conclusion of this study which was based on 1,600 nine to twelve grade students indicated that a higher level of science achievement and mental ability was related to a higher level of the student's self-concept in science. When the mental ability contribution was removed from

consideration, a significant relationship between science achievement and the student's self-concept in science existed.

Chapman, Silva, and Williams (1984) studied the relationship between academic self-concept and academic achievement. The Student's Perception of Ability Scale (SPAS) was used to measure academic self-concept. The sample in this study consisted of 800 children : 415 males and 385 females. The researchers found a significant correlation between reading tests' results and self-concept of reading ability on the SPAS (r = 0.46), and also a significant correlation between spelling tests' results and self-concept of spelling ability on the SPAS of 0.49. Moderate correlations were found between the SPAS full scale and reading tests (r = 0.36), and with general ability (r = 0.37).

To assess the relationship between various aspects of self-esteem and academic achievement, Song and Hattie (1985) developed a scale to measure 11 facets of self-concept : classroom, achievement, ability, peer, family, confidence in self, physical and four subject-matter specific self-concepts (English, mathematics, social studies and natural sciences). Academic achievement in this study was estimated by grade points average (GPA) obtained from high school records. Song and Hattie (1985) in a study of 2,297 students ranging in age 14 to 15 years found that the correlations between academic achievement and academic self-concepts were very high as compared with the correlation between general self-concept and academic achievement. For example, the correlation between mathematics self-concept scale and mathematics achievement was found to be 0.36, whereas the correlation between physical self-concept and mathematics was -0.07.

In general one can detect an agreement among researchers that there exists a relationship between students' self-concept and their academic achievement. Yet, interestingly the relationship between self-concept and academic achievement takes

another turn when some researchers examine the role of sex and its effect on the relationship.

There is a lack of agreement among studies as to sex differences in the relationship between self-concept and academic achievement. Several investigators have reported a higher correlation between general self-concept or self-concept of academic ability and academic achievement for males than for females. Others have reported a higher correlation for females than for males. Yet others believe there are no sex differences in the relationship between self-concept and academic achievement.

On the basis of a North American Indian sample (147 high school students), Chadwick, Bahr, and Stauss (1977) reported, "Self-esteem is much more closely linked on GPA for males than for females" (p. 141).

Skaalvik (1983) investigated sex differences in the relationship between general self-concept and academic achievement. The subjects of this study were 384 students. Skaalvik found that there was a significant relationship between self-concept and academic achievement for the boys in grade 4 to 8, and that low achievers were associated with low self-esteem. However, the relationship between the two variables did not exist for the females in these grade levels.

In a study of the relationship between mathematics, science achievement, and self-image (as measured by the Self Image Questionnaire) of 253 six and seven-grade students comprising 140 girls and 113 boys, Roberts, Sarigiani, and Petersen (1987), in their longitudinal investigation, found a significantly stronger relationship between self-concept and academic achievement for boys than for girls in the sixth and seventh grades.

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While the above-mentioned studies reported a stronger relationship between self-concept and achievement for boys than for girls, there are several studies which have found a stronger relationship for girls than for boys.

Primavera, Simon, and Primavera (1974) investigated the relationship between academic achievement and self-esteem using 77 boys and 103 girls with a mean age of 11.6 years. The correlation between self-esteem scores as measured by the Coopersmith Self Esteem Inventory and academic achievement in several areas was significant for the girls, but not for the boys.

Diestenhaft and Gerken (1983) conducted a study to determine the relationship between self-concept and academic achievement using 154 seventh-grade students. The Piers-Harris Children's Self-Concept Scale was used as a measure of self-concept, while the reading, mathematics and composite scales from the Iowa Test of Basic Skills were used as measures of achievement. The results showed a significant correlation between self-concept and achievement for the total group, and for females, but not for males.

Rubin (1978) examined sex differences in the relationship between self-concept and academic achievement of 380 nine to fifteen year old students. He concluded that "self-esteem ratings at earlier age are more closely related to academic achievement for girls than for boys". (p. 433)

Still other studies indicate that there are no such sex differences in the relationship between self-concept and academic achievement.

Hansford and Hattie (1982), who based their study on a meta-analysis of 128 studies, examined the relationship between the various self-measures and measures of performance and achievement. They concluded that "the relationship between self and measure of performance/achievement is similar for males and females". (p. 129)

Mawk (1975) investigated the relationship between level of academic achievement and student self-concept. The subjects of this study, which used the Piers-Harris Children's Self-Concept Scale, were 934 male and female secondary school students, classified as high-achievers and low-achievers. The results indicated that the male high-achievers seemed to have a more positive self-concept than the male low-achievers. However, the results showed that there were no differences in self-concept between female high- and low-achievers.

CAUSAL RELATION BETWEEN SELF-CONCEPT AND ACADEMIC ACHIEVEMENT :

There is disagreement regarding the direction of causality between self-concept and academic achievement. While some researchers conclude that self-concept is causally predominant, other studies reported the opposite direction. Yet other researchers have suggested that no significant causal relationship exists between the two variables.

Shavelson and Bolus (1982) used cross-lagged panel models to examine the causal predominance of self-concept over achievement or vice versa for 99 high school students. Six instruments were used in this study to measure the students' self-concept : two measures of global self-concept, two measures of general academic self-concept and two measures of subject matter specific (English, mathematics, and science) self-concept. The students' levels of achievement were measured by their marks in English, mathematics and science. The findings of this study suggested a causal predominance of self-concept over achievement. However, Shavelson and Bolus assert that, due to the nature of their study and to the sample size used in this study, one should consider the results as tentative.

In order to examine the causal relationship between self-concept and academic achievement, Marsh (1987) re-analysed the data of the Youth in Translation Project (a nationwide study of high school students in the United States). He was able to illustrate a causal effect of academic self-concept on school performance through the use of path analysis techniques. Academic self-concept as measured at time 1 had a causal effect on later school performance at time 2, beyond the substantial effects of academic ability and prior school performance.

The studies of Shavelson and Bolus (1982) and Marsh (1987) are consistent with an earlier experimental study conducted by Lawrence (1971, 1972). Lawrence was able to raise the level of reading ability of a group of 48 primary school retarded children via enhancement of their levels of motivation and self-concept.

While the above studies seem to agree that modification of self-perception has a significant effect on academic achievement, other studies disagree with this and have concluded that students' level of academic ability influences their self-concept.

Caslyn and Kenny (1977) compared the self-enhancement model with that of the skill development approach in their analysis of data from a longitudinal study of 556 adolescents. These researchers tend to support the skill-development model in which academic achievement is predominant over self-concept.

Bachman and O'Malley (1977), in their study of the influence of self-concept on educational attainment, found that high school students' self-esteem had no significant causal influence on educational attainment, but they found that achievement caused self-esteem.

Schunk (1983) and Pintrich and Blumenfeld (1985) seem to agree with the view that self-perception is enhanced by positive feedback upon completion of the task. Pintrich and Blumenfeld (1985) in an observational study of 85 second to sixth-

grade students concluded that teachers' feedback about work to be a better prediction for children's self-perceptions.

Bachman and O'Malley (1986) employed a LISREL analysis techniques to estimate the causal relations between general self-concept, self-concept of academic ability and academic achievement of 1487 students from the Youth in Translation Project. The results of this study indicated that academic self-concept was strongly linked to actual ability and that the students' grades and their ability had substantial positive direct effects on their academic self-concept and also an indirect effect on general self-concept via academic self-concept.

Atherley (1990) seems to support the assumption that students' level of academic ability influences their self-concept.

Chapman, Lambourne and Silva (1990) conducted a longitudinal study to examine the possible causal ordering between academic achievement and academic self-concept for 453 students. The results of path analysis techniques used in this study showed that students' reading performance at age 7 correlated significantly with their academic self-concept at age 9, and students' performance at age 9 was significantly correlated with their academic self-concept at age 11. Chapman et al. concluded that the experience of schooling with its feedback about performance is likely to be the main factor in the development of academic self-concept.

In a two- year longitudinal study of 322 students passing through sixth and seventh grade, Hoge, Smit and Hanson (1990) investigated the possible influence of school experience on the general and academic self-concept of the students. The findings of this study suggest that self-concept in a particular academic area is strongly influenced by the mark/achievement in the same area, but that the students' general self-concept is not affected by their average mark. An additional finding was

that the teachers' evaluation of the students' work/habits and the teachers' feedback had a positive impact on both global self-concept and academic self-concept.

While some studies have been able to determine the direction of causality between self-concept and academic achievement, other studies stress the difficulty in determining the causal relationship between the two variables.

Maruyama et al. (1981) studied the causal relation between self-concept and academic achievement for 715, nine to fifteen year old students. Several instruments were used to assess the students' achievement scores and the students' self-concept was measured by the Coopersmith Self-Esteem Inventory. The results of this study suggest that there is no causal relation between self-concept and academic achievement. Neither achievement nor self-esteem exerted any causal influence on the other, according to this study.

Newman (1984) conducted a longitudinal study to investigate the reciprocal relationship between students' mathematics achievement scores and their self-concept of academic ability. The subjects of this study were 185 students chosen from grades two, five and ten. Newman concluded that the students' self-perception of mathematical ability had no causal influence on later achievement in mathematics. Also, students mathematics achievement scores had no effect on the students' self-perception of mathematics.

In a sample of 292 grade 9- through 12 students, Byrne (1986) employed a structural equation model to examine the causal relation between general self-concept and academic self-concept and academic achievement. The Coopersmith Self-Esteem Inventory and the Self-Esteem Scale were used to assess general self-concept and the Self-Concept of Academic Ability Scale was used to measure academic self-concept. Academic achievement in this study was measured by the Reading Comprehension : Cooperative English Test (ETS). The results of Byrne's study indicated that none of

the causal paths was significant. Thus, causal predominance among general self-concept, academic self-concept and academic achievement could not be established.

In a recent study, Pottebaum et al. (1986) investigated the direction of the causal relationship between self-concept and academic achievement through the use of a cross-lagged panel correlation technique. The subjects of this study were 23,280 high school students who were drawn from, first 1980 and second 1982 waves of the National Center for Educational Statistics (NCES). They found a low correlation of 0.115 between academic achievement as measured at time 1 and self-concept as measured at time 2. Also, they found a low correlation of 0.107 between self-concept as measured at time 1 and academic achievement as measured at time 2. Thus, there appeared to be no significant causal relationship between self-concept and academic achievement. These findings led the authors to conclude that "the results suggest that there is no significant causal relationship between self-concept and academic achievement, but rather that the observed relation is the result of one or more uncontrolled and unknown third variables". (p. 142)

SEX DIFFERENCES IN SELF CONCEPT :

Gender differences in self-concept development play an important role in research that focuses on self-concept. Rosenberg (1979) believed that females possess a lower level of self-esteem than males. Morse and Gergen (1970) have argued that since females are accorded lower social status in society, they have internalized this widespread cultural assumption about their inferiority, and thus damage has been done to their self-concept. Bardwick (1971) stated this same theme : "In this view both boys and girls are socialized to think of women as less competent, able and praiseworthy. As a consequence of reflected appraisals, girls come to see themselves as inferior- to have lower self-esteem" (pp. 154-56).

A review of the studies conducted on this topic has produced mixed results. Some studies have indicated that boys show higher self-concept than girls.

A study conducted on 80 children from first and fifth grade by Carpenter and Busse (1969) indicated that boys obtained significantly higher global self-concept scores than girls.

Another study conducted by Rosenberg and Simmons (1975) with a random sample of 2,625 students from the third through the twelfth grades tested sex differences in student self-concept. The results of the study showed that girls were somewhat more likely to have lower self-esteem than boys.

In a comparative study of self-esteem of 375 adolescents (between 14 and 16 years of age) among minority groups in Britain, Louden (1980) reported that there was no significant difference in self-esteem among Asian, West Indian, and English adolescents. However, this study also showed that within each ethnic group, boys had significantly higher self-esteem than girls as measured by the Rosenberg Self-Esteem Scale.

In a study comparing sex differences in the self-concept of 314 English (174 boys and 140 girls) and 372 Nigerian adolescents (264 boys and 180 girls), Olowu (1985) found that the Nigerian males had more positive self-concepts than the Nigerian females. However, there were no significant differences in self-concept scores between English males and females.

To assess gender effect on global self-concept, Richman et al. (1985) studied 195 high school students using the Rosenberg Self-Esteem Scale and the Piers-Harris Children's Self-Concept Scale. In this study the females were found to be significantly lower in general self-esteem than the males on both scales.

Cheng and Page (1989) administered the Coopersmith Self-Esteem Inventory to 265, 9th grade students in Taiwan. The findings indicated that boys had significantly higher mean self-concept scores than girls.

While the studies that were presented earlier showed that boys possessed a higher self-concept than girls, other studies have refuted this conclusion and indicated that girls have a higher self-concept than boys.

In a study of 605 fourth and sixth grade children Bledsoe (1961, 1967) found that at both grade levels girls obtained higher scores on general self-concept than did boys.

Wenland (1967) used the Tennessee Self-Concept Scale to assess the global self-concept of 685, eighth-grade students : 176 white males, 161 white females, 151 black males, and 197 black females. He found that the black females had higher global self-concept scores than did the black males, and the white females had higher global self-concept scores than did the white males.

Schroeder (1973) conducted a study of 568 college level students comprising 278 males and 290 females, and found that the females scored significantly higher in self-concept than did the males.

Thus far, the literature has shown that there are two conflicting positions regarding sex differences in self-concept. One group has concluded that boys possess a higher self-concept, while the other group believes it is the girls who have a higher self-concept. Still other studies have not supported either of these two positions and have come to the conclusion that there are no sex differences in self-concept.

Coopersmith (1967) in a sample of 44 boys and 43 girls from fifth and sixth grade students found that boys and girls did not differ significantly in Coopersmith Self-Esteem Inventory.

Simon and Bernstein (1971) compared self-concept scores of 61 boys with 68 girls from sixth grade students and reported an insignificant sex differences in the mean score as measured by Coopersmith Self-Esteem Inventory.

Reschley and Mittman (1973) administered the Coopersmith Self-Esteem Inventory to 90 seventh grade students. The findings indicated that boys and girls did not differ significantly in their mean scores on the Coopersmith Self-Esteem Inventory.

Primavera, Simon and Primavera (1974) investigated sex differences on Coopersmith Self-Esteem Inventory with a sample of 77 boys and 103 girls from fifth and sixth grade students. In this study boys' scores did not differ significantly from those of girls on Coopersmith Self-Esteem Inventory.

Zuckerman (1980), in his study of 884 college students, found that the college men and women did not differ in terms of general self-esteem as measured by the Rosenberg Scale.

Calhoun and Sethi (1987) reported that there were no significant sex differences between males and females from India and Philippines, as well as from America, in Coopersmith's Self-Esteem Inventory scores. The subjects of this study involved 285 students ranging in age from 10 to 14 years.

In a comprehensive review, Wylie (1979) concluded that there was no evidence for sex differences in overall self-concept at any age level. She suggested

that differences in specific components of self-concept may be lost when items are added up to obtain a total score.

Many researches dealing with multidimensions of self-concept on sex differences have confirmed Wylie's argument.

Brush (1978) in his study of 189 college students found that girls received significantly higher scores than did boys on the Mathematics Anxiety Rating Scale which means that boys were less anxious than girls and boys were more confident than girls on this scale.

Sherman (1980) tested sex difference in self-concept of mathematics on a group of 75 boys and 135 girls. The findings of this study suggested that eighth grade girls and boys did not differ in their confidence and attitude towards mathematics. However, significant differences were found in eleventh grade where girls perceived themselves as less able in mathematics than boys.

To investigate sex and social class differences in self-concept of 160 boys and 214 girls in grades seven, nine and eleven, Osborne and Legette (1982) used three self-concept instruments : The Piers-Harris Children's Self-Concept Scale, the Coopersmith Self-Esteem Inventory, and the Self-Concept of Ability Scale. The results of this study indicated that there were no significant differences in total self-concept scores between the males and females on the three self-concept instruments. However, they reported significant sex differences within Piers-Harris and Coopersmith Self-esteem Inventory subscales. The females scored significantly higher than the males on the SEI social subscale and behaviour subscale of the Piers-Harris Self-Concept Scale. The males scored significantly higher on the Piers-Harris Anxiety, Physical Appearance and Attributes subscales. Also this study found that there were no sex differences in general self-concept subscale.

Meece, Parsons, Kaczala, Goff, and Futterman (1982) recently reviewed the literature concerning sex differences in self-concept. They reported that few studies have found sex differences in self-concept of mathematics ability before the junior high school grades, but large and consistent differences have been found after the seventh grade.

Chapman and Boersma (1983) administered the Student Perception of Ability Scale (SPAS) to 1193 students in five intermediate schools. Significant sex differences were found in this study for the total scale favouring girls. Also girls obtained higher mean scores on self-concept of school satisfaction, reading and spelling on SPAS subscale.

In the Chapman et al. study (1984), sex differences in self-concept of academic ability were found. The sample in this study was made up of 415 nine year old boys and 385 girls of the same age. This study showed that the females tended to obtain higher scores than the males in the Student Perception of Academic Ability Scale and the females showed higher mean subscale scores than did the males in all cases.

Stevenson and Newman (1986) in their study of 255 tenth grade students found that boys had more positive self-attitude towards mathematics than girls and the girls had more positive self-attitude towards reading than boys.

A large number of studies testing sex differences was carried out using the Self Description Questionnaire (SDQ) by Marsh and co-researchers. The following are some of these studies :

Marsh, Relich and Smith (1983) examined sex differences on the SDQ1 for fifth and sixth grades, 655 boys and 498 girls ranging in age from 9 to 13 years, and

found that girls had higher self-concept in reading and general school ability and lower self-concept in physical ability, appearance and mathematics.

Marsh, Barnes, Cairns, and Tidman (1984) studied the effect of sex on the structure of self-concept for pre-adolescent children (n=421). They used the Self-Description Questionnaire to measure seven components of self-concept derived from Shavelson's model. They concluded that there were sex differences in total self-concept; however, a large sex difference (more than 4% of the variance) was found for only two of the SDQ factors. The boys had higher self-concepts in physical abilities than the girls (eta = 0.32), whereas the girls had higher self-concepts in reading than the boys (eta = 0.23). In addition the researchers reported a very small but statistically significant sex difference for other factors in the SDQ.

In a study of 901 Australian high school students (grades 7-12), Marsh, Parker, and Barnes (1985) found statistically significant sex differences in English SC and mathematics SC, independent of grade level. The girls had higher English self-concept scores, whereas the boys had higher mathematics self-concept scores.

Marsh, Smith and Barnes (1985) investigated sex differences in multiple areas of self-concept for 559 fifth grade students. The finding of this study revealed that boys had significantly higher self-concept of physical ability, appearance and mathematics, whereas girls had significantly higher self-concept in reading. Furthermore, boys did not significantly differ from girls in the self-concepts of peer and parent relations, general school ability and general self-concept.

Marsh, Byrne and Shavelson (1988) studied sex differences in 11th and 12th grades : 516 boys and 475 girls, with 3 different academic self-concept instruments including the academic scale from SDQ III. For each of the 3 instruments, boys had a significantly higher self-concept of mathematics than girls. On the other hand, girls had a significantly higher verbal self-concept than boys.

In a longitudinal study of 553 first to fourth grade children conducted by Pallas et. al. (1990) sex differences in self-concept were found. Boys rated themselves higher in physical ability and appearance than did the girls of the same age. Girls were found to hold more positive attitude toward their self-concept of academic ability than boys of the same age. The two groups, however, did not significantly differ in social self-concept.

SELF-CONCEPT AND INTELLIGENCE STUDIES :

Several researchers have assumed that students of high ability would have superior self-perception of competence because of their frequent experience of suceess. However, research investigating self-concept in gifted and non-gifted students has produced conflicting results. Some studies have found that gifted students obtain higher scores on measures of self than non-gifted students. Others have reported no significant differences between them.

Ketchman and Snyder (1977) in their study of 148 students found that their sample of high-IQ children of grades 2 through 4 had significantly higher self-concept scores than a same-aged normal group on the total score of Piers-Harris Children's Self-Concept Scale.

Tidewell (1980) compared self concept of high IQ students from a Mentally Gifted Minor Programme with students from regular class using the Coopersmith Self Esteem Inventory and the Self Concept as Learner Questionnaire. His sample consisted of 804 boys and 789 girls from 10th grade. This study concluded that the gifted sample obtained higher mean scores of self concept regarding learning and school behaviour than did the normal group. However, the two groups did not differ significantly in their general self concept.

Sixteen third and sixth-grade gifted children, in Lehman and Erdwin's (1981) study were found to have more positive feelings about themselves, and they scored significantly higher on positive family relationships and school relationships, than children with an average IQ. They reported more positive feelings about themselves, more maturity in interaction with others and better relationships with others.

Karnes and Wherry (1981) compared the self-concept of a group of gifted children with a group of intellectually average children. Scores of 120 or above on Wechsler's Intelligence scale for Children (WISC - R) were used to determine gifted children, and the Piers-Harris Children's Self-Concept Scale was used to assess self-concept. The findings of this study, which were based on 148 grade four to seven students, suggested that gifted children have higher self-esteem than intellectually average children.

Sellers (1981) found a correlation of 0.35 between the Otis-Lennon Mental Ability test and self-concept in science for 1,600 ninth- to twelfth- grade students.

The Piers-Harris Children's Self-Concept Scale was used in a study by Maddux et al. (1982) to determine whether gifted students score higher on measures of self-concept than do normal students. The results of this study showed that the 55 gifted sixth-grade children had significantly higher mean scores on the measure of self-concept than the 55 normal sixth-grade students.

Kelly and Colangelo (1984) reported that 265 male students from seventh-through- ninth-grade enrolled on a programme for gifted children had significantly higher social and academic self-concepts than their age-mates who were not on the programme.

To assess the relationship between intelligence and self-concept of 800 nine year old children, Chapman et al (1984) used the Weschler Intelligence scale for

Children-Revised (WISC - R) and the Student's Perception of Ability Scale to assess academic self-concept in five basic academic areas. The results showed that the correlations between full-scale SPAS and full-scale WISC-R were very low, ranging from 0.12 to 0.27. This finding suggests that IQ has no meaningful relation to academic self-concept.

Davis and Connell (1985) investigated the differences between gifted and average students on self-concept measures. The subjects of this study included 122 students ranging in age from 8 to 12 years. They found that the gifted students ranked significantly higher than the average students on self-evaluation of competence, feeling of mastery and preference for independent decision-making.

Comparing the self concept of 300 mathematically talented thirteen year old children with that of 205 less talented children of the same age, Brody and Benbow (1986), found no differences between self-esteem of gifted and non-gifted students. However, they reported a small positive correlation between Scholastic Aptitude Test (mathematical) and self concept for gifted students (r = 0.19) and for non-gifted students (r = 0.20).

Chan (1988) compared the perceived competence of 378 gifted students from grades five through seven with that of non-gifted students. The Perceived Competence Scale for Children was utilized to assess perceived competence on four different dimensions : cognitive competence, social competence, physical competence, and general self-worth. The results of this study indicated that the gifted students had significantly higher perceived competence than their non-gifted peers in cognitive competence and general self-worth but not in physical and social self concept.

Utilizing the Perception of Ability Scale for Students (PASS), Chapman and McAlpine (1988) examined the academic self-concept of 29 sixth-grade intellectually

gifted and 71 average students. In this study, significant differences between the two groups were found for the full scale and for all the subscales except school satisfaction. The gifted students showed higher academic self-concept in arithmetic, reading and spelling than did the average students.

Hoge et al. (1990) in a longitudinal study found that IQ significantly related to and influenced the academic self-concept but has no influence on the general self-concept of 322 sixth and seventh-grade students.

However, other studies as reported below did not find any significant differences in self-concept of gifted and non-gifted students. Trowbridge (1972) tested 3,789 third through seventh-grade students and found that there were no significant differences in self-concept between intellectually superior children and intellectually average children. Simon and Simon (1975) reached the same conclusion.

In a study of 159 elementary school students Milgram and Milgram (1976) examined the relationship of intelligence to self-concept and found that it was weak. Two instruments were used to measure intelligence, and the Tennessee Self-concept Scale was used to measure self-concept.

The results of Dean's study (1978) showed that the self-perception of 24 twelve to fourteen year old gifted children, measured by Coopersmith's Self-Esteem Inventory did not differ significantly from that of 24 children with average intelligence.

In a sample of 19 intellectually average and 19 intellectually superior seventh-grade male students, Neufeld and Cozac (1980) investigated the relationship between intelligence and self-concept. They used Wechsler's Intelligence Scale for Children (WISC - R) and the Teachers' Inventory of a Pupil's Self-Concept (TIPS). The results

of their study showed that there was no significant difference between the self-concept score of intellectually-superior and intellectually-average students.

Also, in his study of 177 elementary school children, Bracken (1980) reported no significant differences in self-concept between gifted and non-gifted children.

Leonardson (1986) found that IQ as measured by several tests (WISC, Stanford-Binet, Peabody Picture Vocabulary Test and Otis-Lennon Mental Ability Test) had no effect on the self-concept of 165 high school students as measured by the Piers-Harris Children's Self-Concept Scale.

Loeb and Jay (1987) compared gifted with non-gifted children on self-concept and locus of control measures. The selection of 125 nine to twelve year old gifted students in this study was based on scores on standardized aptitude and achievement tests and on teachers' recommendations, whereas 102 non-gifted students of same age were selected from regular classes. The results of Loeb and Jay's study showed no differences on the Piers-Harris Self-Concept Scale between the gifted and non-gifted students. However, when the sexes were examined separately the gifted girls were found to have higher self-concept scores than the non-gifted girls.

In a longitudinal study Chapman, Lambourne and Silva (1990) examined the relationship between intelligence and academic self-concept of 435 seven to eleven year old students. The Peabody Picture Vocabulary Test, Stanford-Binet Intelligence Scale and Weschler Intelligence Scale for Children-Revised were used to assess intelligence, and academic self-concept in this study was measured by the Perception of Ability Scale for Students. Although the results established a low significant relationship between IQ and self-concept, the IQ scores were less predictive of self-concept scores than were the scores of academic achievement. These results led the authors to conclude that IQ had no direct effects on academic self-concept but it could have indirect effects through influence on academic achievement.

Chiu (1990), comparing 136 gifted fourth and fifth grade students with 196 students attending regular classes using the Coopersmith Self Esteem Inventory, found that gifted students did not differ significantly from normal children in measures of self-concept.

SOCIOECONOMIC AND SELF-CONCEPT STUDIES :

Socioeconomic status is one of the social identity elements which may shape the individual personality. There is a belief among researchers that an individual's social status may affect his self-concept.

Cartwright (1974) believes that the groups to which an individual belongs serve as primary determinants of his self-concept, and self-esteem will derive in part from his perception of ranking within relevant groups. A review of studies focusing on a possible association between measures of socioeconomic status and self-concept has revealed inconsistent results. Some researchers have found evidence in support of the assumption that self-concept is related positively to socioeconomic status; others have found a negative relationship between self-concept and socioeconomic status. On the other hand, a great majority of the researchers have reported null findings.

In a sample of 2,213 tenth-grade students, Bachman (1970) reported a significant correlation of 0.33 between students' socioeconomic status and their self-concept of academic ability, and a correlation of 0.16 between SES and general self-concept.

The relationship between social class, as indicated by father's occupation, and self-concept of ability, was studied by Frey Sherman (1973). The 280 subjects in this study were students ranging from 13 to 18 years of age and coming from a variety of social classes. In this study, social class was found to be significantly related to a

student's perception of his own abilities. Students coming from homes where the father's occupation was that of a skilled labourer perceived themselves as being less able to achieve a particular task than those whose fathers were of other occupational groups. For instance, those students coming from homes where the father was the proprietor of a small business perceived themselves as being able to achieve the task given them.

Gray-Little and Applebaum (1979), using the father's levels of education as a gauge of social status, found a positive correlation between this factor and self-esteem in a study of 735 seventh-and tenth-grade students.

The findings of Osborne and LeGette's (1982) study based on a sample of 374 grade seven to eleven students indicated that students in the lower social classes viewed themselves more negatively in their academic pursuits, and they also had lower levels of overall self-esteem, perceiving their behaviour less positively than did those in the upper social classes.

In a comparative study among three groups of girls from Euro-, Afro-, and Mexican-American background, Fu, Hinkle, and Korslund (1983) found in a sample of 1,518 nine to eleven year old children that the Euro-American group had a higher self-concept than the Afro-; and both of these groups had significantly higher self-concept than the Mexican-Americans. The conclusion of this study was that the lower socioeconomic group had significantly lower mean self-concept.

To assess the effect of gender and social status on global self-concept, Richman, Clark, and Brown (1985) studied 195 high school students using Rosenberg's Self-Esteem Scale and the Piers-Harris Children's Self-Concept Scale. Social status in this study was measured by parental education. The researchers found

a significant main effect of social status and gender for both scales and that low SES students had lower general self-esteem scores than the middle or high SES students.

Recently, Atherley (1990) compared the self-concept of students from high socioeconomic status backgrounds with that of students of low socioeconomic status. His sample included 213 eleven to twelve years old students.The classification of father's occupation was used to assess SES. Significant differences were found between the two groups : the low SES groups reported themselves as less well behaved and less happy on the Piers-Harris Self-Concept Scale.

While the earlier studies reported a positive correlation between self-concept and socioeconomic status, later studies found that low socioeconomic status was associated with high self-concept, and high socioeconomic status was associated with low self-concept.

Soares and Soares (1969) compared the self-concept of 229 children from a government elementary school in a disadvantaged area with the self-concept of 285 children from a government elementary school in an advantaged area. The results of this study indicated that significant differences in self-concept levels existed between the student populations of the two schools and that the students of the lower socioeconomic status had more positive self-concepts than the students of high socioeconomic status.

Powers et al. (1971) in a sample of 215 tenth grade students, found the self-image of black students to be significantly higher than that of white, high social class students.

Trowbridge (1972) used Coopersmith's Self-Esteem Inventory in her study of the relationship between self-concept and socioeconomic status of 3,789 students between the third and eighth grades. Her findings indicated that the self-concepts of

the low SES students were significantly higher than those of middle SES on three dimensions of self-concept : general self, social self, and academic self. Only on the home-parent subscale did the middle SES students score higher.

A study by Cicirelli (1977) indicated that self-concept played a mediating role between social class and educational achievement when mental ability was controlled. This study clearly established that there was a significant effect of social status on both the development of self-concept and academic achievement, with higher self-concept scores for lower socioeconomic status. The subjects of this study included 345 first, second and third grade students.

Several other studies have, however, reported either insignificant or little differences in self-concept between high and low socioeconomic statuses.

In reviewing a large number of studies, Wylie (1979, p. 115) stated that "48 studies involving both well known and idiosyncratic instruments to index overall self-regard have yielded contradictory weak mostly null results regarding the relationship of socioeconomic level and overall self regard".

A study conducted by Rosenberg (1965) to determine the relationship between socioeconomic status and self-esteem, involving 5,024 high school students, found a small significant positive relationship (r = 0.10) between self-esteem and socioeconomic status as measured by an idiosyncratic combination of the father's education, occupation, and primary source of income.

Epps (1969) studied 1,572 black male and female high school students to investigate the relationship between self-concept and socioeconomic status. The self-concept in this study was measured by five items chosen on the basis of factor analysis from Rosenberg's Self-Esteem Scale. The socioeconomic level index was the

mother's educational level. The results of this study provided no evidence for a direct relationship between self-concept and socioeconomic status.

Edwards (1974) examined the relationship between self-esteem and socioeconomic status in 750 black and white eighth-grade boys. The SES was determined by classifying the occupation of each head of household according to Duncan's Socioeconomic Status levels. In this study, no significant correlations between self-concept and socioeconomic status were found.

A study by Hulbary (1975) reported that there was no significant relationship between self-concept and socioeconomic status for 186 adolescents as measured by Rosenberg's Self-Esteem Scale.

In a longitudinal study, Bachman and O'Malley (1977) using path analytical techniques examined the combined effects of social class, academic ability and self-concept on one another for a large representative sample of 1600 grade ten students followed up until five years after graduation from high school. The findings of this study indicated that social class had no direct effect on self-concept but it appears that SES had an indirect effect on self-concept through academic ability.

To determine the effect of social class on self-concept, Weller and Levi (1981) employed the father's occupation as an index of social class. They found that social class had no effect on the self-concept of 122 eighth-grade Israeli students as measured by the Hebrew version of the Tennessee Personality Inventory.

The relationship between self-esteem as measured by the Coopersmith Self-Esteem Inventory and social class as determined by a composite of occupational prestige of the head of the household, educational attainment of the head of the household, family income and mother's educational attainment was examined by Maruyama et al. (1981). They found a significant low relationship between

socioeconomic status and self-concept for 145 children of the age of 15 years. The highest correlation was found between SES and SC of ability (r = 0.20) followed by SES and general self-concept (r = 0.17), SES and home-parent (r = 0.16) and with social self-concept (r = 0.15).

Chapman and Boersma (1983) found a low significant correlation of 0.16 between students' socioeconomic status based on father's occupation ranking and their self-concept of academic ability as measured by Student's Perception of Ability Scale. The subject of this study were 1193 intermediate school children. They concluded that clearly self-perception of ability as measured by the SPAS is not related in any meaningful way to social class.

Marsh and Parker (1984) in their study of 305 six grade pupils found a significant low positive correlation of 0.12 between students' socioeconomic status as measured by the family's occupational status and estimated income on the one hand, and self-concept in academic areas on SDQ subscales on the other hand. However, socioeconomic status was not correlated to self-concept in non-academic areas on SDQ subscales.

Many recent studies have also found little effect of socioeconomic status on self-concept (Chapman et al., 1990; Wiltfang and Scarbecz, 1990 and Pallas et al., 1990).

The relationship between academic self-concept and family background was studied very recently by Chapman et al. (1990). Self-concept was measured by the Perception of Ability Scale for Students, and the family background variables included family socioeconomic status, mother's marital status and family environment. Chapman et al. found no significant relationship between the home background variables and academic self-concept of the 435 seven to eleven years old students who participated in this longitudinal study.

Wiltfang and Scarbecz (1990) tested the effect of social class on general self-concept of 4077 secondary school students ranging in age from 12 to 19 years. They found that father's occupation does not have a significant effect on students' self-concept but father's education has small positive effect (beta = 0.10, p < 0.01) on students' self-concept. Further, they have concluded that parental social class has little effect on adolescent's general self-concept.

Pallas et al. (1990) conducted a longitudinal study to investigate the relationship between students' social class and several dimensions of their self-concept. The subject in this study constituted 553 children from grades 1 to 4 (approximately 10 years old). The results of this study showed that economically advantaged children saw their academic self-concept more positively than did poor children. However, the difference in self-concept between the two groups was moderate, which led the authors to conclude that the self-concepts held by children from more and less advantaged background are similar.

AN OVERVIEW OF SELF-CONCEPT STUDIES :

Many researchers believe that self-concept is a very important personality variable for the prediction of academic achievement. Therefore, self-concept literature reveals a plethora of studies which examine the relationship between self-concept and academic achievement. The results of these studies have been diverse. While some researchers (Coopersmith, 1959; Kunce et al., 1975; Leonardson, 1986) reported significant relationship between self-concept and academic measures, others (Hall, 1972; Marx and Winne, 1975; Albott and Haney, 1972; and Keith et al. 1986) reported a non-significant relationship between the two constructs.

Studies reporting high correlations (Brookover et al., 1965; Zarb, 1981; Jordan, 1981; Byrne, 1986; Mboya, 1986; Pottebaum, Keith and Ehly, 1986) have

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generally measured academic self-concept rather than global self-concept, which has been found to have low correlation to academic achievement. Moreover, it is especially important to note that the highest correlations reported are between academic achievement in specific subject areas and these subject-specific self-concepts (as opposed to academic self-concept). For example, Marsh, Relich and Smith (1983) found the highest correlation for mathematics achievement with mathematics self-concept ($r = 0.55$), while mathematics achievement was less correlated with self-concepts in other academic areas ($r = 0.21$ with self-concept of reading) and was uncorrelated with regard to non-academic self-concepts.

In general, studies of correlations between academic achievement and self-concept have typically been reported as low, although at statistically significant levels. Therefore, such correlations have low predictive utility in terms of accounting for much of the observed variability in scores. This may be seen in such studies as those of Hansford and Hattie (1982) and Wylie (1979). Hansford and Hattie (1982) conducted a meta-analysis of a large number of studies with incredibly diverse results; they found correlations between self-concept and academic achievement ranging from - 0.77 to 0.96, with values typically closer to 0.21. The amount of variance in common between self-concept and academic achievement was 0.04 and 0.07, which is a very small overlap. Their results concurred with those of Wylie (1979), which were based on an extensive review of the research on self-concept and academic achievement. Wylie concluded that "these results give little support to the widely accepted lore that there is a psychologically important relationship between achievement and overall self-regard" (Wylie, 1979, p. 393).

With regard to causality and its direction between self-concept and academic achievement, it may be seen that researchers fail to agree in this area as well. Shavelson and Bolus (1982) believe the difficulty to be the result of the lack of a plausible theoretical model of causal dominance and a lack of appropriate technological means of examining causality up to this time. Finally, research on the

relation and direction of causality is not yet clear, as expressed by Kohr, who said, "Although the relationship between self-concept and academic achievement is statistically significant, it would appear to be neither substantial in degree nor in direction" (Cited in Rogers et al., 1978, p. 50).

Studies concerning gender differences in self-concept also produced mixed results. Some studies (Louden, 1980; Olowu, 1985; and Richman et al., 1985) have indicated that boys show higher self-concept than girls. Other studies have shown that girls have higher self-concepts than boys (Schroeder, 1973 and Chapman et al., 1984). In addition to these, studies of Zuckerman, 1980; Meece et al., 1982; Colhoum and Sethi, 1987 have not found any significant differences in self-concept with respect to gender.

Similarly, studies of the relationship between self-concept and socioeconomic status have shown inconsistent results. Some researchers (Rosenberg, 1965; Sherman, 1973; Osborne and LeGette, 1982 and Richman et al., 1985) have indicated positive significant relationships between self-concept and socioeconomic status. Other studies found that low socioeconomic status was associated with high self-concept and vice versa (Soares and Soares, 1969; Powers et al., 1971, Trowbridge, 1972 and Cicerelli, 1977). Some additional studies did not find any significant relationships between these two constructs (Edwards, 1975; Hulbary, 1975 and Weller and Levi, 1981).

Studies of the relationships between self-concept and intelligence also have produced inconsistent results. While some studies suggest that the gifted students have higher self-concept than comparison groups (Lehman and Erdwins, 1981; Karnes and Wherry, 1981; Sellers, 1981 and Maddux et al., 1982), other studies have found no significant difference between the two groups (Dean, 1978; Newfeld and Cozac, 1980; Bracken, 1980 and Brody and Benbow, 1986).

The issue of measurement stands out as a main problem for researchers in the field of self-concept. Indeed one is able to notice a large number of instruments that claim to measure self-concept. However, it appears that the bulk of instruments according to Wylie (1974), are inadequate and the inadequacy is reflected in both the lack of acceptable reliability and validity characteristics. Most instruments are not based on a theoretical model of self-concept. Definitions of self-concept, according to Wylie, lack precision and differ from one study to the next because of the lack of a theoretical base. In a comprehensive examination of 463 such studies Wylie found an amazing array of hypotheses, research designs, and measuring instruments. Brookover, Erickson, and Joiner (1967) have noted that sometimes the only similarity found in the literature between one study and another is the use of term 'self-concept'. In some cases, the instrument is not consistent with the researcher's definition of the construct.

The major problem noted by many researchers (Shavelson and Bolus, 1982; and Marsh et al., 1983) is related to the nature of the general self-concept measures. For some studies, general self-concept is non-academic self-concept such as social and emotional self-concept, whereas in other studies, what is meant by general self-concept is combinations of all academic, non-academic, social and physical self-concepts.

The lack of a theoretical basis and inadequacy of measurement instruments used in most studies could explain the inconsistent findings in self-concept studies.

Recently, self-concept theorists (Shavelson et al., 1976; Shavelson and Bolus, 1982; Chapman, 1983; Marsh et al., 1983 and Byrne, 1984) have emphasized the multidimensionality of self-concept. Shavelson, Hubner and Stanton (1976, p. 412) reported that "self-concept is multifaceted; the particular facets reflect the category system adopted by a particular individual and/or shared by groups ...the category

system appears to include such areas as the school, social acceptance, physical attractiveness and ability".

They argued that the relationship between self-concept and other constructs cannot be understood if this multidimensionality is ignored. Further, an individual is capable of perceiving himself differently in terms of relatively separate facets and may have, for instance, a very high self-concept of physical ability but at the same time may have a very low self-concept of academic ability. Therefore, the relationship between academic achievement and self-concept could vary depending on the dimension of self-concept measured. Similarly, the relationship between self-concept and IQ or SES also may vary depending on the dimension of self-concept considered.

Recently, this argument led many researchers (Marsh et al., 1983; Chapman et al., 1984; Song and Hattie, 1985) to develop an instrument based on a theoretical model that reflects more dimensions of self-concept which are carefully checked for their reliability and validity.

In this study an attempt is, therefore, made to illuminate various shortcomings faced by previous researchers. This is done by using an adequate instrument which is based on a theoretical model and has a clear definition of self-concept. Further, this instrument has an ability to distinguish among many facets of self-concepts.

CHAPTER THREE

METHODOLOGY OF THE RESEARCH

GENERAL DESIGN OF STUDY :

The major purpose of this study is to investigate the relationship between various facets of self-concept and academic achievement in male and female Twelfth-Grade students in the United Arab Emirates. Secondly, it will attempt to examine differences according to sex with respect to general self-concept, self-concept of general academic ability and many other facets of the self-concept, i.e., self-concept of the Arabic language, self-concept of mathematics, self concept of chemistry, self-concept of physical ability, self-concept of physical appearance, self-concept of parental relationships and self-concept of peer relationships. In addition, this study aims to investigate the relationship between students' socioeconomic background and self-concepts and also between their intelligence and self-concepts.

To accomplish the above-mentioned purposes, the following variables will be utilized in this study :

1) Self-concept of general academic ability.

2) General self-concept.

3) Self-concept of academic ability in the Arabic language, mathematics and chemistry.

4) Self-concept of physical ability and physical appearance.

5) Self-concept of peer relationships and parental relationships.

6) Intelligence.

7) Socioeconomic status.

8) Academic achievements in the Arabic language, chemistry and mathematics.

THE PILOT STUDY:

Since the researcher was to carry out his field study in the United Arab Emirates and as the scales, which will be used in the research, are ones originally designed for measuring the concept of self in European societies using the English language, it was deemed necessary to undertake this pilot study to ensure that these scales, after being translated into Arabic language, would be adequate. Further it was necessary to recognise the difficulties that might confront the researcher when implementing these scales. Generally, this pilot study was aimed at paving the way to, and preparing for the main study. The main objectives of the pilot study were as follows :

1)   To translate the scales which were to be used in this study into Arabic and refer such translations to specialists in order to obtain their opinions with regard to the scales in general, and their translation in particular.

2)   To administer these scales to small samples of the selected population for the purpose of recognising the extent to which they were adequate and how students responded to them.

3)   To check the stability of such scales by submitting them to familiar statistical procedures.

4)   To establish a socioeconomic status scale which would be adequate for the society of the United Arab Emirates in general and the members of that sample in particular.

5)   To select the main research sample by scrutinising the statistics of the Ministry of Education on male and female students in government schools at the secondary stage throughout the United Arab Emirates; also, to nominate schools and their locations in each Emirate as a preparation for choosing the research sample and determining its size.

To accomplish the above-mentioned objectives, the following steps were taken :

1) The researcher translated the Self-Description Questionnaire and the Self-Concept of Academic Ability Scale separately into the Arabic language so that they could be utilized in the main study for assessing student self-concept. The two scales were submitted to several lecturers in the Department of Psychology at the United Arab University to obtain their remarks and points of view regarding translation in particular and the scales in general. Mastery of the English language and specialisation in one of the branches of Psychology were taken into consideration when professors were nominated by the researcher, as he was interested in their knowledge of both aspects of the scale. Based on these professors' remarks regarding the scale, some modifications were made in the translation. Next, the researcher asked two Arab teachers who were currently teaching English at the United Arab Emirates University to translate the Arabic version of the two scales back into English. The researchers compared the Self-Description Questionnaire (SDQ) and Self-concept of Academic Ability Scale (SCAA) that had been translated into Arabic and back again into the English language with the original tests to determine if any differences existed between the original versions and the translated ones. Finally, corrections were made to the SDQ and SCAA tests that had been translated from English into Arabic. The purpose of doing these translations was to ensure that the wording of the items in Arabic was equivalent to the original meaning of the items in English.

2) After getting the approval of the Ministry of Education in the United Arab Emirates, the researcher tried out the listed below scales in order to recognise the following :

a)   The difficulties that might confront the implementation process.

b)   The time to be allotted for each test.

c)   The extent of the sampled students' response and especially whether or not the instructions for the scales and the language that was used were clear.

d)   The extent to which the school could cooperate with the researcher.

e)   The reliability coefficient for each test separately.

The scales were tried out on a sample of boys and another one of girls chosen from the Third Year Science branch of two different schools. The following scales were used :

1) The Self-Description Questionnaire I

2) The Brookover Self-concept of Academic Ability Form A

3) The Coopersmith Self-Esteem Inventory School Form

4) Raven Progressive Matrices

The researcher benefited from the initial try-out of these scales in different ways :

1)   It was made possible to fix the time needed for each scale separately

2)   Modifications to the instructions for the SDQ scales were made to make them adequate for both male and female high school students.

3)   The necessity for the administrator to read the instructions and give an example and explanation on the blackboard before attempting the test, was established.

4)   Required information such as name of the student, age and name of school had to be obtained before the start of the test.

5)   Alterations were made in the expressions included in the SDQ scale so as to make it more suitable to the students' age range and the academic subjects they were studying at the secondary stage.

6)   The stability coefficient was determined for each separate test.

The subjects in the pilot study were Twelfth-Grade students drawn from two high schools- one for girls and one for boys- in the city of Dubai in the United Arab Emirates. The students were tested during regular school hours, and the interval between the initial test and the retest was two weeks. Table I indicates the reliabilities of the various instruments used in the pilot study.

TABLE I

TEST-RE-TEST RELIABILITY OF THE INSTRUMENTS USED IN THE STUDY

Instrument	N	Test		Re-test		
		Mean	SD	Mean	SD	reliab
						ility.
Coopersmith Self-Esteem Inventory	51	63.92	14.09	66.75	14.36	0.80**
Self-concept Academic Ability	59	29.42	5.44	30.32	5.17	0.88**
Self-Descri- ption Questi- onnaire	39	29.59	3.84	29.77	3.10	0.70**
Raven Progre- ssive Matrix	34	51.00	6.35	53.00	6.5	0.83**

** $P < 0.01$.

SAMPLE DESCRIPTION :

This research involves Twelfth Grade students from the United Arab Emirates. During the academic year 1989-90, the total population of the Twelfth Grade students stood at 4166, of which 2109 were male and 2057 were female, distributed over nine educational zones. Five of these zones were selected for this study. Then two schools from each zone were chosen randomly, a boys' school and a girls' school. The next step involved the random selection of the class within each school. This class, thus, represents the whole school in terms of students' academic achievement. The total sample numbered 334 Twelfth Grade students (Science branch) comprising 157 boys

and 177 girls. The ages of these students ranged between 17 and 20 years. Table 2 shows the number of students chosen from each educational zone.

TABLE 2

DISTRIBUTION OF THE SAMPLE ACROSS FIVE EDUCATIONAL ZONES

Educational Zone	Sample		
	Male	Female	Total
Al-Ain	30	34	64
Dubai	58	64	122
Ajman	26	34	60
Ras-Al Khaima	24	20	44
East Coast	19	25	44
Total	157	177	334

DESCRIPTION OF INSTRUMENTS :

SELF-DESCRIPTION QUESTIONNAIRE (SDQ) :

The Self-Description Questionnaire (SDQ) was developed by Herbert W. Marsh to measure seven dimensions of self-concept derived from Shavelson's hierarchical model (Shavelson et al., 1976). The 76 items in the SDQ assess four areas of non-academic self-concept (physical ability, physical appearance, relationships with peers, and relationships with parents), and three areas of academic self-concept (reading, mathematics, and all school subjects). Thus, the eight scales reflect an individual's self-ratings in various areas of self-concept.

The development of the SDQ is based on the multidimensional structure of self-concept as proposed in the Shavelson model (Marsh, 1988)

In completing the SDQ, students are requested to respond to simple declarative sentences such as, "I am good at mathematics," or "I am a nice-looking person," or "I make friends easily." The student responds to these questions by choosing one of the five following responses : 1) false, 2) mostly false, 3) sometimes false/sometimes true, 4) mostly true, and 5) true. Each of the eight SDQ scales contains eight positively worded items. An additional twelve items are negatively worded in order to counter positive response biases. However, these extra items are excluded from the self-concept scores because research results show that young children and pre-adolescents do not give valid responses to these items (Marsh, Barnes, Cairns, and Tidman, 1984).

The SDQ was developed for use in Fourth to Sixth Grades and for ages eight to twelve. The SDQ has also been considered useful for children as young as those in the Second Grade, and with appropriate modification it can be used for students who are at high school, or perhaps even at college (Marsh, 1988).

The SDQ can be administered individually or in groups; hence no special administrative training is required. Presentation of the test items requires only about eight to ten minutes and an additional five to ten minutes is needed to read the instructions and answer questions. The total testing time may vary from about 15 to 20 minutes, depending on the age of the children and the number of children being tested.

RELIABILITY AND STABILITY :

The internal consistency-reliability estimates for the various scales and total scores reported in the manual are all in the 0.80 to 0.90 ranges. Across all responses, the coefficient alphas for the eight individual scale scores varied from 0.80 to 0.92 (Median = 0.86). The alpha coefficients for the total, non-academic, and total-self scores were 0.91, 0.92, and 0.94 respectively.

In two studies, one consisting of 528 Fifth and Sixth Grade students, and one consisting of 143 Fourth-Grade students, Marsh, Smith, Barnes, and Butler (1983) examined test and re-test data. The interval between the two testing dates was six months, and they found that the internal consistency of responses from time one and time two were high, both for the individual SDQ scales (mean r = 0.87) and for the total scores (mean r = 0.92).

In a further examination of the changes in self-concept responses after a six-month interval, Marsh et al. (1983), found that the reliability of the different scores was high for both the individual scales (mean coefficient alpha = 0.74) and the total scores (mean coefficient alpha = 0.87). These studies indicate that the SDQ scales are judged to be reliable when assessing self-concept.

VALIDITY :

Marsh (1988) argues that self-concept is a theoretical construct; therefore assessing construct validity is the most appropriate method in testing the validity of the responses to the SDQ.

In many studies reported in the manual, Marsh et al. (1988) were able to test the construct validity of the SDQ by relating the responses of the SDQ to such variables as sex, age, socioeconomic status, academic achievement, and to other self-

concept instruments such a variety of external criteria help to support the construct validity of the SDQ instrument.

In one study Marsh et al. (1988) found a systematic pattern of relationships between achievement test scores and the SDQ. It was found that self-concept scores for reading significantly correlated with reading achievement scores (median r = 0.43) and there was a significant correlation between mathematics self-concept scores and mathematics achievement scores (median r = 0.40). Thus, academic achievement in reading and mathematics was significantly correlated with academic self-concept in the same area, but less correlated with other areas of academic self-concept, i.e. correlations between reading achievement and mathematics self-concepts (median r = 0.03). Also these academic self-concepts were not significantly correlated with non-academic areas of self-concept. This supports the construct validity of the SDQ and the multidimensionality of the self-concept construct.

In order to test the construct validity of the SDQ, Marsh et al., (1988) examined the correlation between the SDQ and the Coopersmith Self-Esteem Inventories (SEI). They reported convergent validity relating the SEI home scale with the SDQ parent relation scale (median r = 0.53) and a median of r = 0.50 between SEI social scale and SDQ peer relations.

These and other studies, e.g. the relationship between SDQ and the Harter Perceived Competence Scale which were conducted by the author of the SDQ, provide support for the convergent and discriminant validity of the SDQ.

TRANSLATION AND ADAPTATION OF THE SELF-DESCRIPTION QUESTIONNAIRE :

The Self-Description Questionnaire was translated into the Arabic language by the present researcher and was utilised in the main study for assessing the students' self-concepts. Reviewing the Arabic version of the SDQ, the researcher believes that modifications should be made in order for it to be applicable to high school students in the United Arab Emirates, along the following lines :

1) Since the scale was originally developed for students in the Fourth to Sixth Grades (ages eight to twelve), the instructions for the scale were written for that age-span. These instructions are long and give many examples. The present researcher modified them by omitting unnecessary information in order to shorten them and make them suitable for high school students who speak Arabic.

2) The items numbered 4, 11, 18, 25, 41, 49, 57, and 73 on the original academic part of the scale focused on self-concept of academic ability in reading. However, since this study was concerned with Twelfth Grade students, 'Reading' as a subject was not included in their curriculum. Thus, it was necessary to replace these items which tend to assess self-concept of academic ability in reading with another item suitable for the subjects of this study. Out of special interest, the researcher decided to assess self-concept of academic ability in Arabic instead of reading.

3) The items numbered 2, 9, 16, 31, 39, 55, 63, and 71 in the original scale tended to assess self-concept of academic ability in general or all school subjects. This might be adequate for children in the elementary school, where they are studying three or four subjects; however, in secondary schools students study nine to ten subjects, and it is difficult for them to answer these broad questions. Thus, it was necessary to replace these items with more appropriate items for the subjects of this study. Since the sampled high school students were all placed in the science section, the researcher decided to assess self-concept of academic ability in all science subjects instead of all school subjects. For this reason, items 2, 9, 16, 31, 39, 55, 63, and 71 were changed to

assess the Science subjects in the four areas of physics, chemistry, biology and geology, instead of all the school subjects being studied by the students of the sample. 4) In the original scale, items 29, 45, 53, 67, 70, 72, 74 and 76 tended to assess general self-concept. Since the investigator was utilizing Coopersmith's Self-Esteem Inventory as an instrument to measure global self-concept, it was reasonable to omit these items from the scale.

5) After administering the SDQ to a sample of male and female high school students in the United Arab Emirates, a discussion was held between the researcher and the students regarding their opinions. As mentioned above, the items that tended to assess self-concept for all school subjects were changed to assess self-concept in all science subjects. However, these items confused the students when they tried to answer them, because the science curriculum at Grade 12 is divided into four independent specific areas : physics, biology, geology and chemistry. Therefore when the scale was administered, the students were confused about which particular areas of science, to base their answers on. Some students might be high-achievers in physics and, at the same time, under-achievers in biology. Thus, the scale needed to be refined again to assess specific areas instead of science generally. The researcher decided to test only the self-concept of academic ability in chemistry, this being a pure science subject.

After the final refinement, the Self-Description Questionnaire (SDQ) was used in the main study to assess the following seven areas of self-concept : mathematics self-concept, Arabic Language self-concept, chemistry self-concept, child-parent relations, peer relations, physical ability, and physical appearance (original and modified versions of SDQ are given as Appendices 1 and 2)

THE SELF-CONCEPT OF ACADEMIC ABILITY SCALE (SCAA) :

The Self-Concept of Academic Ability Scale was developed at Michigan State University as a measure of self-concept of general academic ability, and it has consequently been widely used in research.

The SCAA consists of eight items on which students are asked to rate themselves relative to friends and classmates. The items are self-evaluative questions regarding academic ability, such as, "How do you rate yourself in school ability compared to your close friend?" Responses are rated on a scale of 1 to 5, with a maximum total of 40 possible points. Indicative of high self-concept of academic ability, four items ask the students to rate their present school ability compared with other friends and classmates. The remaining four items require students to rate their future capacity, i.e. "Do you have the ability to complete College?" The higher the self-concept score is, the more positive the self-concept. The possible score range is from 8 to 40.

Brookover et al. (1962) used a sample of 49 high-and low-achieving students, who were interviewed in a pretest, to develop an instrument that would measure self-concept of ability. A Guttman score for each individual and a conventional total score for eight items were obtained. The second scalogram analysis made up of the eight responses of 1,050 Seventh Graders produced coefficients of 0.95 for the males and 0.96 for the females. The reliability of the Self-Concept of Ability Scale determined by Hoyt's method was 0.82 for males and 0.77 for the females (Brookover et al., 1962). The test-retest reliability coefficient reported after a one-year interval ranged from 0.69 to 0.72 for males and 0.69 to 0.77 for females in the Eighth to Twelfth Grades (Brookover et al., 1967).

In a longitudinal approach, Brookover et al. (1967) studied for six years the correlation between academic achievement and self-concept of academic ability using

a sample of 307 females and 255 males between the ages of 12 and 17. A significant relationship was found between self-concept of academic ability and academic achievement at each age level.

The Self-Concept of Academic Ability Scale was translated by the present investigator into Arabic in order for it to be used during this study. The Arabic version of the SCAA Scale was administered to 59 students in the Twelfth Grade, comprising 26 males and 33 females, to obtain the reliability of the scale. The test-retest reliability coefficient was found to be 0.89 for the males, 0.86 for the females, and 0.88 when the subjects were combined.

The Self-Concept of Academic Ability Scale has been used in a large number of research projects, including Calsyn and Kenney's (1973) and Covington and Omelich's (1981).

In a review of five commonly used instruments, Shavelson et al. (1967) recommended the Self-Concept of Academic Ability Scale as an adequate scale to assess self-concept of general academic ability.

COOPERSMITH SELF-ESTEEM INVENTORY (SEI):

The Coopersmith Self Esteem Inventories (SEI) are multi-form, paper-and-pencil instruments, designed to measure and evaluate an individual's attitudes toward the self. The SEI consists of 58 items, to which each subject responds with either "like me" or "unlike me." The items are simple, self-descriptive statements such as "I am easy to like", and "I get upset easily at home." Most of the items were selected from the Rogers and Dymond Scale (1954).

There are five subscales included in the SEI school form. These subscales are : general self (26 items); school academic (8 items); social peers (8 items); home parent (8 items); and a lie scale of 8 items as an index of defensiveness. To deal with time limitations and differences in language levels, two additional forms have been developed, the school short form and the adult form. The school short form was developed through an item analysis of the school form and consists of the first 25 items of this form. The school form does not elicit subscale scores and it correlates at 0.86 with the school form (Coopersmith, 1984). The adult form is an adapted version of the school short form and includes language related to older persons (sixteen years of age and above). The wording was changed in eight items to reflect adult lifestyle and experiences. The total score of the adult form correlates with the school short form at a figure in excess of 0.80 for three samples of high school and college students (n = 647).

RELIABILITY AND VALIDITY OF THE SEI SCHOOL FORM :

Coopersmith (1984) administered the test to two classes, Grades 5 and 6 (n = 87), the sample including both females and males. The scores ranged from 40 to 100 with a mean of 82.3 and standard deviation of 11.6; no significant differences for sex was found. The SEI school form was subsequently administered to 1,748 children attending the public schools of central Connecticut. The mean for the males was 70.1 with standard deviation of 13.8, and the mean for the females was 72.2 with standard deviation of 12.8. Thus, no significant difference between the sexes was found. Test-retest reliability after a three year interval with a sample of 56 children for this population was 0.70.

A large number of studies, which tested the reliability, was reported in the manual of the Coopersmith Self Esteem Inventory (1984). Some of these studies were as follows:

Kimball (1972) administered the SEI to 7,600 students in Grades 4 through 8. Kuder Richardson reliabilities (KR20s) were generated for each grade level. The resulting coefficients ranged from 0.87 to 0.92. Coopersmith (1976) reported the test-retest reliability to be 0.88 for a sample of 50 children in Grade 5.

Fullerton (1972) reported a split-half reliability coefficient of 0.87 for 104 students in Grades Five and Six.

Spatz and Johnston (1973) administered the SEI to over 600 students in Grades 5, 9 and 12. Kuder Richardson reliabilities (KR 20s) were found to be 0.81 for Grade 5, 0.86 for 9 and 0.80 for Grade 12.

Drummond, McIntire and Ryan (1977) administered the SEI to 591 students in Grades 2 through 12 (using a six-month interval). Significant correlations were found for all grade levels and both sexes for the General Self Subscale and Total Self scores.

Bedeian et al. (1977) computed test-retest reliability for 103 college students. The coefficients were found to be 0.80 for boys and 0.82 for girls.

Diaz (1984) tested the reliability of the Spanish translation of the Self Esteem Inventory with a group of 296 Puerto Rican high school students ranging in age 15-18. The results of this study showed the alpha reliability coefficients ranged from 0.48 to 0.85 and concluded that the Spanish translation of the SEI is a reliable instrument in evaluating the personal judgement of worthy.

Several studies are mentioned in the SEI manual (1984) and these demonstrate the validity of the SEI.

Kokenes (1974) performed a factor analysis of the SEI responses of 7,600 children from Grades 4 through 8, and found that the four bipolar dimensions

obtained were highly congruent with the test's subscales. Another study by Kokenes (1978) was reported in the manual to have investigated the construct validity of SEI subscales. The study was designed to observe the comparative importance of the home, peers, and school to the global self-esteem of pre-adolescents and adolescents. The results of this study confirmed the construct validity of the subscale proposed by Coopersmith as measuring sources of self-esteem.

Weinberg (1972) reported a correlation of 0.63 between the Soares Scale and the SEI. A correlation of 0.60 was found between the SEI and the Rosenberg Scale for a sample of 300 college students.

Taylor and Reitz (1968) reported a correlation of 0.45 between the SEI and the California Psychological Inventory Self Acceptance Scale.

Shaver and Robinson (1973) found a correlation of 0.59 and 0.60 between SEI and the Rosenburg Scale for 300 college students.

Recently, Robertson and Miller (1986) conducted a study to examine the factorial validity of Coopersmith's Self-esteem Inventory. The results of this study, which were obtained through analysis of the responses of 1,397 students in Grades Six through Eight, provided empirical evidence which was supportive of the construct validity of the SEI.

The Coopersmith Self-Esteem Inventory has been translated into the Arabic language; also, a manual in Arabic has been developed by Abdulhafiz (1985). The Arabic version of the SEI manual reported several studies done by the translator to determine the validity and the reliability of the SEI. The SEI and the Self-Acceptance Inventory were administered to 291 boys and 240 girls in Grades Four to Nine. Laila (1985), found a significant relation for the responses between the two instruments. The correlation was 0.65 for the boys and 0.69 for the girls. The test-retest reliability

was determined by administering the SEI to 65 students in Grade 6. The correlation between the first and second testing with an interval of two weeks was 0.86. The manual also reported a split-half reliability of 0.80 for a sample of 140 students ranging in age from 10 to 14 years. The present researcher administered the Arabic version of the SEI school form to 51 students in Grade 12 in the United Arab Emirates. Test-retest reliability with a two-week interval was found to be 0.80.

The Coopersmith Self-Esteem Inventory has been widely used in research as a measure of self-esteem. In an extensive review of self-concept measures, Wylie (1979), and Shavelson et al. (1976) concluded that the SEI and the Rosenberg Self-Esteem Scale were the most reliable measures of general self-concept.

The school form containing 58 items was administered in this study. For data analysis, however, the general subscale containing 26 items was used. The numbers attached to these general items are 1, 3, 4, 7, 10, 12, 13, 15, 18, 19, 24, 25, 27, 30, 31, 34, 35, 38, 39, 43, 47, 48, 51, 55, 56, and 57 (see Appendix 3).

STANDARD PROGRESSIVE MATRICES (SPM) :

The Standard Progressive Matrices (SPM) can be described as a test of observation and clear thinking. The SPM was developed by Raven (1938) and was designed to measure general intelligence based on Spearman's theory of intelligence, which states that all intellectual activities share a single common factor which Spearman called the general factor, "g." The test consists of 60 problems, each presenting a design. A part has been removed from each design and the person examined is asked to choose the missing insert from six or eight given alternatives. The 60 designs are divided into five sets, each containing 12 matrices of increasing difficulty but similar in principle. The earlier series require accuracy of discrimination and the later, more difficult, series involve analogies, permutation, and alternation of

pattern. The SPM is a test of a person's capacity and is designed to cover the widest possible range of mental abilities and to be equally useful with persons of all ages whatever their education, nationality, or physical condition.

The SPM can be administered either as an individual or as a group test. A person's total score provides an index of his intellectual capacity with relatively little influence from the cultural environment in which he has grown up, or his education

RELIABILITY AND VALIDITY OF THE SPM :

The manual of the SPM (1983) provided a large number of studies that had examined the stability and internal consistency of the SPM with diverse groups. The results generally supported the reliability of the SPM.

Internal consistency studies' estimates have resulted in values ranging from 0.60 to 0.98 with a median of 0.90. Bunk (1972) reported an internal consistency reliability ranging from 0.89 to 0.97 depending on age, with over 500 adults. Baraheni (1974) reported a split-half reliability ranging from 0.89 to 0.95 on a sample of 4, 561 school children of different ages in Iran. Several other studies reported a high test-retest reliability value as mentioned in the manual. Laroche (1960) reported a value of 0.85 with one week's interval. The present researcher found a test-retest reliability of 0.83 using a sample of 34 secondary school students (data for reliability calculation is given in Appendix 16).

In the original study on SPM, Raven found test-retest reliabilities ranging from 0.83 to 0.93 with the higher values being associated with younger subjects, i.e. under the age of 30.

The SPM manual (1983) reported a large number of studies which supported the validity of the SPM. The majority of the studies, which had factor-analysed the SPM along with other cognitive measures, reported a loading higher than 0.75 on a general factor. Also, concurrent validity coefficients between the SPM and the Stanford-Binet and Weschler scales for English speakers have ranged between 0.54 and 0.88, with the majority of these in the 0.70 and 0.80 ranges. Vincent and Cox (1974) found a correlation of 0.85 between the SPM scores and the Weschsler Adult Intelligence Scale. These researchers, also, found a correlation of 0.70 between the SPM and the OTIS Gamma Intelligence Test.

Powers et al (1986) found a correlation coefficient between the Standard Progressive matrix and the California Achievement Test of reading language and mathematics ranging from 0.34 to .60. No significant gender differences were observed in the performance on the SPM. The sample of this study included 426, Sixth and Seventh Grade students.

The non-verbal nature of the SPM makes it useful for testing persons from different linguistic backgrounds. The SPM has been widely used in all countries around the world as a cross-cultural test.

THE SOCIOECONOMIC STATUS INDEX (SES) :

Since socioeconomic status was one of the variables to be examined in this study, it was important first of all to develop a scale that would assess this variable in the United Arab Emirates society.

The fact that there was no such index available led the researcher to take a number of steps in order to devise a suitable index that would pertain to the local society and its particular overall composition.

The development of the index went through the following process :

First, a careful review of the literature concerning the development and make up of an SES scale was conducted. Several important studies were reviewed (Keeves, 1972; Fraser, 1973; Hollingshead and Redlich, 1958; and Bachman, 1970), and other studies in Arabic which concerned the development of an SES index were also reviewed (Shargawi, 1970; Tokhi, 1973; Tahan, 1977; and Nashawati, 1977).

Reviewing such studies, it is noted that most of them came to consider the following criteria to be useful in measuring the socioeconomic status of the family.

These criteria are :

1) The occupational status of the parents.

2) The educational level of the parents.

3) The family income status.

4) The way the family spends its leisure time.

5) Residence of the family and the number of bedrooms per person in the house.

6) Family size.

Although a number of different criteria was followed by each author, these researchers were in general agreement that most consideration should be given to :

1) The educational level of the head of the household.

2) The occupational status of the parents.

3) The family income status.

4) The housing.

As a second step, the researcher held meetings with ten persons, concerned with social development and social affairs, such as economists, sociologists, heads of personnel of local governmental departments, and professors from the departments of Psychology and Sociology at the United Arab Emirates University. The purpose of

these meetings was to discuss the outline, criteria, and content of the proposed SES index.

In the third step, on the basis of previous steps, the researcher formed an initial proposed index for assessing the socioeconomic status of the family.

Finally, while the SES index was still in its initial form, the researcher referred the scale to four professors and others concerned with social development, in order to obtain their opinions and judgements regarding the content and the validity of the scale. The researcher benefited from the professors' advice and remarks in constructing the scale.

DESCRIPTION OF THE INDEX :

The SES index consists of four separate components, as follows :

1) The educational status of the subject's parents. Nine levels of education were described in the scale, ranging from illiterate to doctorate. Students were required to put a mark beside the educational level of their parents.

2) The occupational status of the family supporter. This criterion used a scale from unemployed to a technical or administrative occupation, such as doctor, manager, lawyer, or officer. The student was required to indicate the occupational status or make a detailed statement describing the parents' occupational status if the descriptions given were not indicative. Space was also provided on the form for the student to describe a condition as 'disabled' or to indicate that his/her parent was deceased.

3) The housing accommodation of the student. This was divided into two parts. The first part asked the type of accommodation (i.e., villa, Arabic house, flat, or other). The second part asked for the number of rooms in the residence and the number of family members.

4) The family's monthly income. Amounts were given for this estimate in United Arab Emirates currency and ranged from 2,400 dirhams to 12,000 dirhams or more (see Appendix 5 for detailed questionnaire).

PROCEDURE APPLIED TO GAIN THE WEIGHTED SES INDEX :

After developing the measurement of SES index for the United Arab Emirates the researcher realised that it would be unrealistic simply to add together all the scores allocated to the students for their responses. This is mostly because people from any given society will not have the same standards/preferences vis-a-vis the sections of the SES Index. In some societies education is considered to be of foremost importance while in others, housing, income and occupation may be treated as of greater value.

Several methods are available to rationalize the SES Index. Some of these methods are statistical while many others are based on personal judgements but all are aimed at providing an accurate weight to each section of the SES Index measurement. Due to the great significance of accurate weighting, the researcher applied a supplementary procedure in this investigation, primarily to identify people's priorities in order of importance with respect to the SES index measurement. This procedure was developed through discussions and consultations with various personnel in the field such as professors, sociologists and the civil servants from the Education and Welfare Ministries of the UAE.

The supplementary procedure was basically an enquiry to learn people's choices with respect to education, housing, income and occupation. In this procedure, citizens of the UAE were asked to indicate preferences with regard to education, housing, income and occupation by placing them in what they believed to be their order of importance. For example, some people might judge education to be number

one priority, while others might give it second, third or fourth preference. Moreover, this procedure allows people the freedom to choose housing, occupation and income in the same way as education; some people may prefer occupation as the most important criterion and education as the least important.

This supplementary procedure was applied to 100 people from the UAE representing a complete cross-section of society. Out of these 100 people only 66 responded to the request for opinions. These people represent different professions such as bankers, teachers, clerks working in Ministry of Housing and Labour. People's preferences were as follows :

For education, 25 people gave this highest priority, whereas 11 people considered education to be the second most important thing. 14 people gave education third priority and the remaining 16 thought education to be least important factor. When preferences for income were requested, 35 people preferred income as the most important factor while 10 people thought it to be of secondary importance. The third preference for income was shown by 19 people and 2 people gave it a fourth placing. Out of 66 people, only 2 thought housing to have the most importance, while 9 people gave it second preference and 13 and 42 people choose it as third and fourth priority respectively. Occupation was treated as highest priority by 4 people, as second priority by 36 people, as third priority by 20 people and as fourth priority by 6 people (see Table 3).

TABLE 3

RELATIVE IMPORTANCE OF THE SES INDEX SECTIONS.

(for notations refer to key below the Table)

Priority No.	Education			Income			Housing			Occupation			Total
	n	w	nw	n	w	nw	n	w	nw	n	w	nw	
1	25	4	100	35	4	140	2	4	8	4	4	16	
2	11	3	33	10	3	30	9	3	27	36	3	108	
3	14	2	28	19	2	38	13	2	26	20	2	40	
4	16	1	16	2	1	2	42	1	42	6	1	6	
Total	177			210			103			170			660

n = Numbers of raters.

w = weight allocated to raters choice.

nw = Number of raters multiplied by the scores of their preference.

Since there were 4 criteria compared in this SES index, the highest score of 4 was allocated to the most important preference. The second in rank was given the score of 3, while the third and fourth priorities were awarded scores of 2 and 1 respectively (see Table 3). Thus the 25 people who rated education as most important factor gave it in effect the score of 4, while the score of 3 was allocated for the 11 people who gave education second importance. The 14 people who rated education as third priority awarded it a score of 2, and for the remaining 16 who judged education to have the least importance, it was given a score of 1.

At the next stage the number of people agreeing on a certain level of priority was multiplied by the allocated weighted score of that preference. After this all the products were added for each section (education, housing etc.). Then the total scores for each component were added together to obtain the grand total. The division of the total of each individual component into the grand total was made in order to obtain

the weight factor for each individual component. For example, in the case of the income component, 35 people giving it highest priority were multiplied by the highest score of 4; 10 people giving it second preference were multiplied by the second highest score of 3; 19 people giving third priority were multiplied by 2 and the remaining 2 giving least importance to income were multiplied by the score of 1. All the scores were then added together, yielding a total of 210 points for income. Finally, this total was divided into 660 which was the grand total obtained from the addition of the components' total and the resulting fraction was multiplied by 10. This operation yielded a value of 3.18 which is the weight for the income component. All other components of the SES index were treated in a similar manner. From the above the resulting weights were computed in such a manner as to add up to 10.

The weights of the four components were as follows : (i) education, 2.68; (ii) occupation, 2.58; (iii) housing, 1.56; (iv) income, 3.18. The student's score on each component was first converted to a standard score such that the four components have a common mean of 5 and a common standard deviation of 1. As shown in Appendix 11, this choice of the common mean and standard deviation ensured that the total SES scores are positive and do not exceed 100. First, it is shown that the choice of a common component mean 5 and a standard deviation of 1 must lead to a total SES score mean of 50 and standard deviation falling between 5.14 and 10. Then it is argued that with such a mean and standard deviation the total SES scores would be positive numbers that are less than 100 (see Appendix 11 for statistical rationale for computing the total SES scores).

ACADEMIC ACHIEVEMENT :

This variable was determined for the first semester, based on the final examination grades in Arabic language, chemistry and mathematics for the Twelfth-Grade students from five selected educational zones in the United Arab Emirates.

Although the achievement tests were different for different educational zones, the researcher assumed that the three achievement tests for all zones were valid. This assumption was based on the following considerations :

Because education is centralised in the UAE, the same syllabuses and text books are used in all schools. Further, teachers are expected to follow a strict time table of three months (i.e. Oct. - Jan.) in covering the syllabuses. Therefore, the final tests, which were used in this research cover the same content for all schools in the sample. More specifically, the same tests are used within educational zones. The tests are conducted for the same length of time throughout the country.

These tests are written by a panel appointed by the educational zone administration. This panel includes subject experts who have taught these subjects for a considerable length of time. At the same time, this panel has to set the tests according to the policy laid by the Ministry of Education. Some aspects of the policy are as follows (Ministry of Education of UAE, 1990) :

1)   Tests should consider, both the content and the objectives of the curricula.

2)   Tests should broadly cover all the units of syllabuses.

3)   Tests should be versatile so as to measure students' abilities in several aspects (e.g. knowledge, understanding, appreciation etc.).

4)   Tests should be representative of students' interests and varying abilities.

5)   Tests should be set in clear and understandable language.

6)   Tests should be designed in such a manner that it is easy for an average student to complete them within a stipulated time.

7)   Until the examination is over, all the aspects related with setting of tests should be kept confidential.

8)   The inspectors for specific subjects must approve the tests written for their specialised subject. In this respect they must put their signatures with the date of approval of the tests.

Marking of the achievement tests is carried out by a group of teachers separately for each educational zone, without identifying the names of the students. Further, these papers are also checked by other panels of teachers in order to ensure the correct marking of the tests. From the above discussion, it is evident that these tests have considerable validity and uniformity for all zones.

In spite of the above considerations, the researcher, nevertheless, employed a panel of three expert teachers for each subject (Arabic language, chemistry and mathematics) to judge the similarity of the exam papers across zones and to confirm that the tests covered the same content across the educational zones. These panels were employed to provide information about the content validity of the tests. Each rater was asked to list the details of the broad area of the subject and to assign a percentage to indicate the amount of syllabus covered by tests, in his own opinion, for each educational zone exam paper. Also they indicated the extent to which this paper covered the detail.

Table 4 shows the percentages assigned by raters indicating the extent to which the various educational zones' examination papers covered the same broader aspects of subject content. It also shows the average percentages of three raters (two raters in the case of chemistry) for each subject in all educational zones.

TABLE 4

PERCENTAGE OF SUBJECT CONTENT COVERED AS ASSIGNED BY

THREE RATERS.

Subject	Raters		Educational Zones			
		1	2	3	4	5
maths	1	89	84	82	90	81
	2	89	83	81	91	78
	3	88	82	78	91	79
	Average	89	83	80	91	79
Arabic	1	81	90	82	88	81
	2	79	98	95	96	91
	3	87	86	88	93	94
	Average	82	91	88	92	89
chemis try	1	84	89	87	86	79
	2	85	80	81	81	80
	3	--	--	--	--	--
	Average	85	85	84	84	80

In general the above analysis indicates that the content validity of the achievement tests were reasonably acceptable and similar for the five educational zones. Thus, there were only small differences in the extent to which the educational zones' tests covered the same content as specified by the Ministry of Education.

Since the test items were different in different educational zones, the researcher decided to verify whether raw scores could be used directly in the data analysis. In this process, analyses of variance were carried out in order to examine the differences in the results of the tests for each subject for the five studied educational zones.

Table 5 shows means and standard deviations of raw scores for the achievement tests for the Arabic language, chemistry and mathematics.

TABLE 5

MEANS AND STANDARD DEVIATIONS OF RAW SCORES FOR THE ACHIEVEMENT TESTS FOR ARABIC LANGUAGE, CHEMISTRY AND MATHEMATICS.

Educatio nal Zone	Sample size	Arabic Lang uage		Chemistry		Mathematics	
		Mean	SD	Mean	SD	Mean	SD
1	122	131.78	24.8	64.76	18.53	171.51	59.43
2	44	147.43	26.45	73.48	16.12	176.82	62.25
3	60	137.88	26.66	62.78	20.84	209.03	65.78
4	44	139.43	24.47	73.93	19.33	183.95	76.85
5	64	133.94	22.59	56.25	17.98	174.83	61.62

From the above Table it is evident that there were considerable variations in the value of mean and standard deviations for each subject across the five educational zones.

Analyses of variance were used to determine the differences between mean achievement scores in Arabic Language, mathematics and chemistry in the five educational zones.

Table 6 shows the results of the analysis of variance which examines differences in mean achievement scores in Arabic across the five educational zones.

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TABLE 6

SUMMARY OF THE ANALYSIS OF VARIANCE FOR DIFFERENCES AMONG THE FIVE EDUCATIONAL ZONES IN THE MEANS OF ARABIC ACHIEVEMENT SCORES.

n = 334

Source	DF	SS	MS	F	p
Zones	4	8875.18	2218.79	3.27	0.0072
Error	329	204357.98	621.15	-	-
Total	333	213233.16	-	-	-

As Table 6 indicates, there were significant differences among the mean achievement scores in Arabic Language across the five educational zones ($F = 3.27$, $p < 0.01$)

Significant differences were also found among the five educational zones in mean achievement scores in mathematics and chemistry (see Tables 7 and 8).

TABLE 7

SUMMARY OF THE ANALYSIS OF VARIANCE FOR DIFFERENCES AMONG THE FIVE EDUCATIONAL ZONES IN THE MEANS OF MATHEMATICS ACHIEVEMENT SCORES.

n = 334

Source	DF	SS	MS	F	p
Zones	4	11868.14	2967.03	8.50	0.0001
Error	329	114778.06	348.87	-	-
Total	333	126646.20	-	-	-

TABLE 8

SUMMARY OF THE ANALYSIS OF VARIANCE FOR DIFFERENCES AMONG THE FIVE EDUCATIONAL ZONES IN THE MEANS OF CHEMISTRY ACHIEVEMENT SCORES.

Source	DF	SS	MS	F	p
Zones	4	61718.17	15429.54	3.78	0.0051
Error	329	1342495.99	4080.53	-	-
Total	333	1404214.16	-	-	-

Since there were significant differences in the achievement scores in Arabic language, mathematics and chemistry among the five studied educational zones and the tests used in each zone were different, although their contents were very similar, it was necessary to make the scores in the various zones more comparable. In similar situations either the rank or standard score within groups is used. For example, when validity of secondary school standing in predicting college achievement is studied, the students come from different secondary schools, rank-in-class, rather than raw achievement score, is used for the sake of uniformity (Schrider, 1971, p. 126). The researcher chose to use within-educational-zone standard scores.

To obtain the aforementioned standard scores, the raw scores in each of Arabic language, mathematics and chemistry were transformed, in each educational zone separately, in such a way that the resulting scores would have the same mean and standard deviation in all educational zones. The target mean and standard deviation were chosen to be equal to the mean and standard deviation of the total sample for all zones in each subject after truncating the fractional parts of these statistics. For example, the mean and standard deviation of Arabic language for the total sample from all educational zones were 136.36 and 25.30, respectively. The numbers 136 and 25 were chosen as a target mean and target standard deviation.

Subsequently, the raw Arabic language scores were transformed within each educational zones separately so that the mean would be equal to 136 and the standard deviation would be equal to 25 in each zone.

The formula used in this transformation was

$$X_T = (X_O - M_O) S_T/S_O + M_T$$

Where X_T is the achievement score after transformation.

M_T is the target mean

S_T is the target standard deviation

X_O is the original achievement score

M_O is the mean of the original achievement score for the zone

S_O is the standard deviation of the original achievement score for the zone.

Thus, in this study the standardised Arabic, mathematics and chemistry scores were used.

RELIABILITY AND ITEM FACILITIES OF THE ACHIEVEMENT TEST IN CHEMISTRY :

The achievement test used for this study consisted of four questions. It covered a wide range of the content of syllabus which has been outlined for the first semester by the Ministry of Education. The main purpose of this test was to assess students' achievement in chemistry. This test includeed a range of questions, such as, true/false, multiple choice, filling the gaps and matching the pairs. The questions covered a substantial range of the syllabus for chemistry which is supposed to be taught over the period of three months.

The test was based on three broad areas of chemistry : electrochemistry and the properties of the solutions, oxidation-reduction reactions and the acid-base theory (for details see Appendix 9). Students were allowed 2.5 hours to complete the test.

The syllabus for chemistry which has been sanctioned by the Ministry of Education is also given in Appendix 8.

The results of 62 subjects were used for the purpose of testing reliability and item facilities.

Table 9 shows the results of item analysis for achievement test in chemistry. The minimum and maximum possible scores for an item range from 0 to 25. The item means are shown to be about 14, 16, 13 and 11. These means compare fairly closely to mid-point between the minimum and maximum possible scores of 12.5 indicating that the items have acceptable facilities. The items standard deviations range between 5.2 and 7.3.

Table 9

ITEM ANALYSIS FOR CHEMISTRY ACHIEVEMENT TEST.

n =62

Item	Mean	Std dev	Discrimination Corrected Item-total correl.	Discrimination Uncorrected Item-total correl.
1	14.35	5.23	0.76	0.86
2	16.58	5.51	0.71	0.83
3	13.63	5.41	0.78	0.87
4	11.94	7.35	0.76	0.89

The same Table provides two indicators of item discrimination. The corrected item-total correlation is the correlation between an item score and the total test score after removing that item's score. This index ranges between 0.71 and 0.78 which means that all the items have high discrimination power. Table 9 also shows the item-total correlation. These indices of discrimination are higher than the corrected item-

total correlation. Coefficient alpha for the achievement test in chemistry is equal to 0.88 which is acceptably high.

RELIABILITY AND ITEM FACILITIES OF THE ACHIEVEMENT TEST IN MATHEMATICS :

The achievement test in mathematics consisted of five questions. These were specially designed to assess the students' level of understanding in mathematics over the period of 3 months.

The first question consisted of 20 multiple choice items. The remaining 4 questions were based on problem solving. All the items of this test covered a broad range of the syllabus of mathematics as guided by the Ministry of Education. The test included real numbers, limits, continuous functions and derivations (for details see Appendix 7). Appendix 6 contains the actual syllabus which has been outlined by the Ministry of Education of the UAE.

The calculations of reliability and item facilities were carried out with the help of results obtained from a sample of 63 students.

Table 10

ITEM ANALYSIS FOR MATHEMATICS ACHIEVEMENT TEST.

n = 63

Item	Mean	Std dev	Discrimination Corrected Item-total correl.	Discrimination Uncorrected Item-total correl.
1	14.51	6.93	0.80	0.90
2	8.65	3.75	0.78	0.84
3	8.78	4.09	0.73	0.81
4	12.70	5.81	0.74	0.84
5	10.19	6.02	0.71	0.83

Table 10 shows the item mean and standard deviation and the corrected and uncorrected item-total correlation for achievement test in mathematics. It will be noted that the item means are widely different. This is because the highest possible item scores are widely different being 30, 15, 15, 20 and 20 respectively. Accordingly, the mid-points between the lowest and highest possible item scores are 15, 7.5, 7.5, 10 and 10. Comparing the items' means with those mid-points indicates that the items have acceptable facilities. The corrected item-total correlation range from 0.71 to 0.80 while the uncorrected correlations ranged from 0.83 to 0.89. This means that all the items have high discrimination power. The coefficient alpha for the achievement test in mathematics is equal to 0.88 and that represent the lower boundary of reliability. Because the highest and lowest scores in mathematics item are not equal. This means that the reliability for mathematics test is at least 0.88 (Gilmer and Feldt, 1983).

RELIABILITY AND ITEM FACILITIES OF THE ACHIEVEMENT TEST IN ARABIC LANGUAGE :

The achievement test in the Arabic language included five questions. These questions covered a wide area of the syllabus as prescribed by the Ministry of Education. All the questions were subjective and of lengthy essay type, as the nature of the Arabic language does not permit objective and short questions. This achievement test included questions based on Arabic literature, poetry and grammar. This test is given in Appendix 27 in the Arabic language because of the difficulty of translation and the nature of the Arabic grammar itself.

A total of 60 students were tested in order to assess reliability and the item facilities.

Table 11

ITEM ANALYSIS FOR ARABIC LANGUAGE ACHIEVEMENT TEST.

n = 60

Item	Mean	Std dev	Discrimination Corrected Item-total correl.	Discrimination Uncorrected Item-total correl.
1	7.23	2.44	0.31	0.43
2	16.90	3.50	0.55	0.68
3	8.93	3.66	0.56	0.69
4	11.42	5.89	0.71	0.85
5	23.53	8.14	0.61	0.86

Table 11 shows item means and standard deviations and corrected and uncorrected item total correlation for the achievement test in Arabic. It will be noted that the item means are widely different. This is because the highest possible item scores are widely different, being 10, 20, 15, 20 and 35 respectively. Accordingly, the mid-points between lowest and highest possible item scores are 5, 10, 7.5, 10 and 17.5. Comparing the item means with the mid-points it seems that the facilities of the first, third and fourth items are acceptable while the second and fifth items tend to be somewhat easier. The standard deviation of the item scores range between 2.4 and 8.1. It is clear from items' high possible mean scores and standard deviations that these items do not represent parallel parts of a test. The corrected item-total correlations are 0.31, 0.55, 0.56, 0.71 and 0.61 while the uncorrected correlations are 0.43, 0.78, 0.69, 0.85 and 0.86 respectively. This means that the item discriminations with the exception of the first item are acceptably high. The discrimination of the first item is rather low compared to other item, however, its value does not warrant removing the item from the test.

Coefficient alpha for the achievement test in Arabic is equal to 0.74. This value in fact is the lower bound value of the reliability of this test because as mentioned earlier this test consists of cogeneric parts. Thus, the estimated reliability of this test would be at least 0.74 (Gilmer and Feldt, 1983).

Gilmer and Feldt (1983) developed a method for estimating the reliability of a test consisting of cogeneric parts which would have been suitable for this test. However, the researcher opted not to use this method because coefficient alpha indicated that the test has a reliability of at least 0.74, which is an acceptable value.

PRE-ADMINISTRATION PROCEDURE :

Prior to this study a letter was obtained from the University of the United Arab Emirates, stating the purpose of this project to be undertaken in the five selected

educational zones. After this the researcher had meetings with the Directors of Education for all five zones, in which he explained the nature of this survey to them. This enabled the researcher to obtain a letter to each of the heads of the schools selected for this study. He then went on to meet each head in person and to explain to him or her the purpose of conducting this survey. After this the head of each school arranged for and assisted in the conduct of the survey.

ADMINISTRATION PROCEDURE :

All four tests (Self-Description Questionnaire, Coopersmith Self-Esteem Inventory, Self-Concept of Academic Ability Scale and Raven Progressive Matrix) were administered by the researcher with the assistance of one of the teachers from each school, who helped in distributing the questionnaires to students. All these tests were conducted during November-December 1989 and lasted for 2-3 hours altogether. The instructions for each scale were read by the researcher. At the end the researcher left the Socio-Economic-Index with the school counsellor to distribute them to students, and collected them after a few days.

POST-ADMINISTRATION PROCEDURE :

The scoring of the tests (i.e. Self-Description Questionnaire, Coopersmith Self-Esteem Inventory, Self-Concept of Academic Ability Scale and Raven Progressive Matrix) was done manually. Each test was individually scored by the researcher and two other scorers. The use of two scorers assisted in ensuring that scoring was carried out accurately.

CHAPTER FOUR

DATA ANALYSIS AND RESULTS

The major purpose of this study was to investigate the relationship between various facets of self-concept, on the one hand, and academic achievement on the other. These facets were: general self-concept, general academic self-concept, self-concept in mathematics, self-concept in chemistry, self-concept in regard to parental relations, self-concept in peer relations, self-concept of physical ability and self-concept of physical appearance. The fields of academic achievement were Arabic language, mathematics and chemistry. The subjects of the study were Twelfth-Grade students in the United Arab Emirates.

One additional purpose was to examine sex differences in these various facets of self-concept. Another was to determine the relationship between self-concept variables and socioeconomic background, and between these variables and intelligence.

Data for this study were collected from twelve secondary schools in five educational zones in the United Arab Emirates during the academic year 1989-1990. Participating in this study were 334 Twelfth-Grade students (mean age 17) (157 boys and 177 girls). Three self-concept scales were used to collect the data for statistical analysis: the Self-Description Questionnaire (SDQ), the Brookover Self-Concept of Academic Ability Scale (BSCAS), and the Coopersmith Self-Esteem Inventory (SEI). The level of academic achievement was determined by the mid-term examination grades in Arabic language, chemistry and mathematics. The intelligence levels of the students were measured by the Raven Standard Progressive Matrix (SPM) test. Finally, the socioeconomic status of each student was determined by the sum of four demographic variables related to parents' education, income, occupation and housing, in the socioeconomic index developed for this study.

The data were analysed using the Statistical Analysis System (SAS) for statistical computations. The SAS procedure used included Pearson product-moment correlation, independent t-test, multiple regression analysis and canonical correlation analysis. The

justification for the statistical procedure used, the findings and the results of these analyses are described in the present chapter.

Preliminary statistics were derived to provide a description of all the variables used in this study. Table 12 summarizes the means and the standard deviations for each sex and for the total group (boys and girls together).

TABLE 12

MEANS AND STANDARD DEVIATIONS OF DEPENDENT AND INDEPENDENT VARIABLES USED IN DATA ANALYSES FOR BOYS, GIRLS AND GROUP TOTAL.

Variable	Boys (n=157) Mean	Std.Dev.	Girls (n=177) Mean	Std.Dev.	Group Total Mean	Std.Dev
SCARAB	29.274	6.808	30.040	6.462	29.680	6.628
SCMATH	29.134	7.250	31.667	6.666	30.476	7.051
SCCHEM	27.331	7.467	29.910	6.340	28.698	7.002
SCPRNT	29.975	6.211	30.785	6.711	30.404	6.484
SCPEER	29.389	5.756	30.271	6.599	29.856	6.244
SCAPPRC	30.089	5.235	31.983	4.938	31.093	5.159
SCPHYS	27.682	6.795	26.215	6.793	26.904	6.823
SCT	29.261	3.947	30.480	3.928	29.907	3.978
GSC	16.809	4.471	17.079	4.358	16.952	4.407
SCGAA	30.134	5.377	31.333	4.971	30.769	5.193
IQ	50.166	7.302	48.130	6.838	49.087	7.122
ARABIC	133.731	25.302	138.012	24.698	136.000	25.038
MATH	160.800	66.935	197.031	58.534	180.000	65.098
CHEM	61.570	20.866	68.043	18.798	65.000	20.030
SES	50.260	7.298	49.796	7.001	50.000	7.135

TESTING OF RESEARCH HYPOTHESES,

JUSTIFICATION OF STATISTICAL TECHNIQUES USED FOR TESTING HYPOTHESES 1.2.3 and 4.

The first four hypotheses which concern the significance of the differences between the boys' and girls' mean scores for self-concept were tested via the well-known independent t-test. In each of these analyses the null hypthesis was that the mean of the boys was equal to the mean of the girls, and the alternative hypotheses were two-tailed, i.e. the mean of the boys was either larger or smaller than that of the girls. A probability value of less than .05 indicated that a null

hypothesis was to be rejected in favour of an alternative hypothesis and the sign of the differences indicated which of the two gender samples had a higher mean.

The use of the t-test was considered the most appropriate for comparing the locations of the two groups on a continuous scale of variables such as those involved in the first four hypotheses. Since the boys' and girls' sample sizes were large and nearly equal, the above t-test was robust to violations of the assumptions of the method (Hays, 1973, pp.409-410).

HYPOTHESIS 1.

Table 13 contains the results of testing the first hypotheses, which concern significance of the differences between the boys' and girls' means on self-concept in Arabic language (SCARAB), self-concept in mathematics (SCMATH), self-concept in chemistry (SCCHEM), self-concept of parental relations (SCPRNT), of peer relations (SCPEER), of physical appearance (SCAPPR) and of physical ability (SCPHYS).

TABLE 13

DIFFERENCES BETWEEN THE MEANS OF BOYS' AND GIRLS' SCORES IN SELF-CONCEPT, ACHIEVEMENT AND IQ VARIABLES.

Variable	Boys (n=157)		Girls (n=177)		t	p
	Mean	Std.Dev.	Mean	Std.Dev.		
SCARAB	29.274	6.808	30.040	6.462	-1.054	0.293
SCMATH	29.134	7.250	31.667	6.666	-3.324	0.001
SCCHEM	27.331	7.466	29.910	6.340	-3.412	0.001
SCPRNT	29.975	6.211	30.785	6.711	-1.141	0.255
SCPEER	29.389	5.756	30.271	6.599	-1.295	0.196
SCAPPR	30.089	5.235	31.983	4.938	-3.401	0.001
SCPHYS	27.682	6.795	26.215	6.793	1.969	0.050
SCT	29.261	3.947	30.480	3.928	-2.824	0.005
GSC	16.809	4.471	17.074	4.358	-0.559	0.577
SCGAA	30.134	5.377	31.333	4.971	-2.118	0.035
ARABIC	133.955	24.439	138.497	25.930	-1.641	0.102
MATH	161.745	66.150	198.503	58.832	-5.375	0.001
CHEM	61.873	19.997	68.023	18.635	-2.909	0.004
IQ	50.166	7.302	48.130	6.838	2.630	0.009

As the above table indicates, there is no significant difference between the mean scores on self-concept in Arabic language ($t = -1.054$; $p = .293$). However, there is a significant difference between the means of the two groups on self-concept in mathematics scores ($t = -3.324$; $p = .001$). The mean of the girls exceeds that of the boys by more than 2.5 points, which represents 0.35 of the standard deviation of the total sample. A significant difference between boys and girls in their mean scores on self-concept in chemistry also shows that the girls had a higher mean score than that of the boys ($t = -3.412$; $p = 001$). The results of the t-analysis suggested that there were no sex differences in the mean scores of self-concept of parental relations ($t = -1.141$; $p = 0.255$) or of peer relations ($t = -1.295$; $p = 0.196$). For self-concept of physical appearance, the mean score for girls is significantly higher than that for the boys ($t = -3.401$; $p = 0.001$). However, the mean score for boys in self-concept of physical ability is significantly higher than that of the girls ($t = 1.969$; $p = 0.050$). Thus alternative hypothesis 1 cannot be rejected because sex differences have been found in four out of the seven (Self-Description Questionnaire) subtests: boys have significantly higher self concepts in physical abilities than girls, whereas girls have significantly higher self-concepts in mathematics, chemistry and physical appearance than boys; while no significant sex differences were found in self-concepts in Arabic language, parental relations or peer relations.

HYPOTHESIS 2

This hypothesis stated that there would be no significant differences between boys and girls in their mean scores on total self-concept as measured by the SDQ scale.

The results of the t-analysis, recorded in Table 13, indicate that there is a significant difference between the two groups on the total self-concept scores ($t = -2.824$; $p = 0.005$). The mean of the girls exceeds that of the boys by about 1.2 points. Thus the hypothesis was rejected.

HYPOTHESIS 3

This hypothesis is concerned with the significance of differences between the boys' and girls' mean scores on general self-concept as measured by the Self-Esteem Inventory. As Table 13 shows, the mean self-concept score for the boys was 16.809 compared to 17.079 for the girls. When the t-test was applied, the difference in mean scores was not significant ($t = -0.559$; $p = 0.577$). Therefore the null hypothesis was upheld.

HYPOTHESIS 4

This hypothesis is concerned with sex differences in mean scores on self-concept of general academic ability as measured by the Brookover Self-Concept of Academic Ability Scale (SCAA). Table 13 shows that the obtained mean for the girls is significantly higher than that of the boys ($t = -2.118$; $p = 010$). Thus the null hypothesis is rejected.

Additional analyses were carried out to test the differences between boys' and girls' mean achievement scores in the Arabic language, mathematics, chemistry (raw scores) and IQ. As indicated in Table 13, there were no significant differences between boys' and girls' mean achievement scores in the Arabic language. However, significant differences were found in the mathematics achievement scores. The obtained mean for the girls is significantly higher than that of boys ($t = -5.375$, $p = 0.001$). Also, girls obtained a significantly higher mean score in chemistry (see Table 13). A significant difference between boys' and girls' mean scores in IQ was found, the boys having a significantly higher mean score than the girls ($t = 2.630$, $p = 0.009$).

JUSTIFICATION OF THE STATISTICAL TECHNIQUES USED FOR TESTING HYPOTHESES 5 and 6.

The Pearson product-moment correlation procedure was used for testing the fifth and sixth hypotheses as a preliminary analysis for the hypotheses and research questions. The use of

this coefficient is appropriate because it measures the strength of the linear relationship between the scores on two continuous variables. Further, the t-test used with this coefficient is sufficiently robust against violations of the assumptions when the sample sizes are large, as is the case in this study.

In all of the above hypotheses, the null hypothesis was that the population correlation was zero, i.e., there was no relationship between the two variables when all the population was considered. The alternative hypothesis was two-tailed, i.e. the population correlation was either positive or negative. Thus, a probability of less than 0.05 of getting a particular positive value for the sample correlation led to rejecting a null hypothesis and indicated that the population correlation was significantly greater than zero, while such a probability value together with a negative correlation indicated that the population correlation was significantly negative.

Since the total sample in this study consisted of boys and girls, each of the above tests was preceded by a test for the equality of the correlation of the two groups. If the test indicated that the equality of the correlation could not be rejected, the significance of the correlation for the total group would be tested. Otherwise the significance of the correlation would be tested for each gender separately.

A comparison of the boys' and girls' correlations was carried out via the ratio of the differences of the Fisher's transformation of the correlations to the standard error of this difference. This ratio follows the standard normal distribution. The null hypothesis in each case was that the boys' correlation was equal to that of the girls. The alternative was two-tailed. Since the test involved subtracting the boys' Fisher's Z from the girls' Fisher's Z, a probability value of less than 0.05 and a positive value of the ratio indicated that the girls' population correlation was higher than that of the boys' population, while a probability value of less than 0.05 and a negative value of the ratio indicated that the boys' correlation was higher.

Thus hypotheses 5 and 6 were tested via the Pearson product-moment correlation procedure which was also used as a preliminary analysis for the remaining hypotheses and

research questions. The Pearson product-moment intercorrelations of the students' scores on self-concept, IQ, SES and academic variables were calculated for the boys, the girls and for the total sample. The intercorrelation matrices are shown in Table 14 through Table 16, and Table 17 shows the results of the Fisher Z test for the equality of the correlations of the boys' and girls' scores on these variables.

TABLE 14

INTERCORRELATION MATRICES OF SELF-CONCEPT VARIABLES WITH ACADEMIC ACHIEVEMENT, IQ AND SES VARIABLES FOR BOYS.

(n = 157)

Self-Concept Variable	ARABIC Achiev.	MATHS Achiev.	CHEM Achiev.	IQ	SES
SCARAB	0.254**	0.039	-0.034	-0.089	-0.142
SCMATH	0.294**	0.495**	0.342**	0.346**	0.044
SCCHEM	0.261**	0.420**	0.419**	0.150	0.038
SCPRNT	0.045	0.025	-0.011	-0.015	0.101
SCPEER	-0.121	-0.097	-0.222**	-0.091	-0.089
SCAPPR	-0.010	-0.017	-0.137	-0.094	0.035
SCPHYS	-0.134	-0.130	-0.189*	-0.022	-0.125
SCT	0.186*	0.241**	0.103	0.081	-0.045
GSC	0.138	0.128	0.041	0.168*	0.192*
SCGAA	0.535**	0.520**	0.498**	0.177*	0.121

* indicates p < .05

** indicates p < .01

TABLE 15

INTERCORRELATION MATRICES OF SELF-CONCEPT VARIABLES AND ACADEMIC ACHIEVEMENT, IQ AND SES VARIABLES FOR GIRLS (n = 177)

Self-Concept Variable	ARABIC Achiev.	MATHS Achiev.	CHEM Achiev.	IQ	SES
SCARAB	0.155*	-0.098	-0.075	-0.012	-0.078
SCMATH	0.261**	0.416**	0.202**	0.239**	0.047
SCCHEM	0.372**	0.414**	0.478**	0.087	0.013
SCPRNT	0.090	0.066	0.052	0.132	0.109
SCPEER	0.090	0.021	-0.059	0.224**	0.061
SCAPPR	0.192*	0.061	0.053	0.193*	0.001
SCPHYS	-0.056	-0.171*	-0.209**	0.219**	-0.054
SCT	0.273**	0.185*	0.124	0.237**	0.019
GSC	0.143	0.133	0.063	0.249**	-0.023
SCGAA	0.537**	0.410**	0.435**	0.190*	0.146

*   indicates $p < .05$

**   indicates $p < .01$

TABLE 16

INTERCORRELATION MATRICES OF SELF-CONCEPT VARIABLES AND ACADEMIC ACHIEVEMENT, IQ AND SES VARIABLES FOR THE TOTAL SAMPLE (BOYS AND GIRLS TOGETHER, n = 334)

Self-Concept Variable	ARABIC Achiev.	MATHS Achiev.	CHEM Achiev.	IQ	SES
SCARAB	0.207**	-0.010	-0.045	-0.059	-0.111*
SCMATH	0.287**	0.482**	0.295**	0.260**	0.039
SCCHEM	0.323**	0.445**	0.462**	0.091	0.019
SCPRNT	0.074	0.061	0.032	0.054	0.103
SCPEER	0.002	-0.013	-0.120*	0.070	-0.009
SCAPPR	0.107	0.070	-0.013	0.022	0.011
SCPHYS	-0.102	-0.173**	-0.212**	0.116*	-0.084
SCT	0.241**	0.245**	0.136*	0.135*	-0.017
GSC	0.143**	0.133*	0.056	0.201**	0.080
SCGAA	0.541**	0.478**	0.477**	0.164**	0.129*

*   indicates $p < .05$

**   indicates $p < .01$

TABLE 17

FISHER Z TEST FOR THE EQUALITY OF THE CORRELATIONS OF THE BOYS

AND THE GIRLS

Variable	ARABIC	MATHS	CHEM	IQ	SES
SCARAB	-0.934	-1.241	-0.369	0.703	0.586
	0.350	0.215	0.712	0.482	0.558
SCMATH	-0.322	-0.898	-1.370	-1.053	0.027
	0.748	0.369	0.171	0.292	0.978
SCCHEM	1.120	-0.071	0.674	-0.579	-0.218
	0.263	0.941	0.500	0.562	0.827
SCPRNT	0.401	0.366	0.572	1.347	0.081
	0.689	0.715	0.567	0.177	0.935
SCPEER	1.911	1.069	1.508	2.890	1.353
	0.056	0.285	0.132	0.004**	0.176
SCAPPR	1.851	0.713	1.723	2.621	-0.308
	0.064	0.476	0.085	0.009**	0.758
SCPHYS	0.711	-0.375	-0.190	2.219	0.649
	0.477	0.707	0.849	0.026*	0.516
SCT	0.828	-0.536	0.192	1.447	0.581
	0.408	0.592	0.848	0.148	0.561
GSC	0.043	0.041	0.200	0.767	-1.974
	0.965	0.967	0.482	0.443	0.048*
SCGAA	0.026	-1.281	-0.737	0.119	0.230
	0.980	0.200	0.461	0.906	0.818

Note the top entry is the Fisher ratio.

The bottom entry is the p value

* $p < .05$

** $p < .01$

HYPOTHESIS 5

The fifth hypothesis stated that there would be no significant relationships between students' self-concept scores as measured by the subscale of the Self-Description Questionnaire, the Self-Esteem Inventory, the Self-Concept of Academic Ability Scale, and their intelligence level as measured by Standard Progressive Matrices. Prior to testing this hypothesis, the correlation between IQ and all SC variables for the boys and girls was compared using the Fisher Z statistic to decide whether the correlation coefficients for the boys and the girls were the same.

The results of the Fisher Z statistical test for significance of difference of the correlation coefficients for the boys and girls indicated, as in Table 17, that the value of the Fisher Z statistic for the correlation coefficients of IQ and self-concept of peer relations (SCPEER) is 2.890, $p < 0.05$. This means there is a significant difference between the boys and girls in the relationship between IQ and SCPEER. Table 14 indicates that for the boys there was no significant relationship between IQ and SCPEER. However, a significant positive correlation (see Table 15) was found for the girls ($r = 0.224$, $p < 0.01$). Similar results were obtained in the case of the correlations between IQ and SCAPPR and IQ and SCPHYS. In both correlations the girls had significantly higher correlations than the boys. In fact, as Table 14 records, no significant relationship was found between IQ and SCAPPR or IQ and SCPHYS for the boys, whereas a significant positive relationship between IQ and SCAPPR was found for the girls, as indicated in Table 15 ($r = 0.193$, $p < 0.01$).

Thus significant differences between the boys and girls in the correlation between IQ and each of the self-concepts SCPEER, SCAPPR and SCPHYS were found, and each of the three correlations was significant for the girls but not for the boys. However, no significant differences between the boys and the girls were found for the remaining correlations. As the results of the Fisher Z statistical test indicate in Table 17, the value of this Fisher Z statistic for the remaining correlations was less than the 1.96 necessary for a 0.05 level of significance. Thus, for the remaining correlations between IQ and SC variables, the boys and girls were treated as one population.

As Table 16 shows, the correlation between IQ and each of the self-concepts SCARAB, SCCHEM and SCPRNT was not significant. However, significant positive correlations were found between IQ and SCMATH ($r = 0.26$, $p < 0.01$) IQ and SCT ($r = 0.135$, $p < 0.05$), IQ and GSC ($r = 201$, $p < 0.01$) and IQ and SCGAA ($r = 0.164$, $p < 0.01$). Since significant relationships were found between IQ and SC variables then Hypothesis 5 was rejected.

HYPOTHESIS 6

This hypothesis was concerned with the relationship between students' self-concept scores as measured by the three self-concept instruments SDQ, SEI and SCAA and their socioeconomic status as measured by the SES index.

A comparison between the boys' and girls' correlation coefficient of socioeconomic status and self-concept variables was carried out via the Fisher Z statistical analysis, to find out the significance of the differences between the boys' and girls' correlations regarding the above mentioned variables.

The results of the Fisher Z statistical analysis are presented in Table 17. This table indicates that the only significant difference between the boys' and girls' correlations of SES and SC variables was found between SES and GSC. The value of the Fisher Z statistic for the correlation between SES and GSC was -1.974 and $p = < 0.05$. This indicated that the correlation between SES scores and GSC scores for the boys was significantly higher than that for the girls. This is clear from Table 14 and 15, which show a significant positive correlation between SES and GSC for the boys ($r = 0.192$, $p = < 0.05$). However, no significant relationship existed for the girls in these two variables. In fact, as Table 15 indicates, for the girls there was no significant relationship between SES scores and any SC variables. For the remaining correlations between SES and SC variables, boys and girls were treated as one population, since no significant differences were found.

Table 16 which shows the correlations between SES and SC variables for the total sample, indicates a significant negative correlation between SES and SCARAB ($r = -0.11$, $p < 0,05$). The only significant positive correlation was found between SES and SCGAA ($r = 0.129$, $p < 0.05$). The remaining variables of SC failed to reach a significant level. On the basis of the above results, Hypothesis 6 was rejected.

ANALYSIS OF THE RELATIONSHIP BETWEEN ACADEMIC ACHIEVEMENT SCORES AND SELF-CONCEPT SCORES

As mentioned earlier, Pearson product-moment correlation procedure was used as a preliminary analysis for the research hypotheses and questions.

These analyses examine the relationship between student academic achievement scores in Arabic language, mathematics and chemistry, and SC scores in the following areas: SCARAB, SCMATH, SCCHEM, SCPRNT, SCPEER, SCAPPR, SCPHYS, SCT, GSC and SCAA. The results of these analyses are presented in Table 14 for boys, Table 15 for girls and Table 16 for boys and girls as one population. Table 17 presents the results of the Fisher Z statistical test for significance of difference of the correlation coefficients between boys and girls on academic achievement and self-concept variables. The result of the Fisher Z statistical test indicates that the value of this statistic for the correlation coefficients of achievement in Arabic scores for boys and girls and all the SC variables was less than the 1.96 necessary for a 0.05 level of significance.

Thus there were no significant differences between the boys and the girls in their correlations between achievement scores in Arabic and all the SC subscales. Similar results were obtained in the case of the correlation of mathematics and chemistry scores with all the SC variables. Therefore, it can be concluded that the correlations between achievement scores in Arabic, mathematics and chemistry with all the SC subscale scores were approximately the same for boys and girls. Based on the above results the boys and girls were treated as one population with regard to the correlation between academic achievement variables and SC variables.

The intercorrelation matrices for achievement and SC variables for the total sample are shown in Table 16. This table indicates that the Arabic achievement scores were significantly and positively correlated ($p < .01$) with SCAA ($r = .541$), SCCHEM ($r = 0.323$), SCMATH ($r = 0.287$), SCT ($r = .241$), SCARAB ($r = .207$) and GSC ($r = .143$). Table 16 also indicates that the correlations between Arabic achievement and the following SC subscales were not significant: SCPRNT ($r = 074$), SCPEER ($r = .002$), SCAPPR ($r = 107$), and SCPHYS ($r = -0.102$). In the

case of the correlations between the mathematics achievement scores and the SC variables for the total sample, significant positive relationships ($p < .01$) were found between mathematics achievement and the following SC subscales SCMATH ($r = .482$), SCGAA ($r = .478$), SCCHEM ($r = 0.445$), SCT ($r = .245$) and GSC ($r = .133$). However, the achievement scores in mathematics were negatively correlated with the self-concept of physical ability ($r = -0.173$, $p < .01$). The relationships between achievement in mathematics and SCPRNT, SCPEER, SCAPPR were not significant for the total sample. Regarding the correlation between chemistry achievement scores and SC variables for the boys and girls together, Table 16 records that significant positive relationships ($p < .01$) were found between these chemistry achievement scores and the following SC subscales : SCGAA ($r = .447$), SCCHEM ($r = .462$), SCMATH ($r = 0.295$) and SCT ($r = .136$, in this case $p < .05$). On the other hand, significant negative correlations existed between chemistry achievement scores and SCPEER ($r = -0.120$, $p < .05$) and SCPHYS ($r = -0.212$, $p < .01$). The correlations between achievement scores in chemistry and SCARAB, SCPRNT, SCAPPR and GSC failed to reach a significant level.

JUSTIFICATION FOR STATISTICAL TECHNIQUES USED FOR TESTING HYPOTHESES 7, 8 and 9.

Multiple regression analysis was used to test hypotheses 7, 8 and 9, which stated that there was no significant relationship between students' achievement scores in each of the three areas of Arabic language, mathematics and chemistry and their self-concepts in the same areas after controlling for the effects of other independent variables. As Kerlinger and Pedhazur (1973, p., V) pointed out, multiple regression is a powerful analytic method "that is close to the theoretical inferential preoccupations and methods of scientific behavioural research". The usefulness of this method is enhanced by its strength against violations of its assumptions. The power of the method lies in its ability to discover the strength of the relationship between a dependent variable and several independent variables; and also in its ability to ascertain whether the effect of a certain independent variable is significant after partialing out the other independent variables.

The ANOVA table of the regression analysis provides an F test for the null hypothesis that the dependent variable (e.g. achievement in Arabic language) is not related to several independent variables (e.g. self-concept of Arabic, other self-concept variables, IQ and SES). If this hypothesis is rejected, then the researcher will test the null hypothesis that a specific independent variable has no effect on the dependent variable after partialing out the effect of the other independent variables. This hypothesis is equivalent to the statement that the partial regression coefficient of the variable of interest is zero, and is tested via a t-statistic produced by regression analysis. Thus, regression analysis is best suited to test the hypothesis that there is no significant relationship between achievement in a particular subject and the self-concept of that subject after controlling for other independent variables, as stated in Hypotheses 7, 8 and 9.

An advantage of regression analysis is that it enables the researcher to compare the regression equation of two populations. Thus, for hypothesis 7, for example, one can ascertain whether the regression surfaces for boys and girls are coincident, parallel or neither. One can test the null hypothesis that the intercept and the partial regression coefficient are equal for boys and girls, i.e. whether the regression surfaces are coincident. If the hypothesis is accepted, then one regression equation for the total population of boys and girls needs to be estimated. If the hypothesis is rejected, then one can test the null hypothesis that the partial regression coefficients for boys and girls are equal, i.e. whether the two regression surfaces are parallel. If this hypothesis is accepted, then one regression equation needs to be estimated for the total population of boys and girls. However, this equation must include sex as an independent variable. In summary, when the regression coefficients of the boys and the girls are found not to be significantly different, the regression surfaces are said to be parallel. In this case one can estimate the equation of boys and girls in such a manner that the regression coefficients of the two are equal while their intercepts may be different. However, when both the intercept and regression coefficients of boys and girls are found not to be significantly different, the regression surfaces are said to be coincident, i.e. boys and girls have the same regression equation. This equation can be estimated from the total sample. If both of the above hypotheses are rejected,

then the regression equation must be estimated separately for the boys and the girls. All of the above comparisons are made via an F statistic.

From the above it seems clear that multiple regression analysis is most useful for testing Hypotheses 7, 8 and 9.

Before testing the hypotheses concerning the relationship between academic achievement in each of the three areas of Arabic language, mathematics and chemistry and self-concepts in the same areas partialing out the effect of other variables, a preliminary analysis was conducted to decide whether the relationships were the same for the boys and girls.

The regression of academic achievement scores in Arabic language on the self-concept variables, IQ and SES for boys and girls was compared using sex as a dummy variable. This comparison was done by first fitting a regression equation that included the eleven independent variables of self-concept, IQ and SES and the sex variable as an indicator variable, and in addition, the product of the sex variable and each of the aforementioned eleven independant variables; thus the fitted equation included 23 independent variables. This equation was used as a basis for testing the hypothesis that the boys' and girls' regressions are parallel and the hypothesis that boys' and girls' regression are coincident. For the procedure of this test see Neter and Wasserman (1974, pp. 297-366). Table 18 shows the regression of Arabic achievement on sex, self-concept, IQ and SES variables and the products of sex, self-concept, IQ and SES.

TABLE 18

ANOVA TABLE FOR THE REGRESSION OF ARABIC ACHIEVEMENT ON SEX, SELF-CONCEPT, IQ AND SES VARIABLES AND THE PRODUCT OF SEX, SELF-CONCEPT, IQ AND SES

n = 334

Source	DF	SS	MS	F	P
Regression	23	75422.396	3279.235	7.625	0.0001
Error	310	133327.604	430.089		
Total	333	208750.000			

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As indicated in Table 18, this regression was significant at 0.0001. On the basis of the above regression, equality of the regression of Arabic achievement scores on self-concept, IQ and SES variables for the boys and girls was established.

The null hypothesis that the regression of Arabic achievement scores of the boys and girls were parallel was accepted (F = 0.710, dF1 = 11, dF2 = 310 and p = 0.729). Consequently, a test that the regressions of achievement scores in Arabic of the boys and girls were coincident was conducted, for which (F = 0.666, dF1 = 12, dF2 = 310, p = 0.784). Thus the null hypothesis that the above regressions were coincident was accepted. As a result, it can be concluded that the regression of Arabic achievement on self-concept, IQ and SES variables is the same for boys and girls.

As in the case of Arabic achievement, the regression of mathematics achievement scores on self-concept, IQ and SES variables was compared for the boys and the girls using sex as a dummy variable. As Table 19 shows, the overall regression was significant (F = 12.496, p = 0.0001)

TABLE 19

ANOVA TABLE FOR THE REGRESSION OF MATHEMATICS ACHIEVEMENT ON SEX, SELF-CONCEPT, IQ AND SES VARIABLES.

n = 334

Source	DF	SS	MS	F	P
Regression	23	678878.389	29516.452	12.496	0.0001
Error	310	732271.611	2362.166		
Total	333	1411150.000			

The null hypothesis that the regressions of mathematics achievement scores of boys and girls were parallel was accepted (F = 1.089, dF1 = 11, dF2 = 310, p = 0.370). The null hypothesis that the above regressions were coincident was rejected. (F = 2.227, dF1 = 12, dF2 = 310, p = .012). Thus it can be concluded that the boys' and girls' regressions of mathematics achievement scores on self-concept, IQ and SES are parallel but have different intercepts. On

the basis of these results it could be assumed that the partial regression coefficients are similar for boys and girls while the intercepts are different. This calls for one regression equation for the total sample that includes the sex variable in addition to the other independent variables.

As in the case of Arabic and mathematics achievement, the regression of chemistry achievement scores on self-concept, IQ and SES was compared for the boys and girls using sex as a dummy variable. Table 20 shows the analysis of variance for this regression in which F = 11.75, and p was significant at 0.0001 level.

TABLE 20

ANOVA TABLE FOR THE REGRESSION OF CHEMISTRY ACHIEVEMENT ON SEX, SELF-CONCEPT, IQ AND SES VARIABLES.

n = 334

Source	DF	SS	MS	F	P
Regression	23	62211.561	2704.850	11.746	0.0001
Error	310	71388.439	230.285		
Total	333	133600.000			

On the basis of the above regression, a test was conducted of the hypothesis that boys' and girls' regressions of their achievement scores in chemistry were parallel, and it was found to be not significant (F = 1.499, dF1 = 11, dF2 = 310, p = 0.131). A second test of the hypothesis that the regressions of chemistry scores for the boys and girls were coincident was also insignificant (F = 1.670, dF1 = 12, dF2 = 310, p = 0.072). On the basis of the last two tests, the boys and girls could be treated as one population with regard to the regression of chemistry achievement scores on self-concept, IQ and SES variables.

The previous analysis was a preliminary one to decide whether the relationship between each of the three areas of academic achievement Arabic language, mathematics, chemistry and self-concepts in the same areas after controlling for other independent variables was the same in each case for the boys and girls. On the basis of the above results obtained from the three

regression analyses, the boys and girls could be treated as one population with regard to the regression of Arabic and chemistry achievement on self-concept, IQ and SES variables; but for the regression of mathematics achievement on self-concept, IQ and SES this was not so, although one regression equation would be used if sex were included in the regression analysis.

HYPOTHESIS 7

This hypothesis stated that there was no significant relationship between students' achievement scores in Arabic language and their self-concept of Arabic after partialing out the effects of other independent variables. On the basis of previous results, Arabic achievement scores were regressed on the scores of self-concept in Arabic, mathematics, chemistry, parental relations, peer relations, physical appearance, physical abilities, general self-concept, self-concept of general academic ability, intelligence and socioeconomic level, using the total sample of boys and girls. Table 21 gives the results of the analysis of variance for this regression.

TABLE 21

SUMMARY OF THE ANALYSIS OF VARIANCE FOR REGRESSION OF ARABIC

ACHIEVEMENT ON SC, SES and IQ

n = 334

Source	DF	SS	MS	F	P
Regression	11	71983.539	6453.958	15.407	0.0001
Error	322	136766.461	424.741		
Total	333	208750.000			

The above table shows that the overall regression is significant (F = 15.407, p = 0.0001). The R-square for this regression is 0.345, which means that the independent variables account for about 34% of the variance of achievement in Arabic. Table 22 shows the partial regression coefficients of the independent variables and the results of the test of significance regarding these coefficients.

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TABLE 22

SUMMARY OF THE PARTIAL REGRESSION COEFFICIENTS OF ARABIC ACHIEVEMENT SCORES ON SC, IQ AND SES VARIABLES.

n = 334

Variables	Partial Regression Coefficients	Standardized Partial reg. Coefficient	Standard Error	t	p
Intercep	33.480	0.000	13.839	2.419	0.0161
SCARAB	0.322	0.085	0.191	1.685	0.0929
SCMATH	0.069	0.019	0.198	0.349	0.7275
SCCHEM	0.267	0.075	0.201	1.333	0.1833
SCPRNT	-0.122	-0.032	0.203	-0.603	0.5469
SCPEER	-0.297	-0.074	0.261	-1.139	0.2557
SCAPPR	0.224	0.046	0.299	0.750	0.4537
SCPHYS	-0.516	-0.141	0.192	-2.691	0.0075
GSC	-0.049	-0.009	0.310	-0.159	0.8737
SCGAA	2.189	0.454	0.279	7.833	0.0001
IQ	0.455	0.127	0.170	2.611	0.0094
SES	0.287	0.082	0.164	1.748	0.0815

As Table 22 reveals, the partial regression coefficient for self-concept in Arabic was 0.322 and the corresponding t-value was 1.685. This indicates that the effects of self-concept in Arabic language on achievement in Arabic after partialing out the effects of self-concept of mathematics, chemistry, parental relations, peer relations, physical appearance, physical ability, general self-concept and self-concept of general academic ability, intelligence and socioeconomic status were not significant. Thus, the null hypothesis 7 is retained. It should be noted that the effect of each of the self-concepts of physical ability and general academic ability, and IQ after partialing out the effect of other ten independent variables was significant. While the partial coefficients for IQ and self-concept of general academic ability were positive, the partial coefficient for self-concept of physical ability was negative. The latter sign indicates that achievement scores decrease as self-concept of physical ability scores increase.

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HYPOTHESIS 8

This hypothesis concerned the effect of self-concept of chemistry on achievement in chemistry after partialing out the effect of the other self-concepts, IQ and SES variables. The achievement scores in chemistry were regressed on all independent variables. Table 23 shows the analysis of variance for this regression.

TABLE 23

SUMMARY OF THE ANALYSIS OF VARIANCE FOR REGRESSION OF CHEMISTRY ACHIEVEMENT ON SC, IQ and SES.

n = 334

Source	DF	SS	MS	F	p
Regression	11	57596.598	5236.054	22.183	0.0001
Error	322	76003.402	236.035		
Total	333	133600.000			

As is illustrated in Table 23 the overall regression was significant (F = 22.183, p = .0001). The R-square for this regression was .431 which means that about 43% of the variance of chemistry achievement is explained by the independent variables. Table 24 reveals the partial coefficients and the results of the corresponding significance test for the above regression.

TABLE 24

SUMMARY OF THE PARTIAL REGRESSION COEFFICIENTS OF CHEMISTRY

ACHIEVEMENT ON SC, IQ and SES.

n = 334

Variable	Partial reg.Coef.	Stand-ardized part.reg. coeff.	Standard Error	t	p
Intercep.	15.481	0.000	10.317	1.501	0.1344
SCARAB	-0.508	-0.168	0.142	-3.573	0.0004
SCMATH	0.138	0.049	0.147	0.939	0.3483
SCCHEM	0.990	0.346	0.150	6.622	0.0001
SCPRNT	0.038	-0.012	0.151	-0.253	0.8007
SCPEER	-0.415	-0.129	0.194	-2.137	0.0333
SCAPPR	-0.031	-0.008	0.223	-0.139	0.8891
SCPHYS	-0.539	-0.184	0.143	-3.770	0.0002
GSC	-0.187	-0.041	0.231	-0.809	0.4192
SCGAA	1.393	0.361	0.208	6.890	0.0001
IQ	0.250	0.089	0.127	1.966	0.0502
SES	0.181	0.065	0.122	1.479	0.1400

As shown in Table 24 the effect of self-concept of chemistry on achievement in chemistry after partialing out the effect of all other self-concepts, IQ and SES variables was significant (t = 6.622, p = 0.0001). The standardized coefficients for self-concept in chemistry were about 0.35, which means that a change of one standard deviation of self-concept in chemistry results in a change of 0.35 in standard deviation of achievement in chemistry scores. In comparison, the standardized coefficient for self-concept of chemistry is slightly smaller than that for self-concept of general academic ability and considerably higher than the remaining standardized coefficients.

The above results led to the rejection of the null hypothesis 8. In addition to the regression coefficients for self-concept of chemistry, the coefficients for self-concept of physical ability, self-concept of general academic ability and IQ are also significant, and the only negative coefficient is that of self-concept of physical ability, which agrees with the result obtained from regression of Arabic language achievement scores on the independent variables.

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HYPOTHESIS 9.

This hypothesis stated that there was no significant relationship between students' achievement scores in mathematics and their self-concept of mathematics after partialing out the effects of the other independent variables (other self-concepts, IQ and SES). It should be recalled that the results obtained from the previous analysis conducted to decide whether the regression of achievement scores in Arabic, chemistry and mathematics on self-concepts, IQ and SES variables were the same for the boys and girls, indicated that the partial regression coefficients of mathematics achievement scores on self-concepts, IQ and SES were the same for the boys and girls while the intercepts were different. This result led to one regression equation for the total group (boys and girls) but included the sex variable in addition to the other independent variables. Thus, the achievement scores in mathematics were regressed on sex in addition to the other independent variables (self-concepts, IQ, SES). Table 25 gives the results of the analysis of variance for this regression.

TABLE 25

SUMMARY OF THE ANALYSIS OF VARIANCE FOR THE REGRESSION OF MATHEMATICS ACHIEVEMENT ON SC, IQ, SES AND SEX.

n = 334

Source	DF	SS	MS	F	p
Regression	12	650592.475	54216.040	22.882	0.0001
Error	321	760557.525	2369.338		
Total	333	1411150.000			

As recorded in Table 25, the overall regression was significant (F = 22.882, p = 0.0001). The R-square for this regression was 0.46, which means that 46% of the variance of mathematics achievement can be attributed to the self-concepts, IQ, SES and sex.

The partial regression coefficients of the above regressions are shown in Table 26.

TABLE 26

SUMMARY OF THE PARTIAL REGRESSION COEFFICIENTS OF MATHEMATICS ACHIEVEMENT ON SC, IQ SES AND SEX.

Variable	Partial reg.coef.	Stand-ardized partial reg.coeff.	n = 334 Standard Error	t	p
Intercep.	4.159	0.000	32.871	0.127	0.8994
Sex	21.814	0.168	5.688	3.835	0.0002
SCARAB	-1.639	-0.167	0.451	-3.631	0.0003
SCMATH	2.737	0.296	0.470	5.820	0.0001
SCCHEM	1.941	0.209	0.475	4.086	0.0001
SCPRNT	-0.594	-0.059	0.479	-1.240	0.2159
SCPEER	-0.327	-0.031	0.616	-0.531	0.5960
SCAPPR	-0.494	-0.039	0.715	-0.691	0.4899
SCPHYS	-1.510	-0.158	0.458	-3.294	0.0011
GSC	0.022	0.001	0.734	0.030	0.9764
SCGAA	3.713	0.296	0.660	5.624	0.0001
IQ	0.266	0.029	0.408	0.653	0.5144
SES	0.599	0.066	0.388	1.542	0.1240

Table 26 shows that the effect of self-concept of mathematics on mathematics achievement scores after partialing out the effect of the other independent variables was significant (t = 5.820, p = 0.0001). The partial coefficients of self-concept of mathematics was approximately equal to that of self-concept of general academic ability and was higher than all the other coefficients. The only other significant coefficients were those relating to self-concept of chemistry, self-concept of general academic ability and self-concept of physical ability. The latter was negative, like the regression of Arabic and chemistry achievements. Thus the null hypothesis 9 was rejected.

JUSTIFICATION FOR STATISTICAL TECHNIQUES USED FOR TESTING RESEARCH QUESTIONS 1, 2 and 3.

Research questions 1, 2 and 3 given in Chapter 1 concern the relative contributions of the self-concepts, IQ and SES variables to the variance of each of the three achievement variables :

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Arabic, mathematics and chemistry. In other words, the questions relate to the power of each of these independent variables in predicting the dependent achievement variables.

The regression model selection procedures were best suited for answering each question. There are several model selection procedures, among which are forward selection, backward selection, stepwise, maximum R2 improvement, minimum R2 improvement and all possible subsets selection. The method implemented in this study was the stepwise method, which incorporates both the forward and backward strategies. The stepwise method selects the best subset of independent variables in the light of their contribution to the model. It begins with a model that does not contain any independent variable. Then for each independent variable an F statistic that reflects that variable's contribution to the model is computed. The variable with the highest F statistic is then entered in the model. However, the significance level of each variable entered must be higher than a level specified a priori by the researcher. After more than one variable is entered, the F statistics of all the variables in the model are checked. Any variable whose F statistic is not significant at a level specified a priori by the researcher is deleted from the model. The stepwise process ends when no variable can be entered or deleted.

As a result of the stepwise process, one ends with a subset of the independent variables that best contribute to the variance of the dependent variable in a certain sense. Thus one can judge the relative contribution to predicting achievement of the self-concept, IQ and SES variables as was done in this study.

To answer research questions 1, 2 and 3 a stepwise regression of each set of Arabic, mathematics and chemistry achievement scores on the independent variables of self-concept of Arabic, mathematics, chemistry, parental relations, peer relations, physical appearance, physical ability, general academic ability, IQ and SES was conducted using a significant level of 0.05.

RESEARCH QUESTION 1

Regarding the first research question which concerns the relative contributions of the independent variables of self-concept, IQ and SES on predicting academic scores in Arabic language, Arabic achievement scores were regressed on all independent variables. Table 27 shows a summary for the stepwise regression in the case of Arabic achievement.

TABLE 27

SUMMARY FOR THE STEPWISE REGRESSION OF ACHIEVEMENT IN ARABIC ON SC, IQ AND SES VARIABLES.

n = 334

Step No.	Variable entered	Variable removed	R^2	Increased R^2	F	p
1	SCGAA	-	0.292	0.292	136.995	0.0001
2	SCPHYS	-	0.313	0.021	9.867	0.0018
3	IQ	-	0.327	0.014	7.006	0.0085

Table 27 indicates that self-concept of general academic ability (SCGAA) was entered first and it accounted for about 29% of the variance of achievement in Arabic. Self-concept of physical ability (SCPHYS) was entered next and it accounted for an additional 2% of the variance. IQ was entered last, accounting for an additional 1% of the variance. None of the remaining variables met the criteria for entry, and in the three steps none of the variables was removed. It should be noted that self-concept of Arabic (SCARAB), mathematics, chemistry, general self-concept and socioeconomic status, which all had a significant zero order correlation with achievement in Arabic, were not included in the final solution, whereas self-concept of physical ability, which had a non-significant zero order correlation, was included.

RESEARCH QUESTION 2

To answer Research Question 2 regarding the relative contributions of the independent variables of self-concept, IQ and SES on predicting academic achievement scores in chemistry, a

stepwise regression of chemistry achievement on self-concept, IQ and SES variables was conducted. Table 28 provides a summary of this regression.

TABLE 28

SUMMARY TABLE FOR THE STEPWISE REGRESSION OF ACHIEVEMENT IN

CHEMISTRY ON SC, IQ AND SES VARIABLES.

n = 334

Step	Variable entered	Variable removed	R^2	Increased R^2	F	p
1	SCGAA	-	0.227	0.227	97.667	0.0001
2	SCCHEM	-	0.291	0.063	29.549	0.0001
3	SCPHYS	-	0.362	0.072	37.147	0.0001
4	SCARAB	-	0.402	0.039	21.689	0.0001
5	SCPEER	-	0.416	0.014	8.083	0.0047
6	IQ	-	0.425	0.009	4.972	0.0264

As in the case of Arabic achievement, self-concept of general academic ability (SCGAA) was entered first, followed by self-concept of chemistry (SCCHEM), self-concept of physical ability (SCPHYS), self-concept of Arabic language (SCARAB), self-concept of peer relations (SCPEER) and finally IQ. The remaining variables did not enter the equation and none of the variables was removed after entering the equation. The additional R square after the first variable was entered ranged from 0.06 to 0.009. The most important contributions were those made by SCGAA, SCCHEM, SCPHYS and SCARAB. It should be noted that SCARAB, which was included in the final solution, had a non-significant zero order correlation with achievement in chemistry, while self-concept of mathematics (SCMATH), which had a significant zero order correlation, was not included.

RESEARCH QUESTION 3

For Research Question 3, which concerned the relative importance of the contributions of the independent variables (self-concepts, IQ and SES) to the variance of the dependent variable (academic achievement in mathematics), a stepwise regression of mathematics scores on all independent variables was conducted. It will be recalled that the regressions of the boys and the girls were different in intercept, and as a result sex was entered as one of the regressors. Table 29 recorded a summary of the stepwise regression of mathematics achievement scores on all the independent variables.

TABLE 29

SUMMARY TABLE OF STEPWISE REGRESSION OF ACHIEVEMENT IN MATHEMATICS ON SC, IQ AND SES.

Step	Variable entered	Variable removed	R^2	n = 334 Increased R^2	F	p
1	SCMATH	-	0.232	0.232	100.489	0.0001
2	SCGAA	-	0.318	0.086	41.476	0.0001
3	SCPHYS	-	0.368	0.050	26.010	0.0001
4	SCARAB	-	0.400	0.032	17.459	0.0001
5	SCCHEM	-	0.429	0.029	16.672	0.0001
6	SEX	-	0.450	0.021	2.580	0.0004

Table 29 indicates that self-concept of mathematics (SCMATH) was entered first and accounted for about 23% of the variance of mathematics achievement; followed by SCGAA, which accounted for an additonal 8.6%; SCPHYS, which accounted for another 5%; SCARAB and SCCHEM, which accounted for a further 3% each; and finally sex, which accounted for only 2%.

It should be noted that SCARAB, which had a non-significant zero order correlation with mathematics achievement scores, was entered in the final solution, while general self-concept and IQ, which had significant zero order correlations, were not included.

JUSTIFICATION FOR STATISTICAL TECHNIQUES USED FOR TESTING RESEARCH QUESTION 4.

The fourth Research Question stated in Chapter 1 concerns the relationship between all the independent variables of self-concepts as a group and all the dependent variables of achievement as another group. As Kerlinger and Pedhazur (1973) pointed out, canonical correlation analysis is the most appropriate method for tackling such questions.

Canonical correlation analysis can be viewed as a generalization of multiple regression analysis. Whereas in regression analysis the relationship of one dependent variable to several independent variables is investigated, in canonical correlation it is the relationship of several dependent variables to several independent variables which is examined. Moreover, while multiple regression summarizes the strength of the relationship via the multiple correlation coefficient, canonical correlation analysis summarizes the strength of the relationship via several correlation coefficients. The number of these coefficients is equal to the number of the dependent or independent variables, whichever is smaller. These correlations are ordered in value so that the first correlation is the highest and the last correlation is the lowest.

Although the canonical procedure produces several canonical correlations, not all of these correlations are necessarily significant. An F test is available that indicates which correlations are significant. If the first canonical correlation is significant, then there exists a linear combination of the dependent variables and a linear combination of the independent variables that are significantly correlated. Likewise, if the second canonical correlation is significant, there exists a second pair of linear combinations that are significantly correlated. Corresponding to the last significant correlation is a pair of linear combinations that are significantly correlated. The coefficients of the linear combinations show the manner in which these linear combinations are formed. The linear combinations are usually called 'canonical variates'.

The canonical variates are interpreted in much the same way as in factor analysis. Correlations between the dependent variables and their canonical variate and correlations

between the independent variables and their canonical variate are used to give meaning to these variates.

Therefore canonical correlation analysis provides not only indications of the strength of the relationship between a set of independent variables and a set of dependent variables, but also some information about the nature and source of the multiple links between the two sets.

RESEARCH QUESTION 4

Canonical correlation analysis with academic achievement in Arabic language, mathematics and chemistry as dependent variables and self-concept of Arabic (SCARAB), self-concept of mathematics (SCMATH), self-concept of chemistry (SCCHEM), self-concept of parental relations (SCPRNT), self-concept of peer relations (SCPEER), self-concept of physical appearance (SCAPPR), self-concept of physical ability (SCPHYS), general self-concept (GSC) and self-concept of general academic ability (SCGAA) as independent variables was done to answer research question 4, which concerned the relationship between all the independent variables of self-concepts and all the dependent variables of academic achievement. In this analysis SES and IQ was partialed out of both sets of variables. The analysis was also done for the boys and the girls separately.

Table 30 shows the value of the canonical correlations, their approximate standard error, and the results of the significance tests for the boys and girls.

TABLE 30

CANONICAL CORRELATION BETWEEN ACHIEVEMENT AND SELF-CONCEPT VARIABLES (BOYS AND GIRLS)

Boys (n = 157)

No	Canonical correlation	Standard Error	F	p
1.	0.640	0.048	5.533	0.0001
2.	0.453	0.064	3.607	0.0001
3.	0.357	0.070	3.016	0.0055

Girls (n = 177)

No	Canonical correlation	Standard Error	F	p
1.	0.677	0.041	7.500	0.0001
2	0.485	0.058	4.816	0.0001
3	0.378	0.064	3.935	0.0005

The values of the three canonical correlations were almost the same for the boys and the girls, as shown in Table 30. The largest difference was between the first canonical correlations and was equal to .037. Thus, it can be concluded that as far as the value of canonical correlations is concerned, there was no difference between the boys and girls. As Table 30 indicates, the first canonical correlation tended to be high while the second and the third tended to be moderate, and all three of them were significant. This indicates that there were three significant independent links between achievement in the three subjects considered and the self-concept variables for both sexes.

Table 31 shows the correlations between each achievement variable and their corresponding canonical variate. It also shows the correlations between each self-concept variable and their corresponding canonical variate for both the boys and girls.

TABLE 31

CORRELATIONS BETWEEN THE ACHIEVEMENT VARIABLES, SC VARIABLES AND THEIR CORRESPONDING CANONICAL VARIATES (CANONICAL STRUCTURE)

Boys (n = 157)

Type of variable	Variable	Canonical variates 1	2	3
Achievement Dependent	ARABIC	0.737	0.650	-0.184
	MATH	0.957	0.016	0.288
	CHEM	0.941	-0.150	-0.303
Self-concept Independent	SCARAB	0.117	0.843	0.048
	SCMATH	0.608	0.053	0.727
	SCCHEM	0.647	-0.212	0.043
	SCPRNT	0.003	0.144	0.148
	SCPEER	-0.209	0.135	0.580
	SCAPPR	-0.088	0.256	0.524
	SCPHYS	-0.234	0.040	0.270
	GSC	0.048	0.302	0.350
	SCGAA	0.811	0.427	-0.078

Girls (n = 177)

Type of variable	Variable	Canonical variates 1	2	3
Achievement Dependent	ARABIC	0.696	0.404	0.593
	MATH	0.890	-0.403	0.213
	CHEM	0.962	0.168	-0.216
Self-concept Independent	SCARAB	-0.080	0.429	0.574
	SCMATH	0.409	-0.569	0.595
	SCCHEM	0.721	0.114	0.017
	SCPRNT	0.043	0.001	0.117
	SCPEER	-0.098	-0.072	0.411
	SCAPPR	0.072	0.165	0.403
	SCPHYS	-0.345	0.017	0.235
	GSC	0.110	-0.138	0.315
	SCGAA	0.661	0.316	0.598

It is clear, as Table 31 indicates, that the correlations between the achievement variables and their canonical variates were not very similar for the girls and boys, although the pattern was more similar for the first canonical variate than for the other two. For example, as shown in Table 31, the correlations between achievement in mathematics and chemistry and the first

canonical variate were each above .90 for the boys and above .89 for the girls. At the same time, the correlation between achievement in Arabic and the first canonical variate was about 0.74 for the boys and .70 for the girls. As for the second canonical variate, the correlation for Arabic achievement was .65 for the boys and .40 for the girls. For the same canonical variate the correlation of mathematics for boys was close to zero, while the correlation for the girls was .40. As for the correlations between the self-concept variables and their canonical variates, the degree of similarity between the girls' and boys' results decreases as we go from the first canonical variates to the second and the third canonical variates. In view of the above, the canonical variates should be interpreted separately for boys and girls.

Table 31 indicates that the correlations between achievement scores in Arabic, mathematics and chemistry and their corresponding canonical variates were 0.737, 0.957 and 0.941 respectively. This means that the first canonical variate in the case of the boys was mainly achievement in mathematics and chemistry (Science achievement), although we cannot ignore the contribution of Arabic achievement to this canonical variate. The positive correlation for the self-concept of general academic ability, self-concept of chemistry and self-concept of mathematics were in descending order, .811, .647 and .608. The other correlations are substantially smaller. Thus, the first self-concept canonical variates reflect self-concept in mathematics and chemistry (science self-concept). It seems the contribution of self-concept of general academic ability was high because this canonical variate is concerned with both mathematics and chemistry (self-concept in science). The conclusion appears to be that the first link between the achievement variables and self-concept variables for the boys refers mainly to mathematics and chemistry.

Table 31 shows that for the girls, the correlations between achievement scores in Arabic, mathematics and chemistry and their first canonical variates were .696, .890 and .962 respectively. As in the case of the boys, it seems that the first canonical variates reflect mainly achievement in mathematics and chemistry (science achievement). As for the canonical variate for self-concepts, the highest correlations were self-concept of chemistry .721, self-concept of general academic ability .661 and self-concept of mathematics .409. The correlation for self-

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concept of physical ability is moderate in absolute value and negative (-.345). All the other correlations were negligible. These results indicate that this canonical variate reflects self-concept in science achievement. The rather high contribution of self-concept of general academic ability may be due to the fact that the self-concept in this instance reflects a broad academic area. Thus, for both the boys and girls the first links between achievement and self-concept relate to mathematics and chemistry subjects.

In the second achievement canonical variate for boys, the correlation of Arabic was substantially higher than those of the other two academic subjects (0.65 as compared to 0.016 and -0.150). This indicates that for boys the second achievement canonical variate reflects achievement in Arabic. The highest correlation between the self-concept variables and their second canonical variate belong to self-concept of Arabic (0.843), self-concept of general academic ability (0.427), and general self-concept (0.302). The other correlations are negligible compared to the above correlations. According to these results, the second canonical variate could be interpreted as self-concept of Arabic. It should be noted here that the correlation of self-concept of general academic ability is half that of self-concept of Arabic. As a result, the second link between self-concept and achievement for the boys is related to the subject of Arabic.

For the girls, as shown in Table 31, the correlation of Arabic achievement scores with the second achievement canonical variate was 0.404, while the corresponding correlation of mathematics was -0.403 and the correlation of chemistry was 0.168. Thus, the correlations of Arabic and mathematics were equal in absolute value but opposite in sign, while the correlation of chemistry was substantially smaller. These results indicate that the second canonical variate for girls relates to achievement in Arabic. As for the self-concepts, for the second canonical variate (recorded in Table 31) the highest correlation belongs to self-concept of Arabic (0.429), self-concept of mathematics (-0.569) and self-concept of general academic ability (0.316). The other correlations are substantially smaller. Since the correlation of self-concept for Arabic is positive and that for mathematics is negative and both are higher than that of self-concept of general academic ability, the second self-concept canonical variate for the girls could be

interpreted as self-concept of Arabic. Thus, for the girls as for the boys, the second link between self-concept and achievement refers to the subject-matter of Arabic.

Referring to Table 31, for the third achievement canonical variate for the boys, the only positive correlation is that of mathematics: 0.288. This indicates that this third canonical variate reflects achievement in mathematics. Regarding the self-concept, the highest correlations for the self-concept variables with the third self-concept canonical variate are for self-concept of mathematics (0.727), self-concept of peer relations (0.580), self-concept of physical appearance (0.524) and general self-concept (0.350). However, other correlations are substantially smaller. This indicates that this canonical variate reflects mainly self-concept in mathematics, although we cannot ignore the contributions of self-concept of peer relations, self-concept of physical appearance and general self-concept. This means that the third link is between achievement in mathematics and self-concept of mathematics and to a lesser degree to non-academic self-concepts.

In the case of the girls, Table 31 indicates that the correlation of Arabic achievement with the third canonical variate is 0.593, which is high compared to the correlation of mathematics at 0.213 and chemistry at -0.216. This result indicates that this canonical variate reflects achievement in Arabic. As for the self-concept canonical variate, the highest correlations are for self-concept of general academic ability (0.595) and self-concept of mathematics (0.595), self-concept of Arabic (0.574), self-concept of peer relations (0.411), self-concept of physical appearance (0.403) and general self-concept (0.315). The contributions of the academic self-concept variables to this canonical variate are higher than the corresponding contributions of non-academic self-concept variables. However, within each set of variables the contributions of the individual variables are comparable. Therefore, although it would be difficult to give a label to this canonical variate, in general it tends to reflect academic self-concept more than non-academic self-concept.

It should be noted that the third link between achievement and self-concept is not the same for the boys and the girls.

From the values of the canonical correlations and the preceding interpretation of the canonical variate based on the structure matrices, it would seem that the first two links for both the boys and girls are between achievement scores and academic self-concept in the same areas, while the third link reflects both academic and non-academic self-concept for both sexes. However, the first canonical correlation is high for both the boys and girls (0.640 and 0.677 respectively) and the second is moderate for both sexes (0.453 and 0.485 respectively), while the third tends to be low (0.357 and 0.378 respectively). This means that the most important links are between achievement and academic self-concept.

To investigate the practical significance of the three canonical variates, a redundancy analysis was carried out as recommended by Levine (1977, p.22-25). According to this analysis 32% of the achievement trace is accounted for by the first self-concept canonical variate in the case of the boys, while the corresponding percentage for girls is about 34%. Also, about 3% of the achievement trace is accounted for by the second self-concept canonical variate for both sexes. As for the third self-concept canonical variate, only about 1% of the achievement trace (generalized variance) is accounted for by the third self-concept canonical variate in the case of the boys and about 2% in the case of the girls. For details of computation and the meaning of the redundancy coefficient see Appendix 12.

Thus, although the three canonical correlations are statistically significant, it seems that the first one is by far the most practically significant one. Although the second one is substantially less important it cannot be ignored completely. As for the third link, the percentage of explained trace is too low to be considered as having any practical significance.

It should be recalled that the first link was between achievement in mathematics, chemistry and to a lesser degree Arabic on the one hand; and self-concept of mathematics, self-concept of chemistry and self-concept of general academic ability on the other hand. The second link was between achievement in Arabic and self-concept of Arabic.

From this interpretation and the redundancy analysis it seems that the relationship between achievement and academic self-concept (specific and general) is far stronger than the relationship between achievement and general or non-academic self-concept.

SUMMARY OF THE RESULTS AND DATA ANALYSIS

This chapter has presented the results of the statistical analyses performed on the data collected for this study. The data analyses focused on 9 research hypotheses and 4 research questions presented in the first chapter. The first four research hypotheses were concerned with the differences between the boys' and girls' mean scores on self-concepts. The independent t-test was performed to investigate sex differences in self-concepts. The following results were obtained from t-analyses:

1. The girls had significantly higher self-concept mean scores than the boys in mathematics self-concept, chemistry self-concept, self-concept of physical appearance, self-concept of general academic ability, and in the total scores on the Self Description Questionnaire scale.

2. The boys had significantly higher mean scores in self-concept of physical ability than those of the girls.

3. There were no significant differences between the boys and the girls in their mean scores on self-concept of Arabic language, self-concept of parental relations, self-concept of peer relations and general self-concept.

The fifth research hypothesis focused on the relationship between the students' self-concepts scores and their intelligence levels. The Pearson product-moment correlation procedure was used to investigate the above-mentioned relationships and the Fisher Z test was employed to compare the boys' and girls' correlations.

The results of the statistical analysis indicated that a significant positive relationship existed for the girls but not for the boys, between IQ and self-concept of peer relations, self-concept of physical appearance, and self-concept of physical ability. In addition to this, a significant positive correlation was found for the total sample (boys and girls) between IQ and self-concept of mathematics, self-concept of general academic ability, general self-concept and total scores for the Self Description Questionnaire. However, IQ was uncorrelated with self-concept of Arabic language, self-concept of chemistry and self-concept of parental relations:

The concern of the sixth research hypothesis was the relationship between students' socioeconomic status and their self-concepts scores. This hypothesis also was tested via Pearson product-moment correlation and the differences between boys and girls were checked by the Fisher Z statistic. The results obtained from statistical analysis indicate that the only significant differences between the boys' and girls' correlations on SES and SC were observed in SES and general self-concept. A significant positive correlation for the boys was found between SES and GSC, whereas this correlation was not significant for the girls. However, for the total sample a significant positive correlation was found between socioeconomic status and self-concept of general academic ability. Socioeconomic status scores were negatively correlated with self-concept of Arabic. Finally, there were no significant correlations between SES and the remaining SC variables for the total sample.

A simple correlation between the students' achievement scores and their self-concept scores was investigated separately for the boys and the girls and for the total sample. The differences between the boys' and girls' correlations also were investigated via the Fisher Z statistic. This analysis was carried out to provide a clear picture of how self-concept and academic achievement were related, and as a preliminary analysis for hypotheses 7, 8 and 9, and for the four research questions.

In this study, there were no significant differences between the boys and the girls in their correlations between achievement scores and self-concept scores. Thus, both the boys and girls

were treated as one population regarding the correlations between academic achievement scores in Arabic, mathematics and chemistry, and the self-concepts scores. The results, as reported earlier, indicate that the Arabic achievement scores were significantly and positively correlated with SCGAA (r = .54), SCCHEM (r = .32), SCMATH (r = .28), SCT (r = .24), SCARAB (r = .20) and GSC (r = .14). However, there were no significant relationships between students' achievement scores in Arabic language and SCPRNT, SCPEER, SCAPPR or SCPHYS. Regarding achievement in mathematics, a significant positive relationship was found between students' mathematics achievement scores and SCMATH (r = .48), SCGAA (r = .47), SCCHEM (r = .44), SCT (r = .24) and GSC (r = .13). However, a negative correlation between mathematics achievement scores and self-concept of physical ability was found (r = -.17). The relationships between mathematics and SCPRNT, SCPEER and SCAPPR were not significant. Finally, regarding the correlations between the students' achievement scores in chemistry and SC variables, the results revealed that a significant positive correlation existed between chemistry scores and SCGAA (r = .47), SCCHEM (r = .46), SCMATH (r = .29) and SCT (r = .13). Also, a significant but negative correlation was found between chemistry achievement scores and SCPEER (r = -.12) and SCPHYS (r = -.12). The relationships between chemistry and SCARAB, SCPRNT, SCAPPR and GSC were not significant.

The last three research hypotheses focused on the relationships between students' achievement scores in each of the three areas of Arabic, mathematics and chemistry, and their self-concepts in the same areas after controlling for the effects of other independent variables. Multiple regression analysis was used to test these hypotheses. At the first step, the regressions of academic achievement scores in Arabic, mathematics and chemistry on self-concepts, IQ and SES for the boys and the girls were compared using sex as a dummy variable. The comparison was carried out to decide whether the relationships were the same for the boys and the girls. The results of this comparison indicated that the regression of achievement scores in Arabic and chemistry on self-concepts, IQ and SES was similar for the boys and the girls.

Thus, the boys and girls were treated as one population regarding the regression of Arabic and chemistry achievement on SC, IQ and SES. However, for mathematics the partial regression

coefficients were the same for the boys and girls but had different intercepts. This led to one regression equation for the total sample, but sex was also included as a regressor.

The results of regression analysis showed that the effects of self-concept in Arabic language on achievement in Arabic after controlling for other self-concepts variables, and on IQ and SES were not significant. The partial regression coefficient for self-concept in Arabic was 0.322 and the corresponding t-value was 1.685. Self-concept of general academic ability and IQ had significant effects on achievement in Arabic even after independent variables were statistically controlled. For the regression of chemistry achievement on SC, IQ and SES, the overall regression was significant (F = 22.183, p = .0001). The R^2 for this regression was .43. The relationship between chemistry achievement scores and self-concept of chemistry for the students was significant even when controlled for the effect of other independent variables. (t = 6.622, p = .0001). The standardized coefficient for chemistry self-concept was 0.35.

The regression of mathematics achievement scores on SC, IQ and SES was significant (F = 22.882, p = 0.0001). The R^2 was .46. The effect of SCMATH on mathematics achievement scores after controlling for the other independent variables was significant (t = 5.820, p = 0.0001). The partial coefficient of self-concept of mathematics was .29. Self-concept of chemistry and self-concept of general academic ability were also positively related to achievement in mathematics when other variables were statistically controlled.

Research questions 1, 2 and 3 were concerned with the relative contributions of the SC, IQ and SES variables to the variance of each of the three achievement variables. A stepwise regression analysis procedure was used to test the power of each of the independent variables in predicting the dependent achievement variables. In the case of achievement scores in Arabic, self-concept of general academic ability made the most important contribution in predicting these scores. SCGAA accounted for 29% of the variance of achievement in Arabic. SCPHYS and IQ also contributed to this variance.

The results of the stepwise regression of achievement scores in chemistry on SC, IQ and SES showed that the most important significant contribution to the predicting of chemistry achievement scores was made by self-concept of general academic ability, followed by SCCHEM, SCPHYS, SCARAB, SCPEER and IQ. SCGAA accounted for about 22% of the variance of achievement in chemistry. The additional R^2 after SCGAA ranged from .06 to .009.

In the case of mathematics achievement scores, self-concept of mathematics made a significant and unique contribution to the prediction of achievement scores in mathematics and accounted for 23% of the variance of mathematics achievement, followed by SCGAA, SCPHYS, SCARAB, SCCHEM and sex.

The final research question was concerned about the relationship between all the independent variables of self-concepts as a group and all the dependent variables of achievement as another group. Canonical correlation analysis was used to answer this research question. The analysis was done for boys and girls separately.

The results of this analysis revealed that there were three independent links between achievement in the three subjects and self-concept variables for both the boys and girls. The values of the three canonical correlations were almost the same for the boys and girls and all of them were significant.

The first link was between achievement in mathematics, chemistry and to a lesser degree in Arabic on the one hand; and self-concept of mathematics, self-concept of chemistry and self-concept of general academic ability on the other hand. The second link was between achievement in Arabic and self-concept of Arabic. The third link reflected both academic and non-academic self-concepts for both sexes. The first canonical correlation was high for both boys and girls (.640 and .677 respectively); the second was moderate for both sexes (.453 and .485 respectively); while the third one tended to be low (.357 and .378). The practical significance of the three canonical variates was tested via a redundancy analysis. The results indicated that 32% of the achievement trace was accounted for by the first self-concept canonical variate in the case

of the boys, while the corresponding percentage for the girls was about 34%. About 3% of the achievement trace was for by the second self-concept canonical variate for both sexes. As for the third self-concept canonical variate, only about 1% of the achievement trace was accounted for by the third self-concept canonical variate in the case of the boys and 2% in the case of girls.

CHAPTER FIVE

CONCLUSIONS, DISCUSSION AND RECOMMENDATIONS

SUMMARY OF THE STUDY :

In spite of the obvious significance of self-concept as a construct which affects human behaviour and plays a crucial role in the academic environment, there is a lack of valid studies in the area of self-concept and academic achievement in the United Arab Emirates. This has prompted the researcher to embark on such an endeavour. Shavelson et al. (1976) highlighted the multifaceted nature of self-concept and how it is important to consider carefully its individual dimensions in relation to other constructs if meaningful and adequate findings are to be obtained.

This study is a modest attempt to explore the intricacies of the multidimensional nature of self-concept and its relationship to academic achievement, socio-economic status and intelligence. Furthermore, sex differences in various facets were also investigated as a major issue.

Thus, this study attempts to fulfil the following objectives :

1.   To explore the relationship between various facets of self-concept (Arabic, mathematics, chemistry, peer relation, parent relation, physical ability, physical appearance, general academic ability and general self-concept) and academic achievement (Arabic, mathematics and chemistry).

2.   To compare sex differences in the many facets of self-concept.

3.   To examine the relationship between various facets of self-concept and SES.

4.   To investigate the link between the many facets of self-concept and intelligence.

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Prior to the main study, a pilot study was conducted to translate, evaluate and modify the instrument used in the main study; also a socio-economic scale was established. The pilot study was carried out in two Dubai secondary schools, one for boys and the other for girls. The subjects of the pilot study were drawn from 12th grade science students similar to those of main study.

The sample of main study was drawn from five educational zones in the United Arab Emirates. The sample consisted of 157 boys and 177 girls enrolled in the Twelfth Grade (Science Branch) during the academic year 1989-90. Students' ages ranged from 18 to 21 years.

Three instruments were used to measure self-concept, namely, the Self Description Questionnaire (SDQ), the Self-Esteem Inventory (SEI) and the Self-concept of Academic Ability Scales (SCAA). The SDQ was utilised in this study to assess students' self-concept of Arabic language, chemistry, mathematics, peer relation, parent relation, physical appearance and physical ability. Also, the SCAA was used to assess students' self-concept of general academic ability. Students' general self-concept was measured by the Coopersmith Self-Esteem Inventory. Students' achievement scores in Arabic, mathematics and chemistry were obtained from school records for the end of first-semester. In order to measure students' general IQ, Raven Progressive Matrix was administered. A special SES scale, however, was developed for this present study.

By utilising several statistical techniques (e.g. independent t-test, simple correlation, partial regression, step-wise regression and canonical correlation analysis), the following conclusions were based on the findings :

1.   Boys had higher self-concept of physical ability than girls whereas girls had significantly higher self-concept of general academic ability, mathematics, chemistry and physical appearance. No sex differences, however, were

recorded in the areas of Arabic language, parent relation, peer relation and general self-concept.

2. Significant positive relationships were found between IQ and each of the self-concepts of mathematics, general academic ability and general self-concept for the total group. Also, significant relationships existed for the girls but not for the boys between IQ and each of the self-concepts of peer relation, physical appearance and ability.

3. Significant positive correlations were found between SES and each of the self-concepts of general academic ability and general self-concept.

4. Each of the self-concepts of mathematics and chemistry significantly correlated with and contributed to its corresponding academic achievement.

5. SES has no effect on students' academic achievement but IQ has a little effect on such achievement.

DISCUSSION OF RESULTS

Four outcomes have emerged from this study and those will be discussed in detail in following sections.

The first outcome of this study suggests that there were no sex differences in the areas of general and social (peer and parent relations) self-concepts. Sex differences, however, were found in the self-concepts of physical appearance favouring girls and physical ability favouring boys. Further, sex differences were also evident in all areas of academic self-concepts except that for the Arabic language. It was found that girls had significantly higher self-concepts of general academic ability, mathematics and chemistry.

With regard to general self-concept this study did not produce any sex differences. This finding is in accordance with the findings of Coopersmith (1967), Reschley and Mittman (1973), Zuckerman (1980), Osbourne and Legette (1982),

Calhoun and Sethi (1987) and Marsh et al. (1983, 1984 & 1985). It is, however, at odds with those of Louden (1980), Olowu (1985) and Richman et al. (1985). The finding also challenges the assumption forwarded by Rosenberg (1979) and Morse and Green (1970). They assumed that general self-concept in girls is lower than in boys because of their social status which creates inferiority among them. This study found that there were no sex differences in general and social self-concepts. Hence, the present study fails to support the above assumption. This inconsistency can be attributed to number of factors. Firstly, because of traditional and religious values, the United Arab Emirates society is generally segregated along sex-lines. Consequently, girls generally associate with other girls in semi-separate communities of females. This situation possibly does not allow for the creation of feelings of inferiority among them because the source of their general self-concept comes from significant female others. Therefore, the development of girls' general self-concept takes place in isolation from boys' general and social self-concepts. Secondly, this inconsistency regarding the findings of sex differences in general self-concept may stem from the fact that different studies utilise different instruments to measure general self-concept, because researchers have different views about what constitutes the general self-concept.

With regard to self-concept of physical ability and appearance, while the results of the present study yielded significant differences favouring girls in the area of self-concept of physical appearance and favouring boys in the areas of self-concept of physical ability, other studies found that boys had higher self-concepts of both physical ability and appearance. For instance, Clifford (1971), Marsh et al. (1983, 1985, 1987), Simmons and Blyth (1987) and Pallas (1990) have found that boys had higher self-concepts of both physical ability and appearance. The contradictory findings between the present study and the above studies with regard to self-concept of physical appearance can be explained in the light of the following conditions. Firstly, from a cultural point of view, the society of United Arab Emirates may consider beauty and good looks to be a mainly feminine attribute and muscular

appearance to be a largely male quality. Such a cultural set up may direct boys instinctively towards athleticism and physical abilities and girls towards beauty and concern for appearance. Secondly, this inconsistency may be traced to an age factor. In the present study, students' ages ranged from 18 to 20 years, while in other studies such as Marsh et al. (1983) and Pallas (1990) students' ages ranged from 10 to 12 years, a period marked by a rapid and dramatic approach to puberty. At about the age of 12 years girls normally experience drastic physical and bodily changes such as weight gain, height spurt and symptoms related to menstruation period. Girls often experience these puberty-related changes sooner than boys. This may explain why boys in some other studies had a higher self-concept of physical appearance than girls. In contrast, girls in the present study (18-20 years) had gone through this dramatic experience of puberty several years before. So, their present view of their appearance is rather positive because they have reached the age when most of their anxiety about their appearances has gone. Therefore, their self-concept of physical appearance is not affected so negatively as may be the case with younger girls. This may explain the contradictory findings between the results of this study and those of other researches.

With respect to sex differences in academic self-concepts (general academic, Arabic, mathematics and chemistry) girls had higher self-concepts in all academic areas except for self-concept in Arabic, where no significant sex differences were detected. This outcome is in sharp contrast with previous studies. Above all this inconsistency is specially apparent in the self-concepts of mathematics and science. For example, Stevenson and Newman (1986), Sherman (1980), Brush (1978), Meece et al. (1982), Marsh et al. (1983, 1984, 1985) all concluded that boys had a significantly higher self-concept of mathematics than girls, even when girls' achievement in mathematics was better than boys. The justification for those findings presented by those researchers singled out the common stereotypical view that mathematics is a male domain and put forward this as the main reason for boys' higher self-concept. However, the present study does not confirm either those general

findings or the explanation for them that have been outlined by those earlier studies. Girls' higher self-concepts of general academic ability, mathematics and chemistry, as found in this study, can be understood in context of the following considerations. According to the literature on the direction of causality between academic self-concept and academic achievement, some studies, e.g., Caslyn and Kenney (1977), Bachman and O'Malley (1977, 1986), Schunk (1983), Atherley (1990) and Chapman et al. (1990) suggest the causal predominance of academic achievement over academic self-concept and in particular, achievement in specific subject matter affects the corresponding dimension of self-concept. Likewise, data obtained from this study show that girls' scores were higher than those of boys' in both mathematics and chemistry achievement tests. Thus, it is possible that girls' achievement in mathematics and chemistry has positively influenced their academic self-concepts of those subjects. Also, as Primvera, Simon and Primvera (1974) have suggested, academic achievement plays a greater role in promoting the self-concept of girls as it is a major source of approval for them, whereas boys obtain such approval from other sources like peer relations and sport. Such differences in sources of approval may explain girls' higher academic self-concept compared with those of boys'. Another possible explanation for sex differences in academic self-concept favouring girls can be linked to single-sex schooling. The research on the effects of single-sex schooling indicate that girls attending single-sex schools have higher self-concept, academic achievement and satisfaction with most aspects of school life than those who attend co-educational schools. Horner (1972) and Winchel et al. (1974) found that the fear of success was greater among girls at co-educational schools than those attending single sex-schools.

Tidball and Kistikawsky (1976) indicated that the single-sex school provides " a favourable climate for women students that conveys to them a sense of being in an environment where there are many other women seriously involved in a variety of academic pursuits" (p. 652).

Lee and Bryk (1986) compared the effect of single-sex and co-educational secondary schooling on students and found that girls in single-sex schools were generally more interested in academic achievement and held more positive self-concept and behaviour related to academic achievement compared to those attending co-educational schools. The fact that the present study was conducted in a single-sex school system in the United Arab Emirates may account for the gender differences in academic self-concept favouring girls. Also, this may explain the differences in finding between the present study and previous studies, most of which were carried out in co-educational settings.

Still another explanation for girls' higher academic self-concept may be related to school environment and experience. It is possible that the differences in the schooling environment for boys and girls may influence in the long-term the different development of self-concept. In principle, girls' schools in the United Arab Emirates appear to have a better environment than boys' schools. At the secondary stage, boys' schools experience more behaviour and discipline problems than girls' schools. Usually girls tend to behave themselves and to follow school rules, whereas boys tend to ignore many of these rules. In addition to this, girls' schools offer more social and intellectual enterprises in which girls can take part. Also, the fact that only female teachers teach in girls' schools and male teachers teach in boys' school may play a role in affecting students' self-concept. It is possible that female teachers have a closer relationship with their girl students than male teachers with their boy students. As a result female teachers may provide positive feedback and encouragement to their students. This may enhance girls' academic self-concept.

Finally, another possible reason for sex differences in academic self-concept favouring girls may be traced to the cultural stereotypes arising from the socialisation processes of boys and girls. The cultural context of the United Arab Emirates allows boys more freedom to go out and engage themselves in a variety of activities which suit them. On the other hand, such freedom does not exist for girls, who spend most of

the time after school indoors. Possibly this helps girls to concentrate more on academic subjects. Furthermore, girls are expected to do better by the society, parents and teachers. Hence, all these factors may enhance girls' confidence and motivation to perform well, and thereby, improve their actual learning in mathematics and chemistry, which may promote their self-concepts of these subjects.

The second general conclusion drawn from this study concerns the relationship between students' scores in the intelligence test and their self-concept scores. The results for the total group showed that IQ was significantly correlated only with self-concept of mathematics ($r = 0.26$, $p = < 0.1$), self-concept of general academic ability ($r = 0.16$, $p < 0.01$) and with general self-concept ($r = 0.20$, $p < 0.01$). However, IQ was not correlated significantly with the remaining self-concept dimensions. These dimensions were self-concepts of Arabic language, chemistry, parent relations, peer relations, physical appearance and physical ability.

In general, the correlations observed between students' scores on the IQ test and their scores on the self-concept subscales were low. For example, the highest correlation was only 0.26 for IQ with self-concept of mathematics. In other words, IQ accounted only for 6.7 percent of the variance in self-concept of mathematics and IQ accounted only for 4% and 2.5% of the variance of general self-concept and self-concept of general academic ability, respectively.

The low correlations between IQ and some dimensions of self-concept and the insignificant correlations between IQ and other dimensions of self-concept which were found in this study are in agreement with those obtained in several other studies, e.g., Milgram and Milgram (1976), Trowbridge (1972), Chapman et al. (1984), Brody and Benbow (1986) Leonardson (1986), Chan (1988), Chapman and McAlpine (1988) and Hoge et al. (1990). For example, in two of his studies, Trowbridge (1970, 1972) has reported a low correlation of 0.13 and 0.14 between IQ and general self-concept. Chapman et al. (1984), have also reported a correlation ranging from 0.27 to

0.12 between WISC-R scores and Student Perception of Ability Scale (SPAS) for a sample of 800, nine year old children. The highest correlation for SPAS arithmetic subscale was with WISC arithmetic (r = 0.28). Chan (1988) found significant differences between high IQ and low IQ students on cognitive and general self-concepts but not in physical or social self-concept. Also, Hoge et al. (1990) have recently reported that IQ had its strongest influence on self-concept in a specific discipline (mathematics), its next influence on self-concept of general academic ability and no influence on global or social self-concept.

Thus, it appears that the strength of a relationship between IQ and self-concept depends on the self-concept dimension that is being considered. This indicates that the type of the relationship between IQ and various dimensions of self-concept is to some extent logical. For example, Shavelson et al. (1976), argued that "the more closely self-concept is linked with specific situations, the closer is the relationship between self-concept and behaviour in the situation" (p. 415). The lack of significant relationships between IQ and self-concepts of Arabic and chemistry may be explained in the light of the fact that the general IQ test yielded significant correlations with regard to general self-concept and self-concept of general academic ability because of the very general nature of all three scales. However, when it came to specific self-concepts for chemistry and Arabic, the general IQ scale probably failed to establish a significant pattern of relationship. Also, it is very likely that using a simple correlation procedure to determine the relationship could have allowed some possible intervening variables to interfere with the final outcome.

The results of this study, however, are inconsistent with many other studies, e.g., Neufeld and Cozac (1980), Dean (1977), Loeb and Jay (1987), Chiu (1990), Winne et al. (1982), Bartell and Reynolds (1986) and Bracken (1980), where they reported no significant differences between high IQ and low IQ in their self-concept. It is worth noting that the findings of most researches, attempting to establish the relationship between intelligence and self-concept, have been inconsistent, thus,

making comparisons of findings somewhat difficult. These inconsistencies may arise from several factors.

The first factor has to do with sample size. Lehman and Erdwin's (1981) study was based on a sample of 16 students; another study Maddux et al. (1982) used 55 students as their sample; Deans (1987) and Neufeld and Cozac's (1980) studies used samples of 24 and 19 respectively. Thus, such small samples may have considerably affected the results. Another factor may be related to the researcher's own view of self-concept. Many studies have ignored the multidimensionality of self-concept and their results are based on the total scores obtained from a self-concept instrument. This kind of approach can obscure the intricate relations and interactions of the various dimensions of the self-concept with other relevant variables. Yet another factor which may make it difficult to compare studies can be linked to the fact that different studies utilised different criteria to discriminate between high and low IQ students. Moreover, differences can arise among the researchers when it comes to assigning cut-off points for high and low IQs. Thus, these factors may explain some of the difficulties in comparing results of several studies and may also explain some of the discrepencies between the results of this study and those of other studies.

Nevertheless, some sex differences were found in the relationships between IQ and self-concept. While IQ scores for girls correlated significantly with their score in self-concept of peer relations ($r = 0.22$, $p < 0.01$), self-concept of physical appearance ($r = 0.19$, $p < 0.05$) and self-concept of physical ability ($r = 0.21$, $p < 0.1$), these same correlations were insignificant for the boys' group. This means that high IQ girls have better self-concepts than low IQ girls with regard to their self-concepts of peer relations, physical appearance and physical ability, whereas, high and low IQ boys do not differ significantly in their self-concepts of the same dimensions.

These results are in agreement with a few studies which have tested sex differences. Anastasiow (1967), reported that the high IQ girls scored significantly

higher than low IQ girls on self-concept scores of physical appearance and social relations, while the significant differences in the self-concept scores of high and low IQ boys were found in those associated with school subjects and mental ability. Loeb and Jay (1987) found that giftedness seemed to be an advantage for girls but not for boys, gifted girls scoring higher in self-concept of physical strength than non-gifted girls, whereas no such group differences occurred for boys. This rather interesting finding may have to do with the social make-up of the United Arab Emirates' society and may possibly be interpreted in several ways :

Firstly, it may be that high IQ girls demonstrate a greater maturity in their interactions with others and, as a result, they are accorded more freedom by their parents. This allows girls greater mobility outside the home to make more friends and to build up more relationships. If so, high IQ girls would be likely to hold more positive self-concepts of peer relations than low IQ girls. On the other hand, boys have ample freedom to go about freely, just because they are boys. Therefore, IQ does not play such an important role in the way boys define and develop their relations with peers, nor does it have an impact on the degree of freedom they are accorded by their parents.

Secondly, it is possible that high IQ girls receive more positive feedback and attention from teachers than low IQ girls and, also, they may interact more often with their teachers. These contribute to their popularity among their peers and classmates at school.

With regard to IQ and self-concept of physical ability, high IQ girls show more positive self-concept than low IQ girls. This phenomenon possibly has to do with the way society views athletics. It is considered that sports and athletics is a man's domain. As a result the majority of sporting facilities are set up for men. Interestingly, high IQ girls may tend to reject and challenge this traditional view and feel that they need to excel in sports. Therefore, they feel more positive about their

physical ability. In contrast, low IQ girls possibly tend to submit to the prevailing traditional female image.

Accordingly, it is likely that because of the combined effect of positive self-concept of peer relations, self-concept of physical ability and academic achievement, high IQ girls are found to possess more positive self-concept of physical appearance than low IQ girls.

The third outcome of this study showed that, for the total group, there were no associations between students' socio-economic status and the following self-concept dimensions. These dimensions included self-concept of mathematics, self-concept of chemistry, self-concept of parental and peer relations, self-concept of physical ability and appearance and general self-concept. However, SES significantly correlated with two of the dimensions of academic self-concept. SES negatively correlated with self-concept of Arabic language ($r = - 0.11$, $p < 0.05$) and positively with self-concept of general academic ability ($r = 0.12$, $p < 0.05$). In addition to this SES significantly correlated with general self-concept ($r = 0.19$, $p < 0.05$) for the group of boys only.

Generally, the results of this study reflect a weak association between socio-economic status and self-concept. For the entire group, socio-economic status accounted for only 1.4 percent of the variance in self-concept of general academic ability and accounted for only 1 percent of the variance in self-concept of Arabic language. SES acoounted for only 3.6 percent of the variance in general self-concept for the group of boys.

Even though the relationship between SES and self-concept is weak, it is better at this stage for full understanding of this aspect to shed some light on it.

With regard to the negative correlation of self-concept of Arabic language with SES, the researcher views this as a rather unusual outcome that cannot be easily

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explained. However, it is possible to surmise that science students, who may come from well-off families, may hold negative attitudes towards studying the Arabic language. This attitude is enhanced by the fact that they are science majors with a completely different set of interests and aspirations. This combination may negatively affect their self-concept of Arabic and, thereby help to explain the negative relationship between SES and self-concept of Arabic. Nevertheless, it must be admitted that this explanation though plausible lacks empirical support.

On the other hand, the positive correlation of SES for the boys' group in the area of general self-concept may be explained in the light of the cultural and economic set up of the United Arab Emirates. Due to her well-established oil industries, people lead rather more comfortable life-styles than many other countries in the area. These industries have also brought in many other nationalities as an aid to the existing work-force. This element of wealth manifests itself more clearly in the school situation and especially at boys' schools. For instance, native smartly dressed boys generally drive to school in expensive cars and many of these boys come to school with ample pocket money and flashing their hi-tech pagers. In contrast, non-native students do not enjoy the same material possessions. Hence, such discrepancies in students' affluence may have played a role on students' general self-concept. As a result, there exists a positive but weak relationship between SES and general self-concept. In contrast, girls' schools do not allow such open displays of naked affluence to be present. In fact, the school's policy requires all girls to wear school uniform and forbids the wearing of jewellery. Also, most girls come to school by bus. Thus, this socially homogeneous school atmosphere does not allow adverse comparisons to be made among female students. This may explain the absence of any significant relationship between SES and general self-concept among girls.

It should be noted that these results were obtained by the simple correlation method (i.e. Pearson product-moment correlation). Therefore, it is possible that the correlation observed in this study between SES and self-concepts could be affected by

other intervening variables, e.g., academic ability on the self-concept variable rather than the direct influence of the SES variable. It is necessary, therefore, to use more sophisticated statistical techniques to provide a more clear picture of any such relationship.

The weak relationships between SES and some dimensions of self-concepts and the null finding between SES and other dimensions of self-concept are in agreement with Wylie's (1979) conclusion which was based on a review of a number of studies concerning the association between SES and self-concept. She stated that "48 studies involving both well known and idiosyncratic instruments to index overall self-regard have yielded contradictory weak, mostly null results regarding the relationship of socio-economic level and overall self-regard" (Wylie, 1979, p. 115).

The results of the present study matched the findings of many earlier studies concerning the relationship between SES and self-concept. For example, Marsh and Parker (1984) reported a low positive correlation of 0.12 between SES and academic self-concept and SES was not related to general or social self-concept. In the same manner, Rosenberg (1965), Bachman and O'Malley (1977), Maruyama, et al. (1981), Chapman and Boersma (1983) and Pallas et al. (1990) have, also, reported a small positive correlation, ranging between 0.10 and 0.20, between SES and self-concept.

Many other studies have also concluded that self-concept is not related in any meaningful way to socio-economic status : Epps (1969), Edwards (1974), Hulbary (1975), Chapman et al. (1990) and Wiltfang and Scarbecz (1990).

From the results of this study and reviewed literature,it can be safely concluded that SES has little effect on self-concept, particularly in this age group, and the degree of the relationship depends mainly on the dimensions of self-concepts being tested. Marsh and Parker (1984) stated that "the relation between self-concept and SES generally been found to vary between near zero and low positive. However,

this relation also appears to depend on the particular component of self-concept being examined and perhaps on the level of data aggregation" (p. 215).

The weak relationship betwen SES and self-concept dimensions may perhaps be attributable to the following reasons :

An important theoretical assumption in this area of research has emphasised the dominance of social interaction in developing and shaping the self. The feedback from others is especially the most important element and source of data about the self (Mead, 1934; Cooley, 1902). Therefore, the social surroundings of the individual is an important factor in the enhancement of the self-concept vis-a-vis the socio-economic status. The social surroundings include the recognition, respect and cooperation which one got from loved ones. The same view has been highlighted by James (1890) who believed that interpersonal relationships lead an individual to be closely associated with loved ones. For example, in the school environment, it is likely that children whatever their own socio-economic status level, tend to perceive themselves to be more or less socioeconomically equal to most of those around them. Hence, the school setting may have little bearing on students' self-concept.

Luck and Heiss (1972) argued that self-concept should not be expected to be significantly related to socio-economic status because, usually, significant others come from one's own class. In other words, the same level people may not realise the difference among themselves.

Also, age plays a vital part in the development of the self-concept with respect to socio-economic status. This is particularly evident from the Rosenberg's (1979) study which revealed that the social class organises the interpersonal experiences of children and adults in different ways and that the social class is interpreted within different meaning frameworks by children and adults. It is likely that social class makes less difference for the self-concept of the child because of his/her interpersonal

environment which is perceived by the child to be socioeconomically more homogeneous.

The fourth outcome of this study deals with research hypotheses 7 through to 9 and the research questions 1 through to 4. The hypotheses concern the relationships between subject matter, self-concepts and corresponding subject matter achievement (Arabic. chemistry and mathematics) after controlling other independent variables of self-concepts, SES and IQ. The research questions attempt to explain the contributions of the independent variables to the variance of the dependent variables. Results were obtained through the use of four statistical procedures, namely, simple correlation, regression analysis, step wise regression analysis and canonical correlation. The findings are as follows :

In the case of Arabic language, a simple correlation yielded a positive relationship between self-concept of Arabic and academic achievement in Arabic. However, a multiple regression analysis was conducted to find out if this relationship still existed when the other independent variables were statistically controlled. The results showed that the contribution of self-concept of the Arabic language to achievement in Arabic was not significant. The variables which did contribute positively to achievement in Arabic included self-concept of general academic ability and IQ. Also, self-concept of physical ability had a negative effect on achievement in Arabic.

Regarding the correlations between mathematics achievement and self-concepts, it was found that mathematics achievement was significantly and positively correlated only with the self-concepts in the academic areas. The highest correlation was found between achievement of mathematics and the self-concept of mathematics itself. Even when the other variables were statistically controlled, self-concept of mathematics significantly contributed substantially to the variance of mathematics achievement, accounting for 23% of the variance of mathematics achievement. An

additional finding revealed that mathematics achievement correlated negatively with the self-concept of physical ability.

With respect to the correlation between chemistry achievement and self-concepts, it was observed that chemistry achievement was significantly and positively correlated only with the academic self-concepts. The highest correlations were found between chemistry achievement and both self-concept of general academic ability and self-concept of chemistry. These conditions existed even when the other independent variables were statistically controlled. Self-concept of general academic ability, self-concept of chemistry and self-concept of physical ability made the most important contributions to the variance of achievement in chemistry. Similarly to the finding with mathematics, the achievement scores in chemistry correlated negatively with the self-concept of physical ability.

Further statistical (Canonical Correlation Analysis) analysis was conducted to investigate the strength and the nature of the relationship between the three subject matter, Arabic language, chemistry and mathematics taken as a group and all the self-concept dimensions regarded as another group. The results of these analyses showed that the first major link of significance for correlation between these two sets of variables was between achievement in mathematics, chemistry and, to a lesser degree, the Arabic language on one hand and self-concept of mathematics, self-concept of chemistry and self-concept of general academic ability on the other hand. This means that the relationship between achievement and specific and general academic self-concept is far stronger than the relationship between achievement and general or non-academic self-concepts.

From the above results some generalisations can be made.

1. Both in mathematics and chemistry, achievement are significantly and positively correlated with the self-concepts of academic areas. They are also highly correlated

with their own corresponding areas of self-concept and less significantly with the self-concept of other academic areas. They are almost uncorrelated with the non-academic areas of self-concept.

2. Self-concept of the Arabic language has no effect or contribution to the achievement in the Arabic language.

3. Self-concept of physical ability has a significant low negative correlation with achievement in Arabic, mathematics and chemistry.

4. Socio-economic status does not correlate with and contribute significantly to academic achievement in three subject areas, Arabic, mathematics and chemistry.

5. IQ has little effect on academic achievement.

The findings concerning the relationships between achievement in mathematics and chemistry and the corresponding self-concepts in these subject areas, strongly support self-concept theorists Shavelson and Bolus (1982) and Marsh, Smith, Barner and Butler (1983). These theorists argued that self-concept is a multifaceted structure and, because of this, one should expect a higher correlation between academic achievement and academic self-concept than between academic achievement and general, social or physical self-concept. Furthermore, it can be argued that academic achievement in particular areas should be most highly correlated with the corresponding self-concepts in these same areas. These results, also, are in harmony with a large number of studies concerning the relationship between self-concept and academic achievement Zarb (1981), Jordan (1981), Hansford and Hattie (1982), Shavelson and Bolus (1982), Chapman, Silva and William (1984), Song and Hattie (1985), Byrne (1986), Mboya (1986) and Marsh et al. (1983, 1985, 1986). The above studies reported a significant positive relationship between academic self-concept and academic achievement and also obtained insignificant relationships between academic achievement and non-academic self-concepts such as general and social self-concept. For example, Marsh, Relich and

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Smith (1983) found that mathematics achievement strongly correlated (r = 0.55) with mathematics self-concept and with general school self-concept (r = 0.43). Furthermore, their result showed that there was no significant relationship between mathematics achievement and either physical or social self-concept.

The insignificant relationships between academic achievement and general, social and physical self-concepts which were found in the present study can be explained by the same assumptions put forward by Shavelson et al. (1976). They argued that "self-concept is influenced by specific experiences. Therefore, the more closely self-concept is linked with specific situations, the closer is the relationship between self-concept and behaviour in the situation" (p. 415). For instance, a recent study by Hoge, Smit and Hanson (1990) investigated the possible influence of school experience on the general and academic self-concepts. Their findings suggest that self-concept in a particular academic area is strongly influenced by the achievement grade in the same area.

The results of the present study is inconsistent with Coopersmith's (1967) argument that self-concept is so heavily dominated by a general factor that distinct areas of self-concept cannot be differentiated. Since the results of the present study indicate that achievement measures correlated differently with self-concept dimensions, this means that students can differentiate between their general, social and academic self-concepts. Accordingly, the results of the present study support the multidimensional structure of self-concept which was proposed by Shavelson et al. (1976, 1982).

With regard to the relationship between self-concept of Arabic language and academic achievement in Arabic, as mentioned earlier there was no significant relationship between these two variables. Also, the self-concept of Arabic language did not contribute significantly to the variance of achievement in Arabic. This result was unexpected and appeared inconsistent with prevailing theoretical assumptions

mentioned earlier. However, it is worth pointing out that there was a positive significant relationship between achievement in Arabic and self-concept of general academic ability. The unusual relationship between self-concept of Arabic and achievement in the subject may be explained in the light of the following points :

Firstly, it should be noted that the sample subjects of this study were enrolled in the science stream and they studied mainly scientific subjects with the exception of religion and Arabic. Also, the majority of these students probably chose science subjects because they were scientifically inclined.

Secondly, Arabic language is a compulsory subject that students must take and pass. As a result, it is possible that students may develop negative feelings towards learning the Arabic language. Therefore, it is likely that these students' responses to a scale of Arabic self-concept was very unpredictable and less uniform than for other self-concept scales.

It is also possible that the nature of the subjective essay-type test used to measure achievement in Arabic language obscured the real potential of the students. Thus, these scores obtained from subjectively marked essays may be less reliable than those obtained in the other academic areas.

Moreover, the fact that the Arabic test consists of a number of subdivisions, grammar, poetry, literature and composition, may make it incompatible with the test of Arabic self-concept which addresses Arabic as a general subject. This view of Arabic as one unified whole is endorsed by school policies, despite the apparent divisions in the subject.

For all of these reasons it may not be surprising that Arabic achievement does not relate closely to its corresponding self-concept. Thus, the relationship between these two variables does not follow the same pattern as in other academic areas.

The self-concept of physical ability made a small contribution to the variance of achievement in subject areas, Arabic, mathematics and chemistry, but its contribution was less than that of academic self-concept. Self-concept of physical ability accounted for only an additional 2 percent to the variance of achievement in Arabic and an additional 7% to the variance of achievement of chemistry and an additional 5% to the variance of achievement of mathematics. However, the partial coefficients for self-concept of physical ability were negative for the three subjects ranging between - 0.14 to - 0.18. This implies that students with high self-concepts of physical ability scored low in achievement tests. This phenomenon can be explained in the light of Freud's defence mechanism theory (in Schultz, 1986) which argues that an individual tends to make up for his/her weaknesses and inability in one field by trying to prove him/herself in another field. Therefore, several students in the present study who are low achievers in academic subjects are more inclined to show more positive responses on measures of self-concept of physical ability.

As mentioned earlier, students' socio-economic status has no effect on students' academic achievement. This result is in harmony with the conclusion drawn by White (1982). He employed meta-analysis techniques to determine the magnitude of relation between SES and academic achievement based on 101 studies. The findings of his study reveal that the best estimate of the correlation between SES and academic achievement is only 0.25. This led this author to conclude that "the relation between SES and academic achievement is probably much weaker than many people have assumed" (p. 467). The insignificant relationship between SES and academic achievement in the present study can be attributed to the following points :

Firstly, it is necessary to take into account the cultural and social environment derived from the modern economic status of UAE. The considerable wealth generated from the oil-based industries has dramatically changed people's life style. These changes in modern UAE have brought luxuries such as television, videos, telephones

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and modern housing facilities to almost everyone. They have also prompted government to make education free and compulsory. This has lessened the economic differences between SES levels compared with many other countries. Therefore, it is possible that the increased availability to people of all SES levels of similar luxuries and opportunities has resulted in reducing the strength of the relation between SES and academic achievement. It is well-known statistically that correlation is reduced if the range of scores for one variable is narrow, which may be occuring in the case of SES.

Secondly, it is possible that the age of students plays an important role in reducing the relationship between SES and academic achievement. As White (1982) suggests, the relationship between SES and academic achievement drops off as students become older. This is because schools and other socialising agents such as sport clubs may offer equalising experience. Consequently, this uniformity of experience will reduce the strength of relationship between socio-economic status and academic achievement as students grow older. The sample of the present study constituting the 12th Grade consisted of 18-21 year-old students who did not show any significant relationship between their academic achievement and SES. White's explanation, therefore, based on a large number of studies, shed considerable light on this matter.

Thirdly, it should be noted that the major drop-out of students takes place at high school level rather than at elementary level. It may be that the majority of drop-out students may belong to the category of low achievers, leading to a restricted range of scores. This phenomenon may again help to produce, together with the other factors, the insignificant relationship between SES and academic achievement among the 12th Grade students of the present study.

Fourthly, the insignificant relationship between SES and academic achievement may be partly explained by the method used to obtain the SES scores. In

this study the scores of four components, namely, income, education, housing and occupation, were combined to obtain the total SES score. This may reduce correlation between SES and academic achievement, as it is possible that each component correlates differently with academic achievement. For example, White's (1982) study after reviewing a large number of literature found that the highest correlation was between one component of SES, family income, and academic achievement. In addition he found that there was no relation in some cases between achievement and other components of SES.

Finally, the definition of SES may play an important role in determining the strength of the relation between SES and academic achievement. White (1982) found that measures of home atmosphere as SES indicators are much more strongly related to academic achievement than those of traditional indicators of SES such as income, education, housing and occupation, which were used in this study.

With regard to the small effect of IQ on academic achievement which was observed in this study, it can be explained in the light of the nature of IQ measures and academic achievement tests.

The IQ test used in this study was non-verbal, whereas the achievement tests required verbal abilities. Hence, it is possible, as suggested by Powers and Barkan (1986), that the non-verbal test does not correlate strongly with tests which require verbal abilities. Of course specific test-factors and measurement error will also reduce the correlation coefficient.

It may be possible that the academic achievement tests do not have the ability to differentiate between high and low IQ students. This may be possible due to the nature of the contents of the tests which are mainly memory-based and students may be able to recall information and reproduce them as required. Thus, the achievement tests may have the ability to differentiate between well-prepared and non-prepared

students in an academic area, whereas such prior practice is not avilable for the IQ tests. Accordingly, this may partly explain the weak relationship found between IQ and acadeic achievement tests in present study.

An additional finding of this study reveals that girls' achievement in mathematics and chemistry tests is superior to that of boys. However, boys' IQ scores are found to be higher than those of girls. The finding of this study regarding girls' superiority in achievement test of chemistry is in sharp contrast with many other studies conducted within Western societies. Bateson and Parsons-Chatman (1989) reported that the results of numerous large scale studies concerning sex-differences in science achievement, have always shown that boys' achievement in science is superior to that of girls'. Some of these studies which have beeen cited in Bateson and Chatman include the National Assessment of Educational Progress (NAEP) (1970, 1971, 1977, 1978 and 1979), the Assessment Performance Unit (APU) (1979) and British Columbia Science Achievements (1979, 1982, 1986a and 1986b).

Some researchers, e.g., Gray (1981), McGee (1979) and Sherman (1978) tend to interpret sex-related differences in achievement tests in science, which have been observed in European Societies, in terms of the students' biological factors. The biological perspective argues that spatial ability, which is associated with sex differences in brain lateralisation, accounts for girls' deficiency in science performance. Therefore, girls' intellectual capacity is not equal to that of boys.

The findings of this study, however, do not support the biological perspective but can be better understood in the light of sociological factors, which have received more support in recent years. As Kelly (1981) states "...Biology is not destiny. Society has the option, through schooling and socialization, of providing additional training in the areas where each individual is weaker so as to produce citizens with well rounded personalities and competences" (p. 82).

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Further, the same point is more effectively stressed by Erickson and Erickson (1984) who argued that "...the biological interpretation that we find it to be *at least* an incomplete explanation. We think the potential for effective educational intervention is more likely derived from the sociological position" (p. 83).

Thus, the superiority of the girls' achievement in science found in this study can be explained in the light of sociological factors related to the social set-up of United Arab Emirates. The explanation given earlier of girls' higher self-concept of academic ability in chemistry and mathematics (e.g. the influence of single-sex schooling, school environment and the role of socialisation) may also explain girls' higher achievement in chemistry and mathematics. This may help to explain differences between the results of this study and other studies which were carried out in European societies where a different socialisation system exists. For instance, Al-Methen and Wilkinson (1988) came to the same conclusion in their investigation of sex-differences in science favouring girls. This study was carried out in Kuwait which has a very similar culture to that of the United Arab Emirates, where society imposes a different set of values and expectations for girls' and boys' performance at school.

The same explanation may account for the higher achievement of girls in mathematics and can be attributed to several other factors which have been proposed by Kimball (1989). He suggests that the higher achievement in mathematics for girls can be related to different achievement goals for boys and girls. It is possible that performance is the goal for girls and learning is the goal for boys. If performance is the main goal then achievement tasks are approached as a test of one's ability. Therefore, girls aim to minimise failure in order to maximise success. In case of learning as a goal achievement, tasks are approached as a learning process in which case sucess and failure are not important. This may shed some light on the fact that girls are higher achievers in more familiar class-room tests and lower achievers in somewhat unfamiliar standarised tests. This phenomenon can account for boys' better perfomance and achievement in standarised IQ tests. Furthermore, Kimball argues

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that "The standarized test with its greater likelihood of novel problems and confusing material will lead to a greater debilition of girls in comparison with boys because of the greater probability that girls with a performance orientation will approach the task with low confidence in their own ability. In contrast, in classroom exams the greater familiarity of content and context and the possibility of preparation may lead these same girls to overprepare in order to avoid failure and the resulting implication of low ability" (p. 207).

IMPLICATIONS OF THE STUDY

Guided by the findings and results of the present study a number of educational implications can be suggested.

1. The results of this study suggest that girls' academic self-concept and academic achievement in mathematics and chemistry were higher than those of boys. It is possible that the school environment in girls' schools played a significant role in this favourable outcome. Accordingly, it is important that school administration, teachers and school counsellors pay more attention and spend more time in developing closer relationships with the boys and create a more suitable atmosphere for extra curricular activities that may improve boys' academic self-concept.

2. Another result revealed that there was a significant positive relationship between girls' IQ and their self-concepts of physical ability and appearance. In general, a positive self-concept contributes to a healthy and outgoing personality. Therefore, physical education teachers need to pay careful attention and to make extra efforts to encourage girls, especially those with low IQ, to take up athletic activities. This can possibly be achieved by attempting to alter girls' somewhat negative attitude towards sports.

3. A strong relationship was found between specific academic dimensions of self-concepts and their corresponding areas of academic achievement. Based on these findings which suggest that improving students' academic self-concept in particular

areas may improve there academic achievement in the same areas, teachers need to work harder to improve students' self-concept. For instance, teachers need to go beyond teaching and try to create a positive and friendly atmosphere in the classroom. This would entail, for example, avoiding negative and aggressive language and instead providing more positive feedback.

4. The unique finding that there was no significant relationship between students' self-concept of Arabic language and their academic achievement in Arabic language, is in contrast with many well established studies and findings as mentioned earlier. This result conflicts with those in the case of mathematics and chemistry in this study. This study involved students from the science stream, who probably hold a negative attitude towards the study of the Arabic language and may have little interest in continuing to study it. Therefore, it appears important that the Arabic language curriculum for science students should be revised to make it more suitable for them.

RECOMMENDATIONS FOR FURTHER STUDIES :

The execution of this study, together with its findings have brought the researcher's attention to a number of valid concerns and interests. These concerns can be presented in the form of some recommendations for further studies.

1. The causes of sex differences in academic self-concepts favouring girls, need to be investigated for a better understanding. For instance, it is possible that school climate plays a role in sex differences in self-concept. Thus, further studies need to compare boys' and girls' school climates in terms of students' feeling about various aspects of school life, interest in school work and student-teacher relationships.

2. Since this study and others realise the importance of multidimentionality of self-concept and how each specific dimension can relate to other variables differently, it is recommended that future studies in the field of self-concept need to consider and acknowledge the multifaceted nature of self-concept.

3. Despite the fact that there exists a relationship between self-concept and academic achievement, a lack of evidence on the causal direction of the two construct is obvious. As a result there is a need to conduct further studies to investigate the true causal direction between self-concept and academic achievement.

4. The apparent lack of similar studies at the elementary level in the United Arab Emirates highlights the need for such studies in order to understand the differences, if any, between the two age groups.

5. In the light of the finding that showed the absence of a significant relationship between self-concept of Arabic language and achievement in Arabic language for science students, the researcher recommends that further studies be carried out to explore and compare the relationship between self-concept of Arabic language and achievement in Arabic language for students involved in the literary stream and to compare these relationship with those involved in science stream. This might shed some light on differences in students' attitudes and interests in the Arabic language between the two streams.

6. This study found that girls score higher in class-room tests and lower in standardised tests. These results are inconsistent with many other studies. Therefore, it is recommended that this area of research should be further investigated with considerable attention paid to the use of both class-room and standardised tests.

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SELF - DESCRIPTION QUESTIONNAIRE - 1

SELF-DESCRIPTION QUESTIONNAIRE-I

SDQ

Your Name:_____   Circle one: Boy   Girl

School:_____   Grade:_____ Age:_____

Teacher: _____   Date:_____

This is a chance to look at yourself. It is not a test. There are no right answers, and everyone will have different answers. Be sure that your answers show how you feel about yourself. PLEASE DO NOT TALK ABOUT YOUR ANSWERS WITH ANYONE ELSE. We will keep your answers private and not show them to anyone.

When you are ready to begin, please read each sentence and choose an answer. (You may read quietly to yourself as I read aloud.) There are five possible answers for each question: "True," "False," and three answers in between. There are five boxes next to each sentence, one for each of the answers. The answers are written at the top of the boxes. Choose your answer to a sentence and make a check mark in the box under the answer you choose. DO NOT say your answer out loud or talk about it with anyone else.

Before you start, there are three examples below. A student, Bob, has already answered two of these sentences to show you how to do it. In the third example you must choose your own answer and put in your own check mark.

EXAMPLES	FALSE	MOSTLY FALSE	SOME-TIMES FALSE/ SOME-TIMES TRUE	MOSTLY TRUE	TRUE
1. I like to read comic books 1	☐	☐	☐	☐	☑ 1

Bob checked the box under the answer "True." This means that he really likes to read comic books. If Bob did not like to read comic books very much, he would have answered "FALSE" or "MOSTLY FALSE."

2. In general, I am neat and tidy 2	☐	☐	☑	☐	☐ 2

Bob answered "SOMETIMES FALSE, SOMETIMES TRUE," because he is not very neat, but he is not very messy either.

3. I like to watch T.V. 3	☐	☐	☐	☐	☐ 3

For this sentence you have to choose the answer that is best for you. First you must decide if the sentence is "TRUE," or "FALSE," or somewhere in between. If you really like to watch T.V. a lot, you would answer "TRUE" by making a check mark in the last box. If you hate watching T.V., you would answer "FALSE" by making a check mark in the first box. If your answer is somewhere in between, then you would choose one of the other three boxes.

If you want to change an answer you have marked, you should cross out the check mark and put a new check mark in another box on the same line.

For all the sentences be sure that your check mark is on the same line as the sentence you are answering. You should have one answer and only one answer for each sentence. Do not leave out any of the sentences. Once you have started, PLEASE DO NOT TALK. Turn over the page and begin.

1 2 3 4 5 6 7 8 9 10 11 12 A B C D E   09869421

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	FALSE	MOSTLY FALSE	SOME-TIMES FALSE/ SOME-TIMES TRUE	MOSTLY TRUE	TRUE	
1. I am good looking	1 ☐	☐	☐	☐	☐	1
2. I'm good at all SCHOOL SUBJECTS	2 ☐	☐	☐	☐	☐	2
3. I can run fast	3 ☐	☐	☐	☐	☐	3
4. I get good marks in READING	4 ☐	☐	☐	☐	☐	4
5. My parents understand me	5 ☐	☐	☐	☐	☐	5
6. I hate MATHEMATICS	6 ☐	☐	☐	☐	☐	6
7. I have lots of friends	7 ☐	☐	☐	☐	☐	7
8. I like the way I look	8 ☐	☐	☐	☐	☐	8
9. I enjoy doing work in all SCHOOL SUBJECTS	9 ☐	☐	☐	☐	☐	9
10. I like to run and play hard	10 ☐	☐	☐	☐	☐	10
11. I like READING	11 ☐	☐	☐	☐	☐	11
12. My parents are usually unhappy or disappointed with what I do	12 ☐	☐	☐	☐	☐	12
13. Work in mathematics is easy for me	13 ☐	☐	☐	☐	☐	13

	FALSE	MOSTLY FALSE	SOME-TIMES FALSE/ SOME-TIMES TRUE	MOSTLY TRUE	TRUE	
14. I make friends easily	14 ☐	☐	☐	☐	☐	14
15. I have a pleasant looking face	15 ☐	☐	☐	☐	☐	15
16. I get good marks in all SCHOOL SUBJECTS	16 ☐	☐	☐	☐	☐	16
17. I hate sports and games	17 ☐	☐	☐	☐	☐	17
18. I'm good at READING	18 ☐	☐	☐	☐	☐	18
19. I like my parents	19 ☐	☐	☐	☐	☐	19
20. I look forward to MATHEMATICS	20 ☐	☐	☐	☐	☐	20
21. Most kids have more friends than I do	21 ☐	☐	☐	☐	☐	21
22. I am a nice looking person	22 ☐	☐	☐	☐	☐	22
23. I hate all SCHOOL SUBJECTS	23 ☐	☐	☐	☐	☐	23
24. I enjoy sports and games	24 ☐	☐	☐	☐	☐	24
25. I am interested in READING	25 ☐	☐	☐	☐	☐	25
26. My parents like me	26 ☐	☐	☐	☐	☐	26

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	FALSE	MOSTLY FALSE	SOME-TIMES FALSE/ SOME-TIMES TRUE	MOSTLY TRUE	TRUE	
27. I get good marks in MATHEMATICS 27	☐	☐	☐	☐	☐	27
28. I get along with kids easily 28	☐	☐	☐	☐	☐	28
29. I do lots of important things 29	☐	☐	☐	☐	☐	29
30. I am ugly 30	☐	☐	☐	☐	☐	30
31. I learn things quickly in all SCHOOL SUBJECTS .. 31	☐	☐	☐	☐	☐	31
32. I have good muscles 32	☐	☐	☐	☐	☐	32
33. I am dumb at reading 33	☐	☐	☐	☐	☐	33
34. If I have children of my own, I want to bring them up like my parents raised me 34	☐	☐	☐	☐	☐	34
35. I am interested in MATHEMATICS 35	☐	☐	☐	☐	☐	35
36. I am easy to like 36	☐	☐	☐	☐	☐	36
37. Overall, I am no good 37	☐	☐	☐	☐	☐	37
38. Other kids think I am good looking 38	☐	☐	☐	☐	☐	38
39. I am interested in all SCHOOL SUBJECTS 39	☐	☐	☐	☐	☐	39

	FALSE	MOSTLY FALSE	SOME-TIMES FALSE/ SOME-TIMES TRUE	MOSTLY TRUE	TRUE	
40. I am good at sports 40	☐	☐	☐	☐	☐	40
41. I enjoy doing work in READING 41	☐	☐	☐	☐	☐	41
42. My parents and I spend a lot of time together 42	☐	☐	☐	☐	☐	42
43. I learn things quickly in MATHEMATICS 43	☐	☐	☐	☐	☐	43
44. Other kids want me to be their friend 44	☐	☐	☐	☐	☐	44
45. In general, I like being the way I am 45	☐	☐	☐	☐	☐	45
46. I have a good looking body 46	☐	☐	☐	☐	☐	46
47. I am dumb in all SCHOOL SUBJECTS 47	☐	☐	☐	☐	☐	47
48. I can run a long way without stopping 48	☐	☐	☐	☐	☐	48
49. Work in READING is easy for me 49	☐	☐	☐	☐	☐	49
50. My parents are easy to talk to 50	☐	☐	☐	☐	☐	50
51. I like MATHEMATICS 51	☐	☐	☐	☐	☐	51
52. I have more friends than most other kids 52	☐	☐	☐	☐	☐	52

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		FALSE	MOSTLY FALSE	SOME-TIMES FALSE/ SOME-TIMES TRUE	MOSTLY TRUE	TRUE	
53. Overall I have a lot to be proud of	53	☐	☐	☐	☐	☐	53
54. I'm better looking than most of my friends	54	☐	☐	☐	☐	☐	54
55. I look forward to all SCHOOL SUBJECTS	55	☐	☐	☐	☐	☐	55
56. I am a good athlete	56	☐	☐	☐	☐	☐	56
57. I look forward to READING	57	☐	☐	☐	☐	☐	57
58. I get along well with my parents	58	☐	☐	☐	☐	☐	58
59. I'm good at MATHEMATICS	59	☐	☐	☐	☐	☐	59
60. I am popular with kids of my own age	60	☐	☐	☐	☐	☐	60
61. I can't do anything right	61	☐	☐	☐	☐	☐	61
62. I have nice features like nose, and eyes, and hair	62	☐	☐	☐	☐	☐	62
63. Work in all SCHOOL SUBJECTS is easy for me	63	☐	☐	☐	☐	☐	63
64. I'm good at throwing a ball	64	☐	☐	☐	☐	☐	64

		FALSE	MOSTLY FALSE	SOME-TIMES FALSE/ SOME-TIMES TRUE	MOSTLY TRUE	TRUE	
65. I hate READING	65	☐	☐	☐	☐	☐	65
66. My parents and I have a lot of fun together	66	☐	☐	☐	☐	☐	66
67. I can do things as well as most other people	67	☐	☐	☐	☐	☐	67
68. I enjoy doing work in MATHEMATICS	68	☐	☐	☐	☐	☐	68
69. Most other kids like me	69	☐	☐	☐	☐	☐	69
70. Other people think I am a good person	70	☐	☐	☐	☐	☐	70
71. I like all SCHOOL SUBJECTS	71	☐	☐	☐	☐	☐	71
72. A lot of things about me are good	72	☐	☐	☐	☐	☐	72
73. I learn things quickly in READING	73	☐	☐	☐	☐	☐	73
74. I'm as good as most other people	74	☐	☐	☐	☐	☐	74
75. I am dumb at MATHEMATICS	75	☐	☐	☐	☐	☐	75
76. When I do something, I do it well	76	☐	☐	☐	☐	☐	76

MODIFIED SELF-DESCRIPTION QUESTIONNAIRE

(HERBERT MARSH INSTRUMENT)

Herbert Marsh Instrument

Please provide the following information.

Name :------------------   Age :----------------

Educational Zone :--------   School : ------------

Grade and Class :----------   Nationality :--------

Date :------------------

Instructions :

The following is a group of statements about your feelings regarding various aspects. Please, read each statement silently and decide upon your response to each one. There are five possible responses to each question : True, Often true, Sometimes true and sometimes false, Often false and false.

When you choose the appropriate response which reflects your feelings about yourself, please write the sign (X) in the square corresponding to the serial number of the statement under the appropriate response. Be sure that your responses indicate and reflect your feelings about yourself.

Please do not discuss your responses with others.

These responses will be kept confidential and will not be used except for research purposes.

Asking for your cooperation, I wish you every success.

<div align="right">The Researcher.</div>

	False	Most ly False	Some time False Some time True	Most ly True	True
1. I am good looking.	----	----	-----	----	-----
2. I am good at Chemistry.	----	-----	-----	-----	------
3. I can run fast	----	-----	-----	-----	-----
4. I get good marks in Arabic language.	----	-----	-----	-----	-----
5. My parents understand me.	----	-----	-----	----	----
6. I hate Mathematics	----	----	----	----	----
7. I have lots of friends.	----	-----	-----	-----	-----
8. I like the way I look	----	----	----	----	----
9. I enjoy doing work in Chemistry.	----	-----	----	-----	-----
10. I like to run and play hard.	----	-----	-----	-----	-----
11. I like Arabic language.	----	-----	----	----	----
12. My parents are usually unhappy or disappointed with what I do.	----	-----	-----	----	----
13. Work in Mathematics is easy for me.	----	-----	-----	-----	-----
14. I make friends easily.	----	-----	-----	----	-----
15. I have a pleasant looking face.	----	-----	-----	-----	-----
16. I get good marks in Chemistry.	----	-----	-----	-----	-----
17. I hate sports and games.	----	-----	-----	-----	-----
18. I am good at Arabic language.	----	-----	-----	-----	-----
19. I like my parents.	----	----	-----	----	-----

20. I look forward to Mathematics.

21. Most kids have more friends than I do.

22. I am a nice looking person.

23. I hate Chemistry.

24. I enjoy sports and games.

25. I am interested in Arabic language.

26. My parents like me

27. I get good marks in Mathematics.

28. I get along with kids easily.

29. I learn things quickly in Chemistry.

30. I have good muscles

31. I am dumb at Arabic language

32. If I have children of my own, I want to bring them up like my parents raised me.

33. I am interested in Mathematics

34. I am easy to like

35. Other kids think I am good looking

36. I am interested in Chemistry

37. I am good at sports

38. I enjoy doing work in Arabic language

39. My parents and I spend a lot of time together

40. I learn things

quickly in
Mathematics

41. Other kids want me   ----- ----- ----- ----- -----
to be their friend

42. I have a good   ----- ----- ----- ----- -----
looking body

43. I am dumb in   ----- ----- ----- ----- -----
Chemistry

44. I can run a long way   ----- ----- ----- ----- -----
without stopping

45. Work in Arabic   ----- ----- ----- ----- -----
language is easy for me

46. My parents are easy   ----- ----- ----- ----- -----
to talk to

47. I like Mathematics   ----- ----- ----- ----- -----

48. I have more friends   ----- ----- ----- ----- -----
than most other kids

49. I am better looking   ----- ----- ----- ----- -----
than most of my friends

50. I look forward to   ----- ----- ----- ----- -----
Chemistry

51. I am good athlete   ----- ----- ----- ----- -----

52. I look forward to   ----- ----- ----- ----- -----
Arabic language

53. I get along well   ----- ----- ----- ----- -----
with my parents

54. I am good at   ----- ----- ----- ----- -----
Mathematics

55. I am popular with   ----- ----- ----- ----- -----
kids of my own age

56. I cannot do anything   ----- ----- ----- ----- -----
right

57. I have nice features   ----- ----- ----- ----- -----
like nose, and eyes,
and hair

58. Work in Chemistry is   ----- ----- ----- ----- -----
easy for me

59. I am good at   ----- ----- ----- ----- -----
throwing ball

60. I hate Arabic   ----- ----- ----- ----- -----

language

61. My parents and I   -----   -----   -----   -----   -----
    have a lot of fun together

62. I enjoy doing work   -----   -----   -----   -----   -----
    in Mathematics

63. Most other kids like   -----   -----   -----   -----   -----
    me

64. I like Chemistry   -----   -----   -----   -----   -----

65. I learn things   -----   -----   -----   -----   -----
    quickly in Arabic language

66. I am dumb at   -----   -----   -----   -----   -----
    Mathematics

APPENDIX THREE

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COOPERSMITH SELF-ESTEEM INVENTORY

COOPERSMITH   INVENTORY

Please Print :

Name :-----------------   **Age :** ---------------

School :---------------   **Sex : M**------**F**--------

Grade :----------------   **Date :**---------------

Directions :

On the next pages, you will find a list of statements about feelings. If a statement describes how you usually feel, put an X in the column "**Like Me**" if the statement does not describe how you usually feel, put an X in the column "**Unlike Me**". There are no right or wrong answers.

	Like Me	Unlike Me
1. Things usually do not bother me.	------	-------
2. I find it very hard to talk in front of the class.	------	-------
3. There are lots of things about myself I had change if I could.	------	-------
4. I can make up my mind without too much trouble.	------	-------
5. I am a lot of fun to be with.	------	-------
6. I get upset easily at home.	------	-------
7. It takes me a long time to get used to anything new.	------	-------
8. I am popular with kids my own age.	------	-------
9. My parents usually consider my feelings.	------	-------
10. I give in very easily.	------	-------
11. My parents expect too much of me.	------	-------
12. It is pretty tough to be me.	------	-------
13. Things are all mixed up in my life.	------	-------
14. Kids usually follow my ideas.	------	-------
15. I have a low opinion of myself.	------	-------
16. There are many times when I had like to leave home.	------	-------
17. I often feel upset in school.	------	-------
18. I am not as nice looking as most people.	------	-------
19. If I have something to say, I usually say it.	------	-------
20. My parents understand me.	------	-------
21. Most people are better liked than I am.	------	-------
22. I usually feel as if my parents are pushing me.	------	-------
23. I often get discouraged at school.	------	-------
24. I often wish I were someone else.	------	-------

25. I cannot be depended on.   -------   --------

26. I never worry about anything.   -------   --------

27. I am pretty sure of myself.   -------   --------

28. I am easy to like.   -------   --------

29. My parents and I have a lot of fun   -------   --------
    together.

30. I spend a lot of time daydreaming.   -------   --------

31. I wish I were younger.   -------   --------

32. I always do the right thing.   -------   --------

33. I am proud of my school work.   -------   --------

34. Someone always has to tell me what   -------   --------
    to do.

35. I am often sorry for the things   -------   --------
    I do.

36. I am never happy.   -------   --------

37. I am doing the best work that   -------   --------
    I can.

38. I can usually take care of myself.   -------   --------

39. I am pretty happy.   -------   --------

40. I would rather play with children   -------   --------
    younger than I am.

41. I like everyone I know.   -------   --------

42. I liked to be called on in class.   -------   --------

43. I understand myself.   -------   --------

44. No one pays much attention to me   -------   --------
    at home.

45. I never get scolded.   -------   --------

46. I am not doing as well in school as   -------   --------
    I had like to.

47. I can make up my mind and stick   -------   --------
    to it.

48. I really do not like being   -------   --------
    a boy / girl.

49. I do not like to be with other   -------   --------

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people.

50. I am never shy.   ------- --------

51. I often feel ashamed of myself.   ------- --------

52. Kids pick on me very often.   ------- --------

53. I always tell the truth.   ------- --------

54. My teachers make me feel I am   ------- --------
    not good enough.

55. I do not care what happens to me.   ------- --------

56. I am a failure.   ------- --------

57. I get upset easily when I am   ------- --------
    scolded

58. I always know what to say to   ------- --------
    people.

BROOKOVER SELF-CONCEPT OF ACADEMIC

ABILITY SCALE

Brookover Instrument

Please Write.

Name :------------------- **Age :**----------------

Educational Zone :-------- **School :** -------------

Grade and Class :---------- **Nationality :**---------

Date :-------------------

The following are questions concerning your ideas about yourself regarding scholastic achievement.

There are no correct and incorrect answers. In fact the correct answer is the one that expresses your views honestly.

The objective from this questionnaire is to use it in a study conducted by the researcher. So, I seek your cooperation by answering each question accurately according to what you feel, personally, are the best answers about yourself.

Thanking you for your cooperation, I wish you every success.

The Researcher.

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Circle the letter in front of the statement which best answers each question.

1. How do you rate yourself in school ability compared with your close friends?

       a. I am the best.
       b. I am above average.
       c. I am average.
       d. I am below average.
       e. I am the poorest.

2. How do you rate yourself in school ability compared with those in your class at school?

       a. I am among the best.
       b. I am above average.
       c. I am average.
       d. I am below average.
       e. I am among the poorest.

3. Where do you think you would rank in your class in high school?

       a. among the best.
       b. above average.
       c. average.
       d. below average.
       e. among the poorest.

4. Do you think you have the ability to complete college?

       a. yes, definitely.
       b. yes, probably.
       c. not sure either way.
       d. probably not.
       e. no.

5. Where do you think you would rank in your class in college?

       a. among the best.
       b. above average.
       c. average.
       d. below average.
       e. among the poorest.

6. In order to become a doctor, lawyer, or university professor, work beyond four years of college is necessary. How likely do you think it is that you could complete such advanced work?

       a. very likely.
       b. somewhat likely.
       c. not sure either way.
       d. unlikely.

e. most unlikely.

7. Forget for a moment how others grade your work. In your own opinion how good do you think your work is?

a. my work is excellent.
b. my work is good.
c. my work is average.
d. my work is below average.
e. my work is much below average.

8. What kind of grades do you think you are capable of getting?

a. mostly A's.
b. mostly B's.
c. mostly C's.
d. mostly D's.
e. mostly E's.

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FAMILY SOCIOECONOMIC INDEX

Family Socioeconomic Index

Please Write.

Name :------------------   School:--------------

Grade and Class :----------   Educational Zone:-----

Date :------------------

This index concerns some questions about the socioeconomic status of the family and consists of four parts. The index is intended to measure the social and economic level of the family for the purposes of research which is beneficial to the pupils' educational and psychological process.

Thus, your cooperation is sought by responding to all questions and by committing yourself to giving true and accurate responses.

Wishing you every success, I thank you for your cooperation.

The Researcher.

The educational level of the household head.
(Please put a cross (X) opposite the educational status)

1. Illiterate (does not read and write)   ------

2. Reads and writes well   ------

3. Completed primary education   ------

4. Preparatory school certificate   ------

5. General secondary school certificate   ------

6. University graduate   -------

7. Higher diplomas   -------

8. Masters   -------

9. Doctorate   -------

The occupational status of the family supporter
(Please put a cross (X) opposite the family supporter)

1. Doesn't work (Retired - Unable to work   -------

   and receives government subsidiary)

2. Ordinary workman (Works with an owner   -------

   of a firm - agricultural or industrial)

3. Works for himself (Grocer, Taxi Driver,   -------

   wandering vendor, not an employed worker)

4. Skillful worker (Worker in the firm or a   -------

   company as a mechanic, an electrician etc.)

5. Undertakes clerical work (an official,   -------

   Government clerk or owning a private

   clerical business)

6. Business owner or a landlord (owner of a   -------

   technical commercial or agricultural business

   and employing a number of workers)

7. A teacher (teaching at schools or institutes)   -------

8. Undertakes technical or administrative work   -------

     (a doctor, a manager, a lawyer, or an officer)

Please state father's occupation in detail if possible

Occupation of supporter in case of father or mother being disabled or deceased

----

His/her relationship   -------

His/her qualification   -------

The accommodation status
(Please put a cross opposite the kind of accommodation)

A. <u>Kind of accommodation</u>

    1. Flat   -------

    2. Arabian house   -------

    3. Villa   -------

    4. Other   -------

B. <u>Number of rooms and number of people in the family</u>

    Number of rooms   -------

    Number of members of the family   -------

C. <u>The inhabitation density (i.e. Number of people in the</u>   <u>family   divided   by   the</u>

<u>number of rooms in the house)</u>
(Please put a cross (X) opposite the inhabitation density)

    Five or more people in one room   -------

    Four people in one room   -------

    Three people in one room   -------

    Two people in one room   -------

    one person in one room   -------

<u>Family Income</u>
(Please put a cross (X) opposite the monthly income of your family)

1. Less than DH. 2,400   -------

2. DH. 2,400 to less than DH. 4,800   -------

3. DH. 4,800 to less than DH. 7,200   -------

4. DH. 7,200 to less than DH. 9,600   -------

5. DH. 9,600 to less than DH. 12,000   -------

6. DH. 12,000 and more   -------

COURSE OUTLINE FOR MATHEMATICS

"In The Name of Allah, The Most Compassionate"

United Arab Emirates   12th Grade Science Students
Ministry of Education   Text Book : Mathematics
Plan : Seven Lectures Weekly

Course Outline for Mathematics
1989/90

Period	Topics
First Term	Chapter 1 : The Field of Real Numbers Chapter 2 : Limits Chapter 3 : Continuous Functions and the Intermediate Value Theorem Chapter 4 : The Derivative of a Function Chapter 5 : The Derivatives of Circular Function and Implicit Differentiation General Review
Second Term	Chapter 6 : Geometric Applications and Time Rates Chapter 7 : Application of Differentiation Chapter 8 : Graphs of Polynominal Functions and Rational Functions Chapter 9 : Integration Chapter 10 : The Integral of the Logarithmic Functions and the Rational Functions Chapter 11 : Applications of Integration General Review

Remark

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THE ACHIEVEMENT TEST IN MATHEMATICS

Ministry of Education.
Dubai Educational Zone,
Department of Planning,
Evaluation and Examination.

Subject :	Mathematics.
Time Allowed :	Two and Half Hours

First Term Final Examination, January 1990.

Grade ; 12th Grade Science Branch.

Instructions :

1. The exam consists of 5 questions. the first one is multiple choice while the remaining questions are essay type.

2. Write down your answers, using ink, in the attached answer booklet.

3. Do not use eraser.

4. For the multiple choice part choose only one answer.

5. Answers should be properly numbered.

6. Calculators can be used if needed

Question One (30 points) Choose the correct answer.

1) The least upper bound for the set $X = \{1/2, 2/3, 3/4, \ldots, n/(n+1), \ldots\}$ is:
   a) 1
   b) 3/4
   c) 1/2
   d) does not exist.

2) The solution set for the equation $[3 - x] = -5$ is:
   a) ϕ
   b) $[8, 7[$
   c) $[7, 8]$
   d) $]7, 8]$

3) The solution set of the inequality $\left| \dfrac{1}{x} - 7 \right| \leq 0$ is:
   a) 7
   b) $-1/7$
   c) $1/7$
   d) ϕ

4) The solution set for the inequality $\sqrt{(x-1)^2} \leq 3$ is:
   a) $[-2, 4]$
   b) $\{-2, 4\}$
   c) $[4, -2]$
   d) $[-4, 4]$

5) Let $f(x) = [x] - |x|$. Then on the interval $[1, 1.5]$ $f =$ a) $x - 1$
   b) $1 - x$
   c) $1.5 - x$
   d) $x - 1.5$

6) The interval $[3, 4[$ contains:
   a) neighborhood left to 4
   b) a neighborhood around 3
   c) a neighborhood left to 3
   d) a neighborhood around 3.1

7) $\displaystyle \lim_{x \to 5-} \frac{|x - 5|}{x - 5}$ is:
   a) 1
   b) 0
   c) -1
   d) does not exist.

8) $\displaystyle \lim_{x \to 2+} [5 - x]$ is:
   a) 3

b) 2

c) does not exist.

d) 1

9) $\lim\limits_{x \to 0} \dfrac{\sin(1 - \cos^2 x)}{\sin^2 x}$ is:

a) 1

b) does not exist.

b) 0

d) ∞

10) $\lim\limits_{x \to 1} \sqrt{x - 1} + 2$ is:

a) 2

b) -2

c) does not exist.

d) 0

11) $\lim\limits_{x \to -\infty} \dfrac{(x - 1)^2}{x}$

is:

a) $-\infty$

b) -1

c) 1

d) ∞

12) If $f(x) = \begin{cases} k & : x = 1 \\ 2 & : 1 \le x \le 3 \end{cases}$ is continuous on $[1, 3]$, then $k =$

a) 1

b) 0

c) 2

d) 3

13) Which of the following functions is not continuous at 2?

a) $\dfrac{1}{x + 2}$

b) $\sqrt{x + 2}$

c) $\dfrac{x - 2}{|x + 2|}$

d) $[x - 2]$

14) If f is continuous on $[1, 7]$, and $f(1) = 2$, $f(3) < 0$, $f(5) > 0$, and $f(7) = -2$, then the number of roots of f is at least:

a) 1

b) 2

c) 3

d) 4

15) Let $f(x) = \dfrac{x-2}{x-3}$. Then f has the same sign on the interval:

   a) $[2,3[$

   b) $]2,3]$

   c) $[2,3]$

   d) $]2,3[$

16) The intermeadiate value theorem can be applied to the interval $[0,\pi]$ for the function:

   a) $\sin x$

   b) $\tan x$

   c) $\cos x$

   d) $x/(x-2)$

17) If $f(x) = \begin{cases} x^2 & : 0 \le x \le 2 \\ 6-x & : 2 < x \le 5 \end{cases}$, then the average rate of f as f changes from 1 to 3 is:

   a) 2

   b) 1

   c) -1

   d) -2

18) Let $f(x) = 3x^2 - 4x$. Then $\displaystyle\lim_{h\to 0} \dfrac{f(2+h)-f(h)}{h}$ is:

   a) -8

   b) -2

   c) 2

   d) 8

19) If $f(x) = (x-2)g(x)$, and $g'(1) = -4$, and $g(1) = 3$, then $f'(1)$ is:

   a) -4

   b) -7

   c) 7

   d) 3

20) If the line $l : 2x + y = 15$ is tangent to $f(x)$ at $(3,9)$, then $f'(x) =$

   a) 2

   b) -2

   c) 3

   d) -3

Question Two (15 points).

a) Show that if $x \in R^-$ then
$$x + \frac{1}{x} \leq -2.$$

b) If $\frac{1}{3} \leq \frac{h}{3} - 1 < 1$, find $[h]$.

c) Find and draw largest domain for the following functions on the real line.

1) $f(x) = \frac{\sqrt{x+1}}{[x] - 5}$.

2) $h(x) = \sqrt{5 - |x|}$.

3) $t(x) = \frac{1}{x}$, $x > -3$, $t(x) = 5$, $x < -3$.

4) $g(x) = \frac{1}{x-4} + x^{-(2/3)}$.

d) Let $f(x) = \begin{cases} |x+4| & : -6 \leq x \leq -4 \\ -\sqrt{-x} & : -4 < x \leq 0 \\ [x-2] & : 0 < x \leq 2 \end{cases}$. Draw the graph of f and use it to obtain the graph of $|f|$.

Question Three (15 points).

a) Explain the meaning of the statement: $\lim\limits_{x \to \infty} f(x) = L$.

b) Use the definition of limit to show that
$$\lim_{x \to 3}(2x - 1) = 5.$$

c) Find the the following limits:

1) $\lim\limits_{x \to 5} \dfrac{x^2 - 25}{3 - |x - 2|}$

2) $\lim\limits_{x \to -(3/2)} \dfrac{|x + 1|}{[x - 1]}$

3) $\lim\limits_{x \to 2} \dfrac{2 - x}{\sqrt{2} - \sqrt{x}}$

4) $\lim\limits_{x \to 2} \dfrac{\cos(x - 2)}{x^2 - 4}$

Question Four (20 points).

a) Let $f(x) = \begin{cases} 1 - (x - 2)^2 & : x > -2 \\ 3x - 9 & : x \leq -2 \end{cases}$. Discuss the continuity of f on $[-3, 0]$.

b) Give one iteration of an approximation method for finding a positive root for the equation $x^3 - 5x + 1 = 0$.

c) Study the sign of $f(x) = \dfrac{x}{x^2 - 4}$ and use it to determine the domain of the function $g(x) = \sqrt{f(x)}$.

d) Let $f(x) = \dfrac{x^2 - 4}{x - 2}$ and $h(x) = \dfrac{x^2 - 1}{x - 1}$. Find $\lim\limits_{x \to 1} (f o h)(x)$.

Question Five (20 points).

a) Let $f(x) = \begin{cases} x^2 & : x \le 1 \\ x & : x > 1 \end{cases}$. Using the definition of derivative discuss the differentiability of f at $x = 1$.

b) Let $y = \dfrac{1}{2}t^2 + 1$ and $x = t - 1$. Find $\dfrac{y}{dx}\big|_{x=2}$ by tow methods.

c) In the following, find $\dfrac{dy}{dx}$ in terms of x and put it in the most simplified form possible.
   1) $y = mx + b^3$, $m, b \in R$.
   2) $y = \dfrac{x^3}{1 - x}$, $x \ne 1$.
   3) $y = -4\sqrt{1 - 6x^3}$

d) Suppose that f and h are two differentiable functions on R, and that $f(0) = 1$, $f'(0) = 2$, $f'(2) = 3$, $h(0) = 2$, $h'(0) = 5$.
   1) Find $(fh)'(0)$.
   2) Find $(f o h)'(0)$.

COURSE OUTLINE FOR CHEMISTRY

"In The Name of Allah, The Most Compassionate"

United Arab Emirates　　　　12th Grade Science Students

United Arab Emirates

12th Grade Science Students

Ministry of Education

Text Book : Chemistry

Plan : Four Lectures Weekly

Course Outline for Chemistry
1989/90

Period	Topics	
First Term	Unit 1 : Unit 2 : Unit 3 :	Electro-Chemistry and Properties of Solutions Oxidation - Reduction Reactions Acids - Bases Modern Theories up to The End of Common Bases page 114
Second Term	Unit 3 : Unit 4 : Unit 5 : Unit 6 : Unit 7 :	Acids - Bases Modern Theories From page 114 Electro-Chemistry Chemistry of Sodium and Iron Study of some Natural Gas and Petroleum based Industries Principles of Nuclear Reactions.

Remark

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THE ACHIEVEMENT TEST IN CHEMISTRY

United Arab Emirates

Ministry of Education

Dubai Educational Zone

Planning and Exam Section

Grade 3 -Secondary

Time Allowed 2.5 Hours

Final Exam (First Semester)
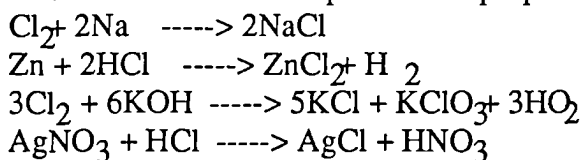Jan. 1990

Answer all the Following Questions : -

First Question

Firstly : - Choose the right answer for each of the following statements : -

1. The aqueous solution of Sodium Hydroxide contains :
- $Na^+ + H_3O^+$ ions   - $Na^+ + OH^-$ ions
- Only NaOH molecules   - $H_3O^+ + OH^-$ ions

2. The reaction which represents disproportionation in Oxidation - Reduction is :
$Cl_2 + 2Na \longrightarrow 2NaCl$
$Zn + 2HCl \longrightarrow ZnCl_2 + H_2$
$3Cl_2 + 6KOH \longrightarrow 5KCl + KClO_3 + 3H_2O$
$AgNO_3 + HCl \longrightarrow AgCl + HNO_3$

3. When Titrating Hydrochloric Acid against Patassium Hydroxide the suitable indicator is :
- Methyl Orange   - Methyl Red
- Phenolphthalene   - or All of Above

4. The Hydrogen exponent (pH) for a 0.005 M Barium Hydroxide solution whose 100 % dissociation degree is :
- 2   - 12
- 13   - 3

5. A Buffer Solution can be obtained by mixing two equal volumes of :
- 0.3 mol/litre Sodium Hydroxide with 0.2 mol/litre Acetic Acid
- 0.1 mol/litre Sodium Hydroxide with 0.2 mol/litre Acetic acid
- 0.1 mol/litre Sodium Hydroxide with 0.2 mol/litre Hydrochloric Acid
- - 0.1 mol/litre Sodium Hydroxide with 0.1 mol/litre Acetic acid

6. In the following reaction, the equivalent mass for Bronmine as a reducing agent is :
$Br_2 + NaOH \longrightarrow NaBr + NaBrO_3 + H_2O$
- 40   - 80   - 16   - 32
(Atomic Mass for Bromine = 80)
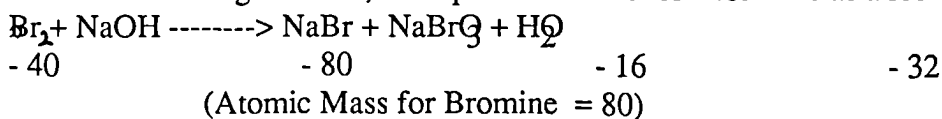
7. The Mass of Sodium carbonaete (Molecular Mass = 106) necessary for preparing 0.1 litre of the o.1 N salt solution is :
-5.3 gm   -0.53 gm   -0.106 gm   -1.06 gm

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8. When 25 ml of a 0.1 M Sulphuric Acid (H_2SO_4) is added to 50 ml Sodium Hydroxide is :

-0.2 mol/litre   -0.1 N   -0.5 mol/litre   0.3 N

9. The addition of Sodium Acetate Solution to the Acetic Acid Solution leads to the :
- Decrease in the pH value of the solution
- Increase in the pH value of the solution
- Increase in the ionization of the Acetic Acid
- Formation of white precipitate

10. The Oxidation Number for Oxygen Atom in Oxygen Fluoride (OF_2) is :
- (-2)   - (+2)   - (-1)   - (0)
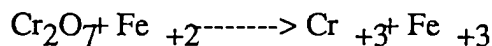
Secondly :

From Concentrated Hydrochloric Acid whose density is 1.18 gm/cm^3 and which contains 36.5% by weight Hydrogen Chloride gas, 4.24 ml is taken out and distilled water is added to it till the volume of the solution becomes 500 ml, if 15 ml of the acid solution neutralises 20 ml of Sodium Hydroxide Solution, Calculate the normality of both the acid and base

(H = 1, Cl = 35.5)

Second Question :

Firstly :

The following Oxidation-Reduction equation is imbalanced and represents a reaction between Potassium Dichromate and Ferric Chloride in an acidic medium

$$Cr_2O_7 + Fe_{+2} \text{------->} Cr_{+3} + Fe_{+3}$$

It is required to :
(1) - balance the former equation using the fractional ion-electron method
(2) - identify the reducing agent and mention the reason
(3) - calculate the equivalent mass of the oxidising agent
Fe = 56,   Cr = 52,   K = 39,   O = 16,   Cl = 35.5

Secondly :

Arrange the following in ascending order

a.- The following materials in order of an expected pH value of their solutions with the same molar concentration
(1) - CH_3COOH, NH_4OH, H_2SO_4,   HCl
(2) - NaCl, CH_3COONa, NH_4Cl,   HCOONH4 (Ka > Kb)

b. - The following formulae in order of the Manganese Oxidation Number
MnO_2 $KMnO_4$ $MnCl_2$ K_2MnO_4

c. - The following Acetic Acid Solutions in order of their dissociation degree (α)
0.01 M,   0.1 M,   0.02 M,   0.2 M

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<u>Thirdly :</u>

Potassium Acetate Solution whose concentration is 0.01 M, knowing that the ionisation constant for Acetic Acid = 1.8×10^{-5}, calculate the value of :

(1) - The pH of the Potassium Acetate Solution
(2) - The salt Hydrolysis Constant
(3) - The effect of the solution upon the Phenolphthalene indicator
$$\log 1.8 = 0.26$$

<u>Third Question :</u>

<u>Firstly :</u>

What is meant by each of the following :
(1) - Salt Hydrolisis
(2) - Oxidation Number
(3) - Bronsted - Lowry Acid
(4) - Normal Solution
(5) - Lewis Base

<u>Secondly :</u>

Specify the correct and wrong statements from each of the following and correct the wrong underlined words

(1) - In titration, the solution change of the pH value within the neutral or equivalence point depend upon the <u>sort of the indicator used</u>

(2) - When A^+X^- solution is added to (A^+B^- saturated solution) <u>this leads to the increasing of A^+B^- solubility</u>

(3) - <u>We reach the equivalence point</u> if one litre of normal HCl reacts with 12 gm of Magnesium metal (Mg = 24)

(4) - The dissociation of Methyl Orange indicator molecules (BOH) increases if <u>an alkali</u> is added

(5) - A 0.01 M acid (HA) whose ionisation constant (Ka = 1×10^{-6}), <u>the pH value</u> for this is equal to four.

<u>Thirdly :</u>

800 ml of a 0.01 M Lead (II) Nitrate Solution is added to a 0.02 M Potassium Chloride Solution, the Volume of the resulting solution is one litre. Will Lead (II) Chloride precipitate or not? Why?

$$\text{The } K_{sp} \text{ for Lead (II) Chloride} = 1.6 \times 10^{-5} \text{ at } 25^O \text{ C}$$

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The Fourth Question :

Firstly :

Scientifically deduce for the following using the chemical equations to explain your answers :

(1) - The water behaves as a base in some reactions and as an acid in others

(2) - Hydrogen gas is released when Zinc is added to Ferric Sulphate solution

(3) - The (pH) value remains approximately constant when a small quantity of an acid is added to a mixture of Ammonium Hydroxide and Ammonium Chloride Solutions.

Secondly :

Explain how 500 ml of approximately 0.05 N Sodium Hydroxide Solution is prepared in the school laboratory, write the method of calculation, the steps of practical

$$Na = 23, \qquad O = 17, \qquad H = 1$$

Thirdly :

Write a correct answer for each statement within the blank spaces

(1) - The thickness of the ionic layer in the electrolytic solutions depend upon ...., ...

(2) - If, 0.2 litre of distiled water is added to 100 ml of a 0.3 N Potassium Hydroxide solution, the concentration of the resulting solution is ....

(3) - When the element (X) combines with Oxygen to form the two Oxides XO, X_2O, the two oxidation numbers of the element are ...., ... respectively

(4) - When HCl gas is passed through a saturated solution of calcium Carbonate and Silver Chloride, the solubility of .... increases where as .... precipitated

(5) - According to Lewis Theory, when $ZnCl_2$ reacts with Ammonia forming $[Zn(NH_3)_4]^{+2}$ .... is the acid and .... is the base

(6) - When SO_4^{-2} from Sulphuric Acid is reduced to S^{-2} the equivalent mass of Sulphuric Acid is equal to ....
$$S = 32, \qquad O = 16, \qquad H = 1$$

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SUPPLIMENTARY REQUEST TO OBTAIN PEOPLE'S

PREFERENCE REGARDING SOCIOECONOMIC INDEX

Dear Brother,

The researcher is in the process of developing an UAE family socioeconomic (SES) index for the purpose of research. The intended index consists of four components as follows :

1). **House status** which includes types of the houses (villa, apartment,----), number of rooms in the house and the ownership of the house (rented, owned, governmental loan).

2). **Educational level** of the household head.

3). **Family income.**

4). **Occupational status** of the household head, i.e. the household head's job.

Although these four components are important in identifying the SES of the family, it is not equally important. Further, there are different views regarding the importance of each component.

Because of the above, the researcher is interested in your opinion about the priorities of aforementioned components in measuring SES. Your cooperation and opinion are held dearly, therefore, kindly express your opinion by ordering the four components according to their importance in identifying the UAE family SES, that is, by ranking the importance of the components according to your point of view. For example, if you think that the most important component in identifying the family SES is the household occupation then write (1) in front of the occupational status of the household head. I will also appreciate if you can mention the reason for your ranking.

Thank you and appreciate your help.

The Researcher

Component :   **Rank**

Educational level of the household head : ---

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Family income : ---

House status :--

Occupational status of the household head :---

Ranking Rationale :

Name :---

Occupation :---------------------------------------

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STATISTICAL RATIONALE FOR COMPUTING THE

TOTAL SES SCORES

STATISTICAL RATIONALE FOR COMPUTING THE TOTAL SES SCORES.

The total SES score X was computed by the formula

$$X = 2.68X_1 + 2.58X_2 + 1.56X_3 + 3.18X_4$$

Where $X_1 X_2, X_3$ and X_4 are the four components' standard scores. However, for the sake of clarity of the following derivation, it will be assumed that the weights applied to the component scores are a_1, a_2, a_3, and a_4, and that the common component score mean and standard deviation are M and S respectively. In this case X is given by

$$X = a_1 X_1 + a_2 X_2 + a_3 X_3 + a_4 X_4 \qquad (1)$$

Accordingly, the mean $\overline{X}$ of X is given by

$$\overline{X} = a_1 M + a_2 M + a_3 M + a_4 M = M(a_1 + a_2 + a_3 + a_4).$$

The above is obtained by using the formula for the mean of a linear combination (see, for example, Mardia et al., 1979, pp. 13-14). But the sum of the weights is equal to 10 by construction, and M was chosen to be equal to 5. Thus by the last formula the mean X is equal to 50.

As for the standard deviation of the total SES score, Mardia et al., (1979, pp. 13-14) indicate that if this statistic is denoted by S_X then the variance $V = S^2_X$ is given by

$$V = a_1^2 S^2 + a_2^2 S^2 + a_3^2 S^2 + a_4^2 S^2 + 2a_1 a_2 S^2 r_{12} + 2a_1 a_3 S^2 r_{13}$$
$$+ 2a_1 a_4 S^2 r_{14} + 2a_2 a_3 S^2 r_{23} + 2a_2 a_4 S^2 r_{24} + 2a_3 a_4 S^2 r_{34} \qquad (2)$$

Where r_{12}, r_{13}, r_{14}, r_{23}, r_{24} and r_{34} are the correlations between pairs of components X_1, X_2, X_3 and X_4. Because the correlation between each pair of component is a positive fraction, ie r is between 0 and 1, (obviously a scale cannot be made up of negatively correlated components), the following inequality applies to the fifth term in the right-hand side of (2) :

$$0 < 2a_1 a_2 S^2 r_{12} < 2a_1 a_2 S^2.$$

Similar inequalities apply to the last five terms in the right-hand side of (2). Accordingly, the following inequalities are true :

$$V > a_1^2 S^2 + a_2^2 S^2 + a_3^2 S^2 + a_4^2 S^2 \ , \tag{3}$$

$$V < a_1^2 S^2 + a_2^2 S^2 + a_3^2 S^2 + a_4^2 S^2 + 2a_1 a_2 S^2 + 2a_1 a_3 S^2$$
$$+ \ 2a_1 a_4 S^2 + 2a_2 a_3 S^2 + 2a_2 a_4 S^2 + 2a_3 a_4 S^2 \tag{4}$$

Since the value of S is equal to 1 and the values of a_1, a_2, a_3 and a_4 are 2.68, 2.58, 1.56 and 3.18 respectively, then inequality (3) becomes

$$V > 2.68^2 + 2.58^2 + 1.56^2 + 3.18^2 ,$$

which, on simplification, yields

$$V > 26.3848.$$

Hence,

$$S_X > 5.14$$

$$\text{so } V = S_X^2$$

This means that the standard deviation of the total SES score is greater than 5.14.

Substituting the value of S = 1 in inequality (4) yields

$$V < a_1^2 + a_2^2 + a_3^2 + a_4^2 + 2a_1 a_2 + 2a_1 a_3 + 2a_1 a_4 + 2a_2 a_3 +$$
$$2a_2 a_4 + 2a_3 a_4 ,$$

which means that

$$V < (a_1 + a_2 + a_3 + a_4)^2 .$$

But since the sum of the weights is equal to 10 then

$$V < 10^2$$

and

$$S_X < 10,$$

or that the standard deviation of the total SES score is less than 10.

The above derivation showed that the choice of a common component score standard deviation of 1 and mean of 5 must lead to total SES score mean of 50 and

standard deviation falling between 5.14 and 10. With these values, the lowest score in the distribution of the SES total score cannot be negative since such a low score will be more than 10 standard deviations below the mean of the distribution if the standard deviation took the minimum value, and 5 standard deviations below the mean if the standard deviation took the maximum value. On the other hand, the SES total score cannot exceed 100 since the highest score would, in this case, be more than 10 standard deviations above the mean if the standard deviation assumed the minimum value, and more than 5 standard deviations above the mean if the standard deviation assumed the maximum value.

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COMPUTATION AND INTERPRETATION OF REDUNDANCY COEFFICIENT IN CANONICAL CORRELATION ANALYSIS

COMPUTATION AND INTERPRETATION OF REDUNDANCY COEFFICIENT IN CANONICAL CORRELATION ANALYSIS.

The redundancy of the dependent variables given one of the canonical solutions is analogous to the square multiple correlation in regression analysis. Both indices provide a descriptive measure of the overlap between the dependent and independent sets of variables. In other words, they indicate the proportion or percentage of variants of the dependent variables accounted for by the independent variables. In the case of canonical correlation analysis the latter notion has to be adapted to the case of several dependent variables. Thus, as Levine (1977) puts it, "One asks how redundant a set is (the dependent variables set), given the availability of information from the other set (the independent variables set) as contained in a canonical variate from the other set" (p. 24). Instead of considering the proportion of variants of a single dependent variable: , one considers what is termed the trace of the dependent variables which is the sum of the variants of these variables after a standardizing them. According to Stewart and Love (1968) the redundancy index given the first pair of canonical variates can be computed as follows :

Let S_{1j} be the correlation of the jth y variables (dependent variable) with the first canonical variate and let V_{y1} be the proportion of the y variables trace accounted for by the first canonical variate. Then,

$$V_{Yi} = \frac{\sum_{j=1}^{q} s_{ij}^2}{q}$$

Where q is the number of y variables. In other words, V_{y1} is the sum of the squares of the correlations between the dependent variables and the first canonical variate divided by the number of the dependent variables. If the redundancy of the dependent variables given the first pair of canonical variates is denoted by rd,then it

is given by $rd_{y1} = V_{y1} r_{c1}$, where r_{c1} is the first canonical correlation. The redundancy indices given the other pairs of canonical variates can be computed in a similar manner. Thus, one can obtain rd_{y2}, rd_{y3},........,rd_{yk} where k is the number of the canonical variates.

TEST - RETEST RELIABILITY DATA FOR BROOKOVER

SELF-CONCEPT OF ACADEMIC ABILITY SCALE

Test - Retest Reliability Data for Brookover Self-concept

of Academic Ability Scale

Sr. NO.	Sex 1=Boys 2=Girls	Test Score	Retest Score
1	1	26	29
2	1	16	16
3	1	30	25
4	1	30	31
5	1	22	27
6	1	27	28
7	1	38	36
8	1	21	29
9	1	31	30
10	1	34	32
11	1	35	33
12	1	36	36
13	1	31	32
14	1	26	27
15	1	24	26
16	1	24	24
17	1	31	28
18	1	26	28
19	1	25	25
20	1	39	39
21	1	25	25
22	1	25	24
23	1	22	21
24	1	33	32
25	1	35	35
26	1	26	27
27	2	32	29
28	2	29	30
29	2	24	27
30	2	27	32
31	2	33	27
32	2	24	25
33	2	37	40
34	2	24	26
35	2	28	30
36	2	27	29
37	2	29	32
38	2	19	19
39	2	37	37
40	2	31	33

41	2	32	33
42	2	25	30
43	2	40	40
44	2	30	33
45	2	24	23
46	2	29	29
47	2	30	30
48	2	40	40
49	2	27	33
50	2	31	32
51	2	24	32
52	2	31	33
53	2	31	31
54	2	36	40
55	2	35	33
56	2	33	35
57	2	28	31
58	2	40	40
59	2	31	30

TEST - RETEST RELIABILITY DATA FOR

COOPERSMITH SELF-ESTEEM INVENTORY

Test - Retest Reliability Data for Coopersmith Inventory

Sr.No.	Sex 1=Boys 2=Girls	Test Score	Retest Score
1	1	38	66
2	1	58	70
3	1	72	82
4	1	52	62
5	1	40	42
6	1	78	80
7	1	78	76
8	1	68	62
9	1	32	28
10	1	56	60
11	1	60	54
12	1	70	66
13	1	84	82
14	1	78	68
15	1	62	70
16	1	68	72
17	1	66	46
18	1	48	58
19	1	64	70
20	1	60	52
21	1	60	58
22	1	58	58
23	1	70	74
24	2	42	42
25	2	82	86
26	2	68	72
27	2	36	44
28	2	58	62
29	2	88	90
30	2	44	52
31	2	84	80
32	2	74	70
33	2	56	76
34	2	84	92
35	2	46	50
36	2	64	56
37	2	74	58
38	2	46	54
39	2	58	76
40	2	68	76
41	2	82	84

42	2	58	82
43	2	88	90
44	2	70	72
45	2	60	62
46	2	76	76
47	2	58	46
48	2	56	62
49	2	74	86
50	2	76	76
51	2	70	76

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TEST -RETEST RELIABILITY DATA FOR

SELF-DESRIPTION QUESTIONNAIRE

Test - Retest Reliability Data for Self-Description

Questionnaire

Sr. No.	Test Score	Retest Score
1	30	29
2	29	31
3	28	29
4	27	27
5	26	26
6	28	33
7	27	27
8	21	26
9	31	28
10	31	32
11	34	37
12	24	26
13	32	30
14	26	29
15	34	30
16	35	35
17	30	29
18	25	25
19	27	27
20	28	28
21	31	30
22	33	32
23	19	23
24	28	31
25	27	30
26	33	25
27	30	32
28	32	35
29	25	30
30	33	32
31	30	28
32	31	32
33	29	30
34	32	28
35	30	28
36	33	32
37	37	33
38	35	35
39	33	31

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TEST -RETEST RELIABILITY DATA FOR

RAVEN PROGREESIVE MATRICES

Test - Retest Reliability Data for Raven Progressive

Matrices

Sr. No.	Test Score	Retest Score
1	50	51
2	52	50
3	55	54
4	43	46
5	44	54
6	52	59
7	58	59
8	49	52
9	55	51
10	52	51
11	54	58
12	53	56
13	53	55
14	48	54
15	46	55
16	22	22
17	51	51
18	50	52
19	57	54
20	51	48
21	53	55
22	54	59
23	51	53
24	50	52
25	54	53
26	48	59
27	58	54
28	53	53
29	51	57
30	58	60
31	47	49
32	56	58
33	56	57
34	50	55

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RAW DATA USED FOR STATISTICAL ANALYSIS

DATA USED FOR STATISTICAL ANALYSIS.

KEY

A: Sex (1=Boy and 2=Girl)

B: SCARAB

C: SCMATH

D : SCCHEM

E : SCPRNT

F : SCPEER

G : SCAPPRC

H : SCPHYS

I : SCT

J : GSC

K : SCGAA

L : IQ

M : ARABIC

N : MATH

O : CHEM

P : SES

DATA USED FOR STATISTICAL ANALYSIS.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	32	32	17	28	21	19	12	24	13	27	56	133	132	51	52
1	34	39	32	37	31	30	28	34	19	38	60	175	268	87	54
1	33	39	39	34	30	33	27	34	25	39	59	137	218	73	52
1	33	33	33	34	24	33	24	31	18	36	55	185	258	95	52
1	32	24	23	31	30	30	26	28	21	28	56	105	32	47	43
1	30	15	30	33	28	24	30	27	19	28	54	171	174	74	49
1	13	23	20	32	23	28	30	24	9	24	54	105	104	56	58
1	30	31	25	35	28	30	24	29	20	29	51	136	134	52	57
1	31	34	30	16	18	19	19	25	2	33	49	149	196	81	53
1	20	27	34	34	31	36	26	30	18	22	53	88	150	53	61
1	23	19	32	35	37	21	28	28	18	27	47	127	232	68	59
1	28	21	23	23	20	20	20	23	11	25	52	160	160	72	40
1	29	32	25	33	24	24	24	28	16	31	51	156	236	80	54
1	27	27	24	34	34	33	18	28	18	28	52	140	174	70	63
1	40	26	31	35	37	33	38	34	15	31	48	168	206	74	48
1	32	12	26	35	35	23	36	28	18	24	40	104	40	24	36
1	22	26	33	32	32	36	24	29	19	24	52	129	104	60	59
1	23	29	32	29	31	32	32	30	22	27	50	101	152	50	42
1	34	34	33	37	30	36	28	34	25	39	56	160	244	88	54
1	25	36	36	38	30	32	31	33	22	35	51	161	178	75	59
1	16	30	29	32	40	28	37	30	13	23	49	104	36	50	63
1	30	32	30	38	31	32	24	31	17	26	46	128	152	54	57
1	25	21	31	32	29	26	18	26	17	27	57	128	128	61	55

1 23 32 26 29 28 22 24 27 11 27 52 154 216 65 43

1 32 25 26 36 37 38 37 33 21 28 32 97 120 58 62

1 25 33 27 29 19 23 16 25 11 35 54 188 182 100 45

1 23 35 40 24 29 27 31 31 17 33 51 156 268 88 38

1 28 32 32 34 31 30 35 32 17 35 56 181 258 96 60

1 29 39 28 30 31 32 28 31 23 34 54 138 202 68 49

1 33 40 40 31 32 33 27 35 22 36 53 140 165 52 48

1 30 40 40 38 38 39 40 38 20 39 55 131 198 68 51

1 33 32 32 32 30 32 27 31 19 28 41 98 142 44 49

1 24 30 19 28 32 23 31 27 19 21 43 104 56 40 52

1 15 40 20 31 31 30 28 28 13 27 25 135 220 59 47

1 26 40 33 20 24 26 30 29 9 33 57 120 182 81 36

1 31 31 31 33 22 21 21 28 15 20 54 105 148 57 48

1 27 30 26 34 31 34 33 31 14 21 51 123 132 61 40

1 40 31 31 36 34 34 32 34 20 34 40 167 230 79 51

1 28 37 27 27 34 31 30 31 14 31 56 120 154 58 48

1 29 35 28 36 34 35 26 32 17 29 56 107 112 25 56

1 33 31 19 34 26 33 26 29 13 31 44 128 120 52 49

1 36 36 34 35 24 37 30 34 24 36 51 126 186 55 49

1 31 40 23 37 32 31 18 31 18 27 55 95 160 33 46

1 29 31 32 27 32 33 32 31 21 34 45 140 142 64 51

1 32 27 33 38 30 29 30 32 24 35 50 124 76 26 61

1 34 25 31 31 35 28 37 32 14 21 47 104 90 50 39

1 33 37 20 36 30 35 31 32 10 25 51 134 220 70 56

1 27 21 20 18 21 31 31 24 10 27 54 137 114 41 56

1 12 17 20 14 26 28 12 18 14 22 47 100 104 40 53

1 32 33 30 34 33 34 34 33 23 30 57 118 132 53 55

1 31 32 40 16 19 17 13 25 16 36 54 158 244 93 62

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1 25 28 28 19 32 33 28 28 16 20 49 113 176 54 37
1 35 36 30 36 39 34 25 34 14 29 50 144 168 47 42
1 32 30 30 31 27 30 30 31  9 30 31 135 154 69 41
1 33 33 34 31 26 22 18 29 15 35 43 123 154 74 41
1 33 32 30 34 31 33 35 33 24 34 52 109 56 40 52
1 32 31 35 39 36 40 35 36 23 38 49 149 190 71 49
1 18 31 21 33 37 32 32 29 23 33 53 92 14 16 41
1 34 38 34 29 26 27 31 32 18 37 56 161 212 87 52
1 20 29 20 25 20 29 15 23  8 14 50 103 122 67 56
1  8 16 20 30 23 18 16 19 13 18 53 116 96 70 45
1 19 18 26 34 24 27 21 24  7 31 46 112 126 70 40
1 36 31 32 31 23 24 31 30 15 40 57 187 274 99 52
1 36 28 36 26 24 23 10 27  7 37 42 137 150 80 47
1 33 35 30 36 34 31 39 34 21 37 49 107 150 71 61
1 35 28 25 25 30 27 17 27 19 29 36 120 111 44 52
1 37 24 20 15 29 32 34 28 13 34 51 128 104 64 38
1 30 26 32 19 32 26 22 27 14 31 53 137 212 83 42
1 15 32 30 24 16 21 23 24 17 35 51 139 259 100 54
1 16 34 30 25 36 39 37 31 16 31 47 102 192 74 60
1 28 26 32 34 30 26 37 31 10 31 54 122 122 48 50
1 17 35 39 34 33 31 30 31 23 28 57 168 272 100 54
1 32 18 30 31 25 27 21 27 13 30 39 115 86 59 46
1 25 15 28 22 25 27 20 24 12 28 45 111 89 59 57
1 27 23 24 23 24 31 33 27 12 26 53 101 54 67 46
1 25 38 37 39 30 28 29 33 22 39 54 150 220 90 48
1 29 38 39 33 38 35 39 36 18 34 52 111 206 70 34
1 40 38 22 39 32 25 23 32 15 33 48 129 116 34 52
1 37 32 36 32 33 32 33 34 15 30 54 104 167 41 37
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1 38 35 39 32 26 30 24 33 19 37 52 184 285 91 62
1 22 26 26 29 35 38 20 28 16 29 53 123 174 63 41
1 39 40 22 32 37 38 28 34 25 29 57 162 224 50 43
1 36 40 39 37 31 39 32 37 25 36 58 162 228 75 44
1 24 32 38 23 25 28 19 28 21 34 54 158 267 73 59
1 35 28 32 33 28 35 21 31 19 36 55 164 217 58 48
1 36 16 12 21 32 32 28 25 20 29 37 133 145 49 47
1 27 27 27 14 23 31 22 25 14 36 56 186 269 71 49
1 37 35 28 33 36 35 39 35 11 31 58 147 172 57 47
1 39 36 33 28 38 34 35 35 18 31 52 104 146 40 55
1 39 29 15 25 32 29 36 30 11 30 51 98 80 27 48
1 34 22 39 28 37 38 31 33 18 28 10 109 37 17 49
1 40 40 40 24 19 29 25 32 12 40 51 176 271 87 60
1 33 36 20 34 29 33 30 31 21 34 57 144 262 54 62
1 22 36 30 28 31 32 19 29 10 32 55 151 295 92 54
1 30 25 12 25 33 28 22 25 12 37 50 164 234 49 39
1 35 38 21 28 34 32 35 32 19 29 55 145 205 51 52
1 27 33 16 19 19 28 26 24 13 21 52 164 231 74 49
1 32 24 14 33 35 35 38 29 18 24 46 98 52 14 58
1 24 21 19 32 36 34 24 27 12 19 42 133 143 41 45
1 31 26 18 31 38 40 38 31 24 28 50 143 177 35 50
1 37 24 24 35 29 37 32 31 13 29 33 146 179 61 51
1 38 25 16 16 32 34 35 28 13 26 46 139 97 40 41
1 31 22 22 33 24 23 32 27 19 28 49 150 87 31 53
1 36 37 39 38 34 30 36 36 15 32 52 143 214 84 48
1 26 34 40 23 25 34 28 31 19 40 56 161 263 94 57
1 36 25 22 37 33 31 27 30 19 30 48 150 116 76 45
1 28 16 13 36 27 35 37 27 12 22 23 131 107 49 45
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1 34 25 24 31 38 37 29 31 19 30 57 133 150 51 52
1 31 15 16 20 21 29 27 23 11 32 56 117 109 64 50
1 25 22 22 31 24 20 22 24  9 27 51 102 95 65 37
1 34 38 40 33 38 38 40 37 20 29 59 126 143 79 42
1 27 40 32 32 30 32 28 32 16 20 59 115 133 56 40
1 28 32 28 33 26 34 27 30 14 30 52 119 93 48 41
1 24 31 37 15 19 28 28 27 15 32 56 185 244 97 44
1 40 18 19 18 27 38 25 27 14 27 24 128 170 64 51
1 35 21 22 33 21 32 29 28 20 27 50 119 43 45 48
1 20 37 12 26 28 33 37 27 18 24 59 141 132 68 62
1 24 22 34 21 22 20 28 25 15 26 52 91 96 68 42
1 38 23 24 37 35 33 27 31 16 30 41 134 66 57 44
1 23 26 28 27 40 35 40 31 18 24 57 84 37 20 48
1 34 22 28 31 29 26 30 29 20 31 51 150 194 77 40
1 34  9 14 33 35 32 39 27 11 29 52 134 24 50 40
1 36 33 24 26 33 30 29 31 20 26 55 144 171 52 49
1 37 39 30 28 34 29 19 32 20 39 59 173 287 100 50
1 34 32 31 32 31 33 33 32 21 28 53 142 256 93 41
1 34 30 31 17 26 17 26 27 12 27 53 120 201 85 49
1 30 38 30 26 29 29 31 31 20 40 49 163 288 96 53
1 40 28 39 26 37 34 26 34 18 38 47 165 243 73 53
1 38 28 32 33 27 31 30 32 13 34 49 121 100 30 52
1 29 27 29 33 15 23 10 24 10 37 48 162 213 92 63
1 25 28 22 13 29 32 30 26 16 30 53 128 144 51 51
1 29 40 25 28 26 28 22 29 23 33 59 135 192 78 48
1 16 32 27 36 35 27 20 28 22 26 52 134 136 59 57
1 30 15 16 30 24 27 16 22 17 28 49 145 125 51 62
1 26 16 24 20 26 28 31 24 17 22 55 101 52 40 58
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1  32  32  24  38  37  35  37  33  14  32  51  122  200  60  44
1  24  18  18  28  22  20  21  22  21  24  50  124  165  43  44
1  14  10   8  25  12  19  14  15  16  18  48   98  140  56  55
1  19  23  14  24  16  25  27  21  15  23  56  123  135  41  54
1  39  32  38  37  37  38  31  36  19  34  46  158  226  86  67
1  32  26  33  33  36  36  39  33  20  34  48  172  244  89  48
1  23  36  25  35  28  27  28  29  22  37  55  129  202  75  44
1  33  33  33  34  32  27  28  32  22  38  52  149  176  52  54
1  38  38  11  38  33  29  22  30  24  31  50  149  171  64  45
1  18  24  20  34  33  37  29  27  21  33  56  127  238  89  65
1  27  22  33  35  30  29  31  29  25  36  49  171  168  74  60
1  28  16  18  33  31  31  33  27  17  23  49   87   88  30  48
1  34  32  32  35  34  32  30  33  23  33  49  136  148  59  49
1  15  35  26  29  29  25  18  25  17  28  48  132  128  63  59
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2 26 29 26 33 21 24 29 27 10 29 53 157 170 66 45

2 36 31 34 37 37 33 23 34 23 37 48 161 212 89 55

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2 31 23 19 27 24 32 22 25 18 29 48 153 136 73 46

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2 29 39 32 26 27 36 25 31 21 34 51 172 184 84 41

2 34 32 33 29 28 32 11 29 11 31 58 157 252 92 45

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2 31 35 23 32 34 35 35 32 22 30 51 142 240 68 57
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2 22 32 38 27 30 32 25 30 21 40 54 178 288 95 59

2 30 29 34 28 19 30 24 28 19 32 15 134 245 68 51

2 34 32 33 25 31 27 27 31 17 35 48 176 277 86 51

2 31 39 38 22 38 27 30 33 12 37 52 179 290 93 47

2 35 8 28 23 26 29 28 26 10 21 25 123 154 50 46

2 27 40 32 40 33 33 35 34 21 29 47 121 164 45 52

2 25 40 32 22 14 29 18 27 13 27 51 126 289 93 54

2 27 40 33 38 35 34 33 34 21 28 47 103 219 56 59

2 25 27 31 37 24 24 32 29 10 30 46 130 196 63 49

2 28 39 26 33 25 24 11 27 21 25 49 118 282 87 46

2 33 34 25 33 25 29 24 30 20 32 44 138 234 53 53

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THE ARABIC VERSION OF THE HERBERT

MARSH INSTRUMENT

مقيـــاس هـــربـــرت مـــارش

الرجاء كتابة البيانات الحالية :

الاســم :.................. العمر :..

المنطقة التعليمية :.................. المدرسة :....................

الصــف والشــعبة :.................. الجنسية :....................

التاريخ :..................

تعليمـــات :

فيمــا يلــي مجموعــة مــن العبـارات تتعلق بمشاعرك في نواحي مختلفة .
الرجــاء قـــراءة كل عبـارة قراءة صامتة ثم حدد اجابتك على كل عبـارة .
توجـد خمـس اجابـات محتملـة لكـل سـؤال وهي صحيح / في الاغلب صحيح /
احيانـا صحيح واحيانـا خاطئ / في الاغلب خاطئ / خاطئ .
عند اختيارك الاجابة المناسبة والتي تعكس شعورك حول نفسك، الرجاء وضع
علامـة X في المـربع المقابل لرقم العبارة تحت الاجابة المختارة .
تأكد ان اجاباتك تبين وتعكس شـعورك حول نفسك .
الرجــاء عدم التحدث مع الغير حول اجاباتك . اجابـاتك ستظل سرية ، ولـن
تستخدم الا لغرض البحث العلمي .
ارجو تعاونك متمنيا لـك التوفيق والنجاح .

الباحـث

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محيح	في الاغلب صحيح	احيانا صحيح احيانا خاطئ	في الاغلب خاطئ	خاطئ	
☐	☐	☐	☐	☐	٣٠. انني امتلك عفلات جيدة ....
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☐	☐	☐	☐	☐	٤٤. انا استطيع الجري طويلا بدون توقف.....................................
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٦٥. انـا اتعلـم بسرعة فـي مـادة اللغة العربية.............

٦٦. انا بطئ الفهم في الرياضيات..

مج؟	ق	ش	ص	و	ك	ر	ع

THE ARABIC VERSION OF COOPERSMITH

SELF-ESTEEM INVENTORY

بســم اللـه الرحمن الرحيــم

مقيــاس كوبــر سميــث

من فضلك دون :ـ

الاســم : .... العمـر : ....

المنطقة التعليمة : .... المدرسة : ....

الصــف والشــعبة : .... الجنسية : ....

التاريخ : ....

تعليمات :

فيمـا يلـي مجموعـة مـن العبـارات تتعلـق بمشاعرك فـي نواحـي مختلفـة .
الرجـاء قـراءة كل عبـارة قراءة صامتة ثم حدد اجابتك علـى كل عبـارة .
اذا كـانت العبـارة تصف مـا تشعر بـه عـادة ، فـع علامة X داخـل المـربـع فـي
خـانـة "تنطبـق" ، امـا اذا كـانت العبـارة لا تصف مـا تشعر بـه فضع علامة X
داخل المـربـع فـي خـانـة "لا تنطبـق" .
ليست هناك اجابات صحيحة واخرى خاطئة ، وانمـا الاجابة الصحيحة هـي الـتي
تعـبر عـن شعورك الحقيقـي لـذا تأكد ان اجابـاتك تبين وتعكس شعورك حول
نفسك .
الرجـاء عـدم التحـدث مـع الغير حول اجاباتك وتأكد ان النتائج ستكون
سرية ولا تستخدم الا لاغراض البحث العلمـي .
ارجو تعاونك متمنيا لك التوفيق والنجاح .

الباحــث

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☐	☐	١ . لا تفايقني الاشياء عادة ....
☐	☐	٢ . اجد من الصعب على ان اتكلم امام زملائي في العمل
☐	☐	٣ . اود لو استطعت ان اغير اشياء في نفسي........
☐	☐	٤ . لا اجد صعوبة في اتخاذ قراراتي بنفسي........
☐	☐	٥ . يسعد الآخرون بوجودهم معي.................
☐	☐	٦ . اتفايق بسرعة في المنزل.................
☐	☐	٧ . احتاج وقتا طويلا كي اعتاد على الاشياء الجديدة ..
☐	☐	٨ . انا محبوب بين زملائي من نفس سني........
☐	☐	٩ . يراعي والداي مشاعري عادة ....
☐	☐	١٠. استسلم بسهولة ....
☐	☐	١١. يتوقع والداي مني الكثير...............
☐	☐	١٢. من الصعب جدا ان اظل كما انا ......
☐	☐	١٣. تختلط الاشياء كلها في حياتي........
☐	☐	١٤. يتبع زملائي افكاري عادة ....
☐	☐	١٥. لا اقدر ناسي حق قدرها ....
☐	☐	١٦. اود كثيرا لو اترك المنزل...............
☐	☐	١٧. اشعر بالفيق في المدرسة غالبا............
☐	☐	١٨. مظهري ليس وجيها مثل معظم الناس........
☐	☐	١٩. اذا كان عندي شئ اريد ان اقوله فاني اقوله عادة
☐	☐	٢٠. يفهمني والداي......................

لاتنطبق	تنطبق	
☐	☐	٢١. معظم الناس محبوبون اكثر مني....................
☐	☐	٢٢. اشعر عادة كماكان والداي يدفعاني لعمل الاشياء
☐	☐	٢٣. لا القى التشجيع غالبا في المدرسة..........
☐	☐	٢٤. ارغب كثيرا ان اكون شخصا آخر..........
☐	☐	٢٥. لا يمكن للآخرين الاعتماد علي..........
☐	☐	٢٦. لا اقلق على اي شئ ابدا..........
☐	☐	٢٧. انا واثق من نفسي تماما..........
☐	☐	٢٨. من السهل على الآخرين ان يحبوني..........
☐	☐	٢٩. استمتع انا ووالداي بقضاء الوقت معا..........
☐	☐	٣٠. اقضي وقتا طويلا في احلام اليقظة..........
☐	☐	٣١. اتمنى لو كنت اصغر من سني..........
☐	☐	٣٢. افعل الصواب دائما..........
☐	☐	٣٣. اشعر بالفخر بادائي المدرسي..........
☐	☐	٣٤. يجب على الآخرين ان يخبروني بما يجب ان افعله
☐	☐	٣٥. كثيرا ما اشعر بالندم على ما اقوم به من اعمال
☐	☐	٣٦. انا لست سعيدا على الاطلاق..........
☐	☐	٣٧. اقوم باعمالي بافضل ما يمكنني (باقصى جهدي)....
☐	☐	٣٨. استطيع ان اعتني بنفسي عادة..........
☐	☐	٣٩. انا سعيد للغاية..........
☐	☐	٤٠. افضل اللعب مع اطفال اصغر مني سنا..........

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لاتنطبق	تنطبق	العبارات:ــ
☐	☐	٤١. احب كل من اعرفهم ....
☐	☐	٤٢. يعجبني ان اكون بارزا في الفصل ....
☐	☐	٤٣. افهم نفسي...............................
☐	☐	٤٤. لا يهتم من بالمنزل بي كثيرا ....
☐	☐	٤٥. لا يؤنبني احد على الاطلاق ....
☐	☐	٤٦. ادائي بالمدرسة ليس كما اود ان يكون ....
☐	☐	٤٧. يمكنني اتخاذ قراراتي والتمسك بها ....
☐	☐	٤٨. انا حقيقة لا احب ان اكون ولدا (بنتا) ....
☐	☐	٤٩. لا احب ان اكون مع الآخرين ....
☐	☐	٥٠. لا اشعر بالخجل على الاطلاق ....
☐	☐	٥١. أشعر بالخجل من نفسي (الكسوف) في معظم الاحيان
☐	☐	٥٢. ينتقدوني زملائي في احيان كثيرة ....
☐	☐	٥٣. اقول الصدق دائما ....
☐	☐	٥٤. مدرسي يشعرونني بانني لست حسنا بما فيه الكفاية
☐	☐	٥٥. انا لا اهتم بما يحدث لي.................
☐	☐	٥٦. انا فاشل...........................
☐	☐	٥٧. اتضايق بسرعة عندما يوبخني احد ....
☐	☐	٥٨. اعرف دائما ما اقوله للناس.................

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.

THE ARABIC VERSION OF BROOKOVER

SELF-CONCEPT OF ACADEMIC

ABILITY SCALE

.

بسم اللـه الرحمـن الرحيم

مقيـاس بـروك أوفـر

من فضلـك دون :–

الاسـم : .... العمر : ....

المنطقة التعليمة : .... المدرسة : ....

الصـف والشـعبة : .... الجنسية : ....

التاريخ : ....

فيمـا يلي مجموعـة مـن الأسئلة تتعلـق بفكرتك عن نفسك في مجـال التحصيل المدرسي .

لا توجـد اجـابة صحيحـة وأخـرى خاطئة بل الاجابة الصحيحة هي التـي تعبـر عن وجهة نظرك بصدق .

الهـدف مـن هذا الاستبيان دراسة علمية يقوم بها الباحث لذا ارجو تعاونك بالاجابـة على كل سؤال بدقة وكما تراه شخصيا انها الاجابة التي تمثل افضل الاجابات بالنسبة لك .

شكري الجزيل لتعاونك متمنيا لك التوفيق والنجاح .

الباحث

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تعليمات :

ضع دائرة حول الحرف الذي يقع مقابل العبارة التي قد تكون الجواب الأفضل لكل سؤال .

١ . كيف تقيم قدرتك المدرسية بالمقارنة مع اصدقائك المقربين ؟

آ   انني الأفضل

ب   انني فوق المتوسط

ج   انني متوسط

د   انني دون المتوسط

هـ   انني الأضعف

٢ . كيف تقيم قدرتك المدرسية بالمقارنة مع زملائك في نفس فصلك ؟

آ   انني من ضمن الأفضل

ب   انني فوق المتوسط

ج   انني متوسط

د   انني دون المتوسط

هـ   انني من ضمن الأضعف

٣ . في أي مرتبة يمكنك ان تضع نفسك بين زملاء فصلك في المدرسة الثانوية ؟

آ   ضمن الأفضل

ب   فوق المتوسط

ج   متوسط

د   دون المتوسط

هـ   ضمن الأضعف

٤. هل تعتقد أن لديك القدرة على انهاء دراستك الجامعية ؟

  آ نعــم بالتأكيـد

  ب نعم من المحتمل

  ج ليس مؤكدا في كلتا الحالتين

  د مـن المحتمـل لا

  هـ لا

٥. في أي مرتبة تضع نفسك بين زملاء صفك خلال الدراسة الجامعية ؟

  آ فمــن الافضـل

  ب فوق المتوسط

  ج متــوســـط

  د دون المتوسط

  هـ فمــن الاضعـف

٦. لكـي تصبـح طبيبـا ، او محاميـا ، او استاذا في الجامعة ، فان ذلـك يتطلـب متابعـة الدراسـة العليـا بعـد انهـاء المرحلـة الجامعيـة الاولــى . الــى أي حـد ترجـح انك سوف تكمل مثل هذا العمل المتقدم ؟

  آ مرجح بدرجة كبيرة

  ب مرجـح الى حد مـا

  ج ليس مؤكدا في كلتا الحاليتن

  د غير مرجح

  هـ ليس من المرجح غالبا

٧. بصرف النظر عن تقدير الآخرين لعملك ، في رأيك انت ، ما مدى تقديرك لعملك المدرسي ؟

آ   عملي ممتاز

ب   عملي جيـــد

ج   عملي متوسط

د   عملي دون المتوسط

هـ   عملي دون المتوسط بدرجة كبيرة

٨. أي درجة تقدير تعتقد انه يمكنك الحصول عليها ؟

آ   في الاغلب ممتاز

ب   في الاغلب جيـــد

ج   في الاغلب متوسط

د   في الاغلب دون المتوسط

هـ   في الاغلب ضعيـف

THE ARABIC VERSION OF THE FAMILY

SOCIOECONOMIC INDEX

بسم الله الرحمن الرحيم

مقيــاس

المستوى الاقتصادي الاجتمـاعي للأسـرة

من فضلك دون :-

الاسـم:................. المدرسة :...............

الصف والشعبة:............. المنطقة التعليمية :.......

التاريخ.................

يتنــاول هــذا المقيــاس بعض الاسـئلة حول المستوى الاقتصادي الاجتمــاعي للأسرة وهو يتكون من اربـعة اقسام ويهدف الى قيـاس المستوى الاقتصادي والاجتمـاعي للأسرة وذلك بغرض استخدامه لاغـراض البحـث العلمي والــذي يعود بالفائدة على العملية التربوية والنفسية للتلميذ ، لذا يرجى تعاونك بالاجابة على كافة الاسئلة واحرص على ان تكون اجابتك صادقة ودقيقة .
تمنيــاتي لك بالتوفيق مع جزيل الشكر لتعاونك .

الباحث

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اولا : المستوى التعليمي لآفراد الاسرة

المستوى التعليمي للأب

الرجــــاء وضــع علامـــة (x) فـي المربـع الخالـي المقـابل
للمستوى التعليمي لرب الاسرة

١. أمي (لا يجيد القراءة والكتابة) .....   ]   [

٢. يجيد القراءة والكتابة .....   ]   [

٣. انهى المرحلة الابتدائية .....   ]   [

٤. انهى المرحلة الاعدادية .....   ]   [

٥. انهى المرحلة الثانوية .....   ]   [

٦. جامعي (انهى المرحلة الجامعية) .....   ]   [

٧. دبلومات علــيا .....   ]   [

٨. ماجستير .....   ]   [

٩. دكتوراه .....   ]   [

ثانيا : الحالة المهنية لرب الاسرة

(أ) الرجاء وضع علامــة (x) في المربع المقابل لمهنة
رب الاسرة (الوالد او من في حكمه)

١. لا يعمل (متقاعد ، عاجز عن العمل و يتلقى   ]   [
اعانة حكومية)

٢. عامل عادي (يعمل عند صاحب عمل في الزراعة   ]   [
او الصناعة)

٣. يعمل لحسابه (بقال ، سائق اجرة ، بائع   ]   [
متجول ، دون يستخدم عمالا معه)

٤. عامل ماهر (يعمل عند صاحب عمل او شركة   ]   [
في اعمال تحتاج لمهارة ، ميكانيك،كهرباء
حدادة)

٥. يقوم باعمال كتابية (موظف او كاتب لدى   ]   [
الحكومة او لدى صاحب عمل خاص)

٦. صاحب عمل او ارض (صاحب عمل صناعي او   ]   [
تجاري او زراعي ويستخدم عددا من العمال)

٧. مدرس (يقوم بأعمال التعليم في المدارس   [   ]   [   ]
   او المعاهد)

٨. يقوم بعمل فني او اداري (طبيب ، مدير ،   [   ]   [   ]
   محامي ، ضابط)

الرجاء ذكر وظيفة الأب بالتفصيل

وظيفة الأب ....

وظيفة العائل في حالة عجز الأب والأم   قرابته   مؤهله الدراسي

....

<u>ثالثا : مستوى السكن</u>

(أ) الرجاء وضع علامة (x) في المربع المقابل والذي يتفق
   وطبيعة منزلك

<u>نوع السكن</u>

١. شقة   [   ]   [   ]

٢. بيت عربي (شرقي)   [   ]   [   ]

٣. فيلا   [   ]   [   ]

٤. نوع آخر   [   ]   [   ] اذكر نوعه ....

(ب) عدد الغرف وعدد الافراد في المنزل

١. عدد الغرف   [   ]   [   ]

٢. عدد الافراد   [   ]   [   ]

(٥) ضع علامة (x) في المربع المقابل للكثافة السكانية في
   الغرفة (الكثافة السكانية = عدد افراد الأسرة مقسما على
   عدد الغرف في المنزل .

١. خمسة افراد فأكثر في الغرفة الواحدة ......   [   ]   [   ]

٢. اربعة افراد في الغرفة الواحدة ......   [   ]   [   ]

٣. ثلاثة افراد في الغرفة الواحدة ......   [   ]   [   ]

٤. فردان في الغرفة الواحدة ......   [   ]   [   ]

٥. فرد واحد في الغرفة الواحدة ......   [   ]   [   ]

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<u>رابعا : دخل الأسرة</u>

ضـع علامــة (x) فـي الربـع المـقابـل والـذي يتـفق و دخل اسرتك الشهري :

١. اقــــل مــن ٢٤٠٠ درهــم .... [   ]

٢. مـــن ٢٤٠٠ الى اقل من ٤٨٠٠ .... [   ]

٣. مـــن ٤٨٠٠ الى اقل مــن ٧٢٠٠ .... [   ]

٤. مـــن ٧٢٠٠ الى اقل من ٩٦٠٠ .... [   ]

٥. مـــن ٩٦٠٠ الى اقل من ١٢٠٠٠ .... [   ]

٦. مـــن ١٢٠٠٠ فـأكثـــــر .... [   ]

THE ARABIC VERSION OF COURSE

OUTLINE FOR MATHEMATICS

بسم الله الرحمن الرحيم

الصف الدراسي : الثالث الثانوي العلمي	دولة الامارات العربية المتحدة
اسم الكتاب : الرياضيات	وزارة التربية والتعليم
الخطة : سبع حصص اسبوعيا	

توزيع محتوى كتاب مادة الرياضيات
للعام الدراسي ١٤١١هـ - ٨٩/١٩٩٠م

الفترة	الموضــــوع
الفترة الدراسية الأولى	الفصل الأول : حقل الأعداد والدوال الحقيقية ------------- الفصل الثاني : نهاية دالة . ------------- الفصل الثالث : الدوال المتصلة ونظرية القيمة الوسيطية ------------- الفصل الرابع : مشتقة دالة ------------- الفصل الخامس: مشتقات الدوال الدائرية والاشتقاق الضمني . ------------- مراجعة لما سبق .
الفترة الدراسية الأخيرة	الفصل السادس : تطبيقات هندسية ومعدلات زمنية ------------- الفصل السابع : تطبيقات حساب التفاضل ------------- الفصل الثامن : بيانات الدوال الحدودية والنسبية ------------- الفصل التاسع : التكامل ------------- الفصل العاشر : تكامل الدوال اللوغاريتمية والأسية والنسبية ------------- الفصل الحادي عشر : تطبيقات التكامل ------------- مراجعة عامة

ملة :

يقوم مدرس كل صف دراسي في المدرسة بتوزيع الموضوعات الدراسية على أشهر
الفترة او فصل في ضوء توزيع الوزارة ، مع توزيع مقررات خاصة لشهر
.. ومقررات اخرى خاصة لشهر مايو.

يعتمـــد وكيــل الوزارة المساعـــد
مدير ادارة المناهج والكتب

خليفة محمد بخيـت

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THE ARABIC VERSION OF MATHEMATICS

ACHIEVEMENT TEST

المادة : الرياضيات
اليوم والتاريخ : الخميس ١٩٩٠/١/١٠

زمن الإجابة : ساعتان ونصف

عدد صفحات الأسئلة : ٤

وزارة التربية والتعليم
منطقة دبي التعليمية
قسم التخطيط والتقويم
التقويم والامتحانات

امتحان الفصل الدراسي الأول يناير ١٩٩٠ م
الصف : الثالث الثانوي نوعي العلمي

- -

تعليمات الاختبار :

١- يتكون الاختبار من (٥) أسئلة . السؤال الأول
موضوعي ، والباقي من نوع المقال .

٢- الحل على دفتر الإجابة المرفق وباستعمال قلم الحبر .

٣- يمنع استعمال المزيل .

٤- تلغى درجة السؤال الموضوعي إذا وجد أكثر من إجابة .

٥- مراعاة ترقيم كل سؤال وفروعه وترتيب الحل .

٦- يكفى الاستعانة بالآلة الحاسبة إن لزم الأمر .

والآن اقلب الصفحة وابدأ الإجابة

اولاً : الاسئلة الموضوعية

السؤال الاول : ــ ــ ــ ــ ــ ــ ــ ــ ــ ــ ــ (الدرجة ٣٠)

انقل رقم السؤال على دفتر الاجابة وضع بجانبه رمز الاجابة الصحيحة فيما يلي :

١) ما أصغر حد أعلى للمجموعة : س = { ١/٢ ، ٢/٤ ، ٣/٤ ، ...... ن/ن+١ }

(ا) ١   (ب) ٣/٤   (هـ) ١/٢   (ى) غير موجود

٢) مجموعة حل المعادلة : [٣ - س] = - ٥   هي :

(ا) Ø   (ب) [٧ ، ٨]   (هـ) [٧ ، ٨ [(ى) [٨ ، ٧[

٣) مجموعة حل المعادلة : | ١/س - ٧ | ≥ ٠   هي :

(ا) ٧   (ب) - ١/٧   (هـ) ١/٧   (ى) Ø

٤) ما مجموعة حل المتباينة : √(س - ١)² ≥ ٣ ؟

(ا) [٢- ، ٤[(ب) { ٢- ، ٤ }   (هـ) [٤ ، ٢-]   (ى) [٤ ، ٤-]

٥) لتكن ﻫ د : [١ ، ١,٥] → ح ، حيث ﻫ د (س) = [س] - | س - ١ |

تكوين قاعدة الدالة بروﻩ استخدام رمز الصحيح والمطلق على الصورة :

(ا) س - ١   (ب) ١ - س   (هـ) ١,٥ - س   (ى) س - ١,٥

٦) الفترة [٣ ، ٤ [تحوي :

(ا) جوار أيسر للعدد ٤   (ب) جوار للعدد ٣   (هـ) جوار أيسر للعدد ٣   (ى) جوار للعدد ١ ، ٣

٧) نهاية (س → ٥) |س-٥|/(٥-س)   تساوي :

(ا) ١   (ب) ٠   (هـ) - ١   (ى) غير موجودة

٨) نهاية (س → ٢⁺) [٥ - س]   تساوي :

(ا) ٣   (ب) ٢   (هـ) غير موجودة   (ى) ١

٩) نهاية (س → ٠) (ﻫ أ - ١)/(ﻫ ٢ س)   تساوي :

(ا) ١   (ب) غير موجودة   (هـ) صفر   (ى) ∞

١٠) نهــا $\sqrt{\text{س}-١}$ + ٣ تساوي :

(ا) ٢   (ب) ٣ -   (ح) غير موجوده   (د) صفر

١١) نهــا $\frac{(\text{س}-١)^٢}{\text{س}}$ تساوي

(ا) ∞ -   (ب) ١ -   (ح) ١   (د) ∞

١٢) إذا كانت د(س) = $\begin{cases} ١ : س = ١ \\ ٢ : ١ < س \leq ٢ \end{cases}$ متصلة على [١،٢] فإن ك =

(ا) ١   (ب) صفر   (ح) ٢   (د) ٣

١٣) الدالة هي الغير متصلة عند س = ٢ هي

(ا) $\frac{١}{س+٢}$ (ب) $\sqrt{س+٢}$ (ح) $\frac{س-٢}{١+٢س}$ (د) [س-٢]

١٤) إذا كانت ت دالة متصلة على [١،٧] وكان ت(١) = ٣ ، ت(٣) < ٠ ، ت(٥) > ٠ ، ت(٧) = ٢ - فيكون عدد أصفار ت على الأقل

(ا) ١   (ب) ٣   (ح) ٢   (د) ٤

١٥) ت(س) = $\frac{س-٢}{س-٣}$ وحميرة الاشارة على الفترة

(ا) [٢،٣]   (ب) [٢،٣]   (ح) [٢،٣]   (د) [٢،٣]

١٦) يمكن تطبيق نظرية القيمة الوسطى في الفترة [٠،π] على الدالة د(س) =

(ا) جاس   (ب) ظاس   (ح) جتاس   (د) س جتس س (س - ٢)

١٧) إذا كان د(س) = $\begin{cases} س^٢ : ٠ \leq س \leq ٢ \\ ٦س - ٢ : ٢ < س \leq ٥ \end{cases}$ فما قيمتين متوسط تغير الدالة د عندما س تتغير من : ١ إلى ٢

(ا) ٢   (ب) ١   (ح) ١ -   (د) ٢ -

١٨) إذا كان د(س) = ٢ س² - ٣ س ، أوجد نهـا $\frac{د(٢+ه) - د(٢)}{ه}$

(ا) ٨ -   (ب) ٢ -   (ح) ٢   (د) ٨

١٩) إذا كان د(س) = (س-٣) . هـ(س) ، وكان هـ(١) = ٤ - ، هـَ(١) = ٢ . أوجد دَ(١) ؟

(ا) ٤ -   (ب) ٧ -   (ح) ٧   (د) ٣

٢٠) إذا كان الستقيم ل : ٢ س + ص = ١٥ يمس الدالة د(س) عند (٣،٩) . فإن دَ(٣) =

(ا) ٢   ٢ -   (ح) ٢   (د) ٢ -   ١

ثانياً : أسئلة المقال

السؤال الثاني : ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ (الدرجة ١٥)

أ) إذا كانت ح ∈ ق⁻ أثبت أن :

$$ ح + \frac{١}{ح} \geq -٢ . $$

ب) إذا كان $\frac{١}{٢} \geq |ص| - ١ > ١$ ، أوجد [ص] ؟

جـ) أوجد أوسع مجال لكل من الدوال الآتية ، ومثل على مستقيم الأعداد

(١) د(س) $= \dfrac{\sqrt{س+١}}{[س]-٥}$

(٢) هـ(س) $= \sqrt{٥ - |س|}$

(٣) ت(س) $= \dfrac{١}{س}$ ، س < -٢ ، ت(س) = ٠ ، س > -٢

(٤) م(س) $= \dfrac{١}{س-٤} + \dfrac{س}{س^{\frac{٢}{٣}}}$

هـ) ارسم بيانها الدالة : د(س) = $\left\{ \begin{array}{l} |س+٤| \quad , \; -٦ \geq س \geq -٤ \\ -\sqrt{٧-س} \quad , \; -٤ \leq س \leq ٠ \\ [س-٢] \quad , \; ٠ > س \geq ٢ \end{array} \right.$

ومن ثم ارسم بيان الدالة : هـ(س) = |د(س)| معتمداً على بيان د(س) .

السؤال الثالث : ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ (الدرجة ١٥)

أ) عرّف معنى العبارة : $\displaystyle \lim_{س \to هـ} د(س) = ل$

ب) باستخدام تعريف النهايات اثبت أن : $\displaystyle \lim_{س \to ٢} (٢س - ١) = ٥$.

هـ) أوجد :

(١) $\displaystyle \lim_{س \to ٥} \dfrac{س^٢ - ٢٥}{|س-٢|-٢}$
(٣) $\displaystyle \lim_{س \to ١} \dfrac{|س+١١|}{[س-١]}$

(٢) $\displaystyle \lim_{س \to ٢} \dfrac{٢-س}{\sqrt{٧}-\sqrt{٢س}}$
(٤) $\displaystyle \lim_{س \to ٤} \dfrac{هـ (س-٢)}{س^٢ - ٤}$

السؤال الرابع : ــ ــ ــ ــ ــ ــ ــ ــ ــ ــ ــ ــ (الدرجة ٢٠)

٩) إذا كانت :

$$د(س) = \begin{cases} ١ - (س - ٢)^٢ & ؛ س < - ٢ \\ ٢ س - ٩ & ؛ س ≤ - ٢ \end{cases}$$

ا ـ بحث الاتصال د على [- ٢ , ٦]

ب) أوجد بحالة تقريبية واحدة جذراً موجباً للمعادلة : س³ - ٥ س + ١ = ٠ .

جـ) ابحث إشارة الدالة هـ(س) = $\frac{س}{٤ - س^٢}$ واستفد من ذلك في إيجاد

مجال د(س) = $\sqrt{هـ(س)}$

د) إذا كانت د(س) = $\frac{س^٢ - ٤}{س - ٢}$, ت(س) = $\frac{س^٢ - ١}{س - ١}$ أوجد :

$\lim_{س → ١}$ (د ه ت)(س) .

السؤال الخامس : ــ ــ ــ ــ ــ ــ ــ ــ ــ ــ ــ (الدرجة ٢٠)

٩) إذا كان : د(س) = $\begin{cases} س^٢ & ؛ س ≥ ١ \\ س & ؛ س < ١ \end{cases}$

استخدام التعريف ابحث قابلية اشتقاق الدالة عند النقطة س = ١

ب) إذا كانت ص = $\frac{١}{٢}$ لـن²(س + ١) ؛ س = لـن - ١ أوجد $\frac{دص}{دس}$ بطريقتين

جـ) أوجد : $\frac{دص}{دس}$ بدلالة س من رابط صورة ممكنة :

١) ص = م² + م ص , م ε ح

٢) ص = $\frac{س^٢}{١ - س}$, س ≠ ١

٣) ص = ٤ - $\sqrt{١٧ - ٦ س^٢}$

د) إذا كان د , هـ اقترانين قابلين للاشتقاق على ح حيث :

د(٠) = ١ , دَ(٠) = ٢ , دَ(٢) = ٢

هـ(٠) = ٢ , هَـ(٠) = ٥ , أوجد قيمة :

٢) (د . هـ)ً(٠)

٣) (د ه هـ)ً(٠) .

THE ARABIC VERSION OF COURSE

OUTLINE FOR CHEMISTRY

بسم الله الرحمن الرحيم

دولة الامارات العربية المتحدة   الصف الدراسي : الثالث الثانوي (علمي)
وزارة التربية والتعليم   اسم الكتاب : الكيمياء
الخطــة : اربع حصص اسبوعيا

توزيع محتوى كتاب مادة الكيمياء
للعام الدراسي ١٤١١هـ - ١٩٨٩/٨٩م

الفترة	الموضوع
الفترة الدراسية الأولى	الوحدة الأولى : ----------- الكيمياء الكهربائية وخواص المحاليل الوحدة الثانية : ----------- تفاعلات الاكسدة والاختزال على اساس انتقال الالكترونات الوحدة الثالثة : ----------- النظريات الحديثة للاحماض والقواعد حتى نهاية القواعد الشائعة صفحة (١١٤) .
الفترة الدراسية الاخيرة	باقي الوحدة الثالثة : النظريات الحديثة للاحماض -------------------- والقواعد من ص(١١٤) . الوحدة الرابعة : الكيمياء الكهربائية --------------- الوحدة الخامسة : كيمياء الصوديوم والحديد --------------- الوحدة السادسة : بعض الصناعات القائمة على الغاز --------------- الطبيعي والبترول . الوحدة السابعة : مبادئ التفاعلات النووية . ---------------

ملاحظات :

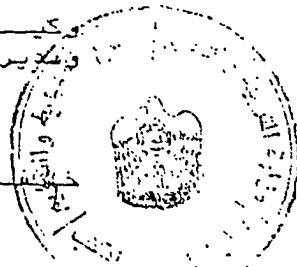١- امتحان الفترة الاولى من بداية الكتاب حتى ص (١١٤) .
٢- تستمر المراجعة جزئيا وكليا خلال العام الدراسي .
٣- يقوم مدرسو كل صف دراسي في المدرسة بتوزيع المقررات الدراسية على اشهر
كل فترة او فصل في ضوء توزيع الوزارة ، مع تخصيص مقررات خاصة لشهر
يناير ومقررات اخرى خاصة لشهر ٠٠٠ .

يعتمد ٠٠

وكيل الوزارة المساعد
مدير ادارة المناهج والكتب

محمد بخيت

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THE ARABIC VERSION OF CHEMISTRY

ACHIEVEMENT TEST

بسم الله الرحمن الرحيم

وزارة التربية والتعليم
منطقة دبي التعليمية
قسم التجارب والتقويم
التقويم والامتحانات

المادة / الكيمياء
اليوم والتاريخ / الثلاثاء / ١٥ / ١ / ٩٦
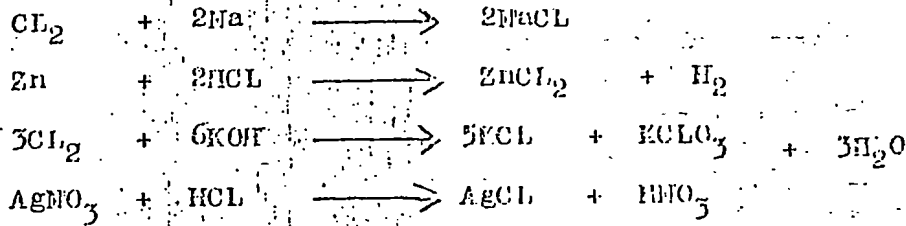زمن الاجابة / ساعتان ونصف
عدد صفحات الاسئلة / (٥)

** استبيان الفصل الدراسي الأول يناير / ٩٦ **
(للصف الثالث الثانوي العلمي)

(أجب على جميع الاسئلة التالية)

السؤال الأول : ـ

أولاً : ـ اختر الاجابة الصحيحة لكل من العبارات التالية : ـ

١ ـ المحلول المائي لهيدروكسيد الصوديوم يحتوي على .
ـ أيونات $Na^+ + H_3O^+$
ـ أيونات $Na^+ + OH^-$
ـ جزيئات $NaOH$ فقط
ـ أيونات $H_3O^+ + OH^-$

٢ ـ التفاعل الذي يمثل (عدم التناسب) في الاكسدة والاختزال هو .

$$CL_2 + 2Na \longrightarrow 2NaCL$$

$$Zn + 2HCL \longrightarrow ZnCl_2 + H_2$$

$$3Cl_2 + 6KOH \longrightarrow 5KCL + KCLO_3 + 3H_2O$$

$$AgNO_3 + HCL \longrightarrow AgCL + HNO_3$$

٣ ـ الدليل المناسب عند معايرة حمض الهيدروكلوريك مع محلول هيدروكسيد البوتاسيوم هو .
ـ المثيل البرتقالي ـ المثيل الأحمر
ـ الفينولفثالين ـ جميع الأدلة السابقة

٤ ـ الأس الهيدروجيني PH لمحلول تركيزه (٥,٠ مول/لتر) من هيدروكسيد الباريوم الذي درجة تفككه ١٠٠ ٪ هـــو .
ـ (٢) ـ (١٢) ـ (١٣) ـ (٣)

٥ ـ يمكن الفصول على محلول منظم عند خلط حجمين متساويين من محلولي .
ـ (٣ر مول لتر من هيدروكسيد الصوديوم مع ٢ر مول /لتر من حمض الاستيك) .
ـ (٤ر مول /لتر من هيدروكسيد الصوديوم مع ٢ر مول /لتر من حمض الاستيك) .
ـ (٤ر مول /لتر من هيدروكسيد الصوديوم مع ٢ر مول /لتر من الهيدروكلوريك) .
ـ (٤ر مول /لتر من هيدروكسيد الصوديوم مع ١ر مول /لتر من حمض الاستيك) .

٦ ـ الكتلة المكافئة للبروم كعامل مختزل في التفاعل التالي هي .
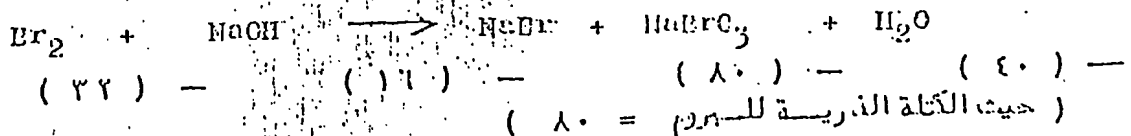
$$Br_2 + NaOH \longrightarrow NaBr + NaBrO_3 + H_2O$$

ـ (٤٠) ـ (٨٠)
ـ (١٦) ـ (٣٢)
(حيث الكتلة الذرية للبروم = ٨٠)

.... / ٢

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٧ ـــ كتلة كربونات الصوديوم (الكتلة الجزيئية لها ١٠٦) اللازمة لتحضير (١ لتر) من محلول
(١ر) ع من هذا الملح هي ٠

ـــ (٥ر٥ جم) ـــ (٣ر٥ر جم) ـــ (١ر٠) جم ـــ (٥ر٠ر١)

٨ ـــ اذا أضيف ٢٥ ملليلتر من حمض الكبريتيك H_2SO_4 الذى تركيزه (١ر مول / لتر) الـــى
٥٠ ملليلتر من هيدروكسيد الصوديوم لتكوين كبريتات الصوديوم الهيدروجينية فيكون تركيـــز
هيدروكسيد الصوديوم ٠

ـــ (٢ر) مول / لتر ـــ (٥ر٠ر) مول / لتر ـــ (٢ر) ع

٩ ـــ اضافة محلول أسيتات الصوديوم الى محلول حمض الاستيك يؤدى الـــى ٠
ـــ نقص قيمة PH للمحلول ـــ زيادة قيمة PH للمحلول
ـــ زيادة تأين حمض الاستيك ـــ تكوين راسب أبيض

١٠ ـــ عدد التأكسد لذرة الاكسجين فى فلوريد الاكسجين OF_2 ٠
ـــ (٢ ـ) ـــ (٢ +) ـــ (١ ـ) ـــ (صفـــر)

ثانيـــا : ـــ

اذيب ٢٤ر ملليلتر من حمض الهيدروكلوريك المركز الذى كثافته ١ر١ جم /سم³ ويحتوى علـــى
٥ر٣ % وزنا من غاز كلوريد الهيدروجين وأضيف اليه ماء مقدار حتى صار حجم المحلول ٥٠٠ ملليلتر
فاذا كان ٢٥ ملليلتر من محلول الحمض يتعادل مع ٢ر٥ ملليلتر من محلول هيدروكسيد الصوديوم ٠٠٠
والمطلـــوب * * *
حساب عيارية كل من الحمض والقلوى ٠ علما بأن : ـــ ($CL = ٥ر٣٥$ ، $H = ١$)

السؤال الثانـــى : ـــ

أولا : ـــ

معادلة التأكسد والاختزال التالية غير موزونة وتمثل تفاعل ثانى كرومات البوتاسيوم ـــــــــ
كلوريد الحديد يسد (II) فى وسط حمضى ٠

$$Cr_2O_7^{-2} + Fe^{+2} \longrightarrow Cr^{+3} + Fe^{+3}$$

والمطلـــوب * * *
١ ـــ وزن المعادلة السابقة بطريقة الأيون ٠٠٠ الالكترون الجزيئية ٠
٢ ـــ بيان العامل المختزل مع ذكر السبب ٠
٣ ـــ حساب الكتلة المكافئة للعامـــل المؤكسد ٠

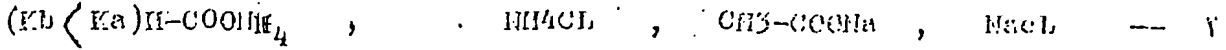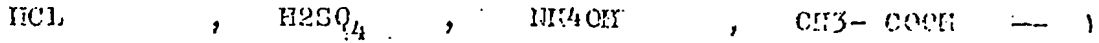علما بـــأن : ـــ $K = ٣٩$ ، $Cr = ٥٢$ ، $Fe = ٥٦$
$CL = ٥ر٣٥$ ، $O = ١٦$ ٠

٣ /٠٠٠٠٠٠

ثانيـا : ـــ

رتب ما يلي ترتيبا تصاعديا (من اليمين الى اليسار للاجابة) ٭

أ) المواد التالية حسب قيمة PH المتوقعة لمحاليلها المتساوية التركيز بالمول /لتر .

١ ــ CH_3-COOH , NH_4OH , H_2SO_4 , HCL

٢ ــ $NaCL$, $CH_3-COONa$, NH_4CL , $H-COONH_4$ ($K_b < K_a$)

ب) الذرات التالية حسب عدد التأكسد لذرة المنجنيز .

MnO_2 , MnO_4 , $MnCL_2$, K_2MnO_4

ج) المحاليل التالية لحمض الاستيك تبعا لدرجة تفككها (٭)

(٠,١ مول /لتر) ، (١ مول /لتر) ، (٠,٢ مول /لتر) ، (٢ مول)مول /لتر

ثالثـا : ـــ

محلول أسيتات البوتاسيوم تركيزه (٠,١ مول /لتر) فاذا علمت ان ثابت التأين K_a لحمض الاستيك = ١,٨ × ١٠⁻⁵ احسب قيمة : ـــ

١ ــ PH لمحلول أسيتات البوتاسيوم .

٢ ــ ثابت تميؤ هذا الملح .

٣ ــ تأثير المحلول على لون الدليل الفينولفثالين .. علما بأن لـو ١,٨ = ٠,٢٦ .

السؤال الثالث : ـــ

أولا : ـــ

٭ ما المقصود بكل من : ـــ

١ ــ تميؤ الملح .

٢ ــ عدد التأكسد .

٣ ــ الحمض حسب نظرية برونشتد ــ لورى .

٤ ــ المحلول المعيارى .

٥ ــ القاعدة حسب نظرية لويس .

ثانيا : ـــ

حدد العبارة الصحيحة والعبارة الخاطئة في كل ما يلي مع تصويب الخطأ من الكلمات التى تحتها خط .

١ ــ التغير المفاجئ في قيمة PH حول نقطة التعادل أو التكافؤ في المعايرة يعتمد على نوع الدليل المستخدم في عملية المعايرة .

٠٠٠٠٠٠/ ٤

٢ ــ عند اضافة محلول ‎ ‎ A^+C^- الى (محلول مشبع متزن H^+A^-) فانه يؤدى الى زيـــادة ....

ذوبان A^+E^- ....

٣ ــ نصل الى نقطة التكافؤ اذا تفاعل لتر من محلول HCL المعيارى، مع ١٢ جم مـــــــن ....

المغنسيوم (Mg = ٢٤) .

٤ ــ يزداد تفكك جزيئات الدليل المثيل البرتقالى (HOH) باضافة قلوى .

٥ ــ اذا كان حمض HA تركيزه (٠.١ مول /لتر وثابت تأينه ($Ka = 1 \times 10^{-6}$)فـان
قيمــــة PH له = ٤ .

ثالثــا : ــ

اضيف ٨٠٠ ملليتر من محلول نـترات الرصاص (‎II‎) تركيزه (٠.١ مول /لتر)الى محلـــول كلوريد البوتاسيوم تركيزه (٠.٢ مول /لتر) بحيث اصبح حجم المحلول الناتـج لترا واحدا .
هل يترسب كلوريد الرصاص (‎II‎) أم لا ؟ ولماذا ؟
علما بأن KSF لكلوريد الرصاص (‎II‎) يساوى ١.١ × 10^{-5} عنـد ٢٥ م .

السؤال الرابـــع : ــ

أولا : ــ

* حلل لما يأتى تحليلا علميا صحيحا موضحا اجابتك بالمعادلات الكيميائيـــة ..

١ ــ يتصرف الماء فى بعض التفاعلات كقاعدة وفى تفاعلات أخرى كحمـــض .

٢ ــ يتصاعد غاز الهيدروجين عند اضافة الخارصين الى محلول كبريتات الحديد (‎III‎) .

٣ ــ تبقى قيمة (PH) الاس الهيدروجينى تقريبا ثابتة لمزيج من محلولى هيدروكسيد الامونيوم وكلوريد الامونيوم باضافة قليل من الحمض الى المزيـج .

ثانيــا : ــ

اشرح كيف يحضر فى المختبر المدرسى ٥٠٠ ملليتر من محلول هيدروكسيد الصوديــوم (٥ ع) تقريبى .
اكتب طريقة الحساب وخطوات العمل .
علما بأن (Na = ٢٣ ، ، O = ١٦ ، H = ١)

ثالثا : ــ

اكتب رقم العبارة وأمامه التكملة الصحيحة لكل ما يأتـــى : ــ

١ ــ يتوقف سمك الغلاف الايونى فى المحاليل الالكتروليتية على .... ، .... ، ....

٠ / ....

****

(٥)

١ — ... أضيف ٢ر لتزا من الماء المقطر الى ١٠٠ ماليلتر من محلول هيدروكسيد البوتاسيوم ...ــــــ ... فإن الناتج يصبح تركيزه ... .

٢ — عند اتحاد العنصر x للنكروبين الاكسيد يكون OC ، X_2O_3 فإن عدد ى لأكسد العنصر x يكونان ... ... ، ، .... على التوالي .

٤ — عند امرار غاز HCl فى المحاليل المشبعة المتزنة لكل من كربونات الكالسيوم وكلوريد الفضة تؤدى الى ، زيادة ذوبان ، ، .... ، وترسيب ....

٥ — تبعا لنظرية لويس عند اضافة $ZnCl_2$ مع الامونيا وتكوين $\left[Zn(NH_3)_4\right]^{+2}$ فإن الحامض هو ، .... ، القاعدة هى ....

٦ — عند اختزال SO_4^{-2} نحو ... الاربيكاينتج ... S^{-2} فإن الكتلة المكافئة لـ ....ـــــــــ... الكبريت ، ....

( ) علما بأن $S = ٣٢$ ، $O = ١٦$ ، $H = ( )$)

انتهت الاسئلة
****

** ﹡ تهنياتنا لكم بالنجاح ﹡ **

COURSE OUTLINE FOR THE ARABIC LANGUAGE

THE ACHIEVEMENT TEST IN THE ARABIC

بسم الله الرحمن الرحيم

دولة الإمارات العربية المتحدة
وزارة التربية والتعليم
قطاع التخطيط والتقويم
إدارة التقويم والامتحانات

المادة : اللغة العربية (الأدب
والنصوص والبلاغة والنقد والنحو)
اليوم والتاريخ : الاثنين ١٤/١/١٩٩٥
زمن الإجابة : ساعتان
عدد صفحات الأسئلة : ثلاث صفحات

امتحان الصف الثالث الثانوي (القسم العلمي)

الفترة الأولى (يناير ١٩٩٥)

أولاً : الأدب والنصوص :

أجب عن الأسئلة الآتية : -

السؤال الأول : (١٠ درجات)

" أدت الترجمة دوراً هاماً في نهضة الأدب في العصر الحديث "

وضّح ذلك مبيّناً آثارها الإيجابية في هذا المجال .

السؤال الثاني :

من قصيدة " في سرنديب " للبارودي : (٢٠ درجة)

ملكت عقاب الملك وهي كبيرة   وغادرتها في وكرها وهي طائر

ولو رمت ما رام امرؤ بخيانـــة   لصبّحني قسط من المال غامر

ولكن أبت نفسي الكريمة سوءة   تعاب بها والدهر فيه المعاير

أ - ما مرادف : سوءة ، وما مقابل : المعاير ، وبم توحي به كلمة : صبّحني ؟

ب - افتخر الشاعر في هذه الأبيات . فما الصفات التي نسبها إلى نفسه ، وما

علاقتها بحياته وعصره ؟

جـ - ما نوع الخيال في هذه الأبيات ؟ تخيّر صورة   واشرحها وبيّن

أثرها في المعنى .

د - استخرج من الأبيات محسناً بديعياً وبيّن نوعه وقيمته الفنيّة .

هـ - " اعتذر الشاعر بالأقدار وعلّل ذلك بمساندتها للضعيف فينجح ، وباعتراضها

للقوى فلا يدرك غايته . ثم دافع عن نفسه "

أكتب الأبيات الدالة على هذه المعاني ، واضبط أواخر الكلمات بالشكل .

السؤال الثالث : (١٥ درجة)

من قصيدة " رثاء عمر المختار " لأحمد شوقي

لبّى قضاء الأرض أمس بمهجة   لم تخش إلا الله للسماء قنـــاء

وأتاه مرفوع الجبين كأنـــه   سقراط جرّ إلى القناء رداء

وأتى الأسير يجرّ ثقل حديده   أسد يجرّر حيّة رقطاء

عنّت بساقيه القيود فلم ينؤ   ومشت بهيكله السنون قناء

أ - رسم الشاعر للشهيد في هذه الأبيات صورة شعرية ممتدة وضّحها وبيّن

عناصرها .

بعده / ٢

ب ــ خرج شوقى فى هذه القصيدة عن الرثاء التقليدى الى آفاق عامة فى النضال والكفاح . وضّح ذلك .

جـ ــ القصيدة من المدرسة أو تباعيّة (الكلاسيكية)
فما سمات هذه المدرسة من حيث : التعبير والموسيقى ؟

د ــ تمثل هذه القصيدة الاتجاه القومى فى الشعر الحديث،
فما أهم القضايا التى تناولها حذا الاتجاه ؟

هـ ــ بين الجمال البلاغى فى البيت الأخير ، وما قيمته الفنيّة ؟

ثانيا : النقد والبلاغة   (٢٠ درجة)

أجب عن السؤالين الاتيين : ــ

السؤال الأول :

للنقاد فى العصر الحديث من أتباع الاتجاه الجمالى صفات ومعابير لابد من
توافرها فى الناقد الديب . ووضّح ذلك .

السؤال الثانى :

من نشيد للزنوج :

مثلما ينظر قنّصـــا	ب الى سرب النعــاج
جئت ترنو لكنـــو	زى بعيون كالزجــاح
وتربعت على عــــر	شى وباهيت بتـــاجى
أترانى أزرع الأرْ	ضَ لتحظى بالفراح
انها خــبزى وما	ئى وشنذ احمّا من دمائى

ا ــ ما الأفكار التى تناولتها هذه الأبيات ؟

ب ــ ما العاطفة التى شاعت فيها . وما أثرها فى التعبير والتصوير ؟
استدل من الأبيات على ما تقول .

ثالثا : النحـو   (٣٥ درجة)

" ما أجمل أن يتوجه المؤمن الى الله وقت الشدّة والكرب ، يدعوه مخلصا أن يفرج
الكرب . ولقد كان المسلمون الأوائل ينثرون من الدعاء حتى تفيض أعينهم بالدمع
لذا كانت انتقوى لباسهم والحب سبيلهم الى الله . ولا يقنا من رحمة ربّــــك
الا الجاحدون .... "

ا ــ استخرج من القائمة السابقة :

١ ــ فعلا مضارعا منصوبا وآخر مرفوعا بالضمة .

٢ ــ فعلا من الأفعال الخمسة وبين علامة اعرابه .

٣ ــ اسما ممدودا وآخر مقصورا .

٤ ــ اسم فاعل من فعل ثلاثى ،واذكر فعله .

ب ـ   ما موقع جملة (يمكرون) من الإعراب ؟

جـ ـ " أنتم تدعون الله وقت الشدّة "

" أنتن تدعون الله وقت الشدّة "

زن كلمة تدعون فى الجملتين . وبيّن ما أسندت اليه كل كلمة مع ما حدث.

لها من تغيير .

د ـ   كيف تكشف فى القاموس المحيط عن معنى " تفيض "

هـ ـ " لا يقنط من رحمة ربك الا الجاحدون "

ضع " غير " بدلا من " الا " واضبطها وأعرب ما بعدها .

و ـ أعرب ما تحته خط فى القطعة السابقة .

انتهت الأسئلة . . . . . وانه الصيف ،،،

THE ARABIC VERSION OF SUPPLIMENTARY

REQUEST TO OBTAIN PEOPLE'S PREFERENCE

REGARDING SOCIOECONOMIC INDEX

بسم الله الرحمن الرحيم

أخي الكريم ،

إن الباحث بصدد بناء مقياس للمستوى الاقتصادي الاجتماعي للأسرة في دولة الامارات وذلك لغرض البحث العلمي ، إن المقياس المزمع بناءه يتكون من أربعة بنود وهي كالتالي :

(١) مستوى السكن والذي يتضمن نوع السكن [فيلا ـ شقة ـ بيت شعبي] عدد الغرف في المنزل ، وأخيرا صفة السكن [إيجار ـ ملك ـ منحة حكومية] .

(٢) المستوى التعليمي لرب الأسرة . (٣) دخل الأسرة . (٤) الحالة المهنية لرب الأسرة أي وظيفة رب الأسرة .

على الرغم من أهمية تلك البنود الاربعة في التعرف على المستوى الاقتصادي الاجتماعي للأسرة الا أنها لا تتساوى في أهميتها ؛ كما تختلف وجهات النظر في تحديد أهمية كل بند .

لذا يود الباحث التعرف على رأيك في أولوية تلك البنود في أهميتها لقياس المستوى الاقتصادي الاجتماعي للأسرة . إن تعاونك وابداء رأيك لهو محل اهتمام واعتزاز الباحث. لذا أخي الكريم أرجو ابداء رأيك من خلال تصنيفك لتلك البنود الاربعة حسب أهميتها في التعرف على المستوى الاقتصادي الاجتماعي للأسرة في دولة الامارات وذلك من خلال ترقيم تلك المستويات حسب أهميتها من وجهة نظرك . فمثلا اذا كنت ترى ان أهم بند لتحديد المستوى الاقتصادي الاجتماعي هو وظيفة رب الأسرة فضع رقم (١) أمام الحالة المهنية لرب الأسرة وهكذا كما يرجى ذكر السبب في تصنيفك ان أمكن مع جزيل الشكر والتقدير .

الباحث
عبدالقادر عبدالله
جامعة الامارات

البنـــــود	الرقم
المستوى التعليمي لرب الأسرة	
دخل الأسرة	
مستوى السكن	
الحالة المهنية لرب الأسرة	

السبب في التصنيف

....

....

....

الاســـــم :
الوظيفة :