INTELLIGENCE AND ACADEMIC SELF-CONCEPT AS PREDICTORS OF ACADEMIC ACHIEVEMENT AMONG SECONDARY SCHOOL STUDENTS

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A Dissertation submitted to the Department of Psychology, Faculty of Social Sciences, International Islamic University, Islamabad in partial fulfilment of the requirement for the degree of MS in Educational Psychology
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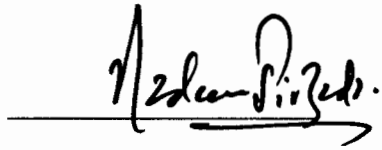

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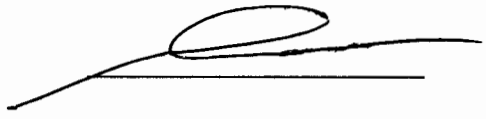

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APPROVAL CERTIFICATE

This is to certify that the present research entitled "INTELLIGENCE AND ACADEMIC SELF-CONCEPT AS PREDICTORS OF ACADEMIC ACHIEVEMENT AMONG SECONDARY SCHOOL STUDENTS" has been completed by Ghulam Mohy-ud-Din under the supervision of Dr. Javed Iqbal, for the partial fulfilment of the degree of MS in Educational Psychology from International Islamic University, Islamabad.

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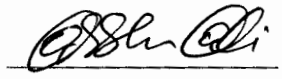
Viva Voce Committee

Supervisor



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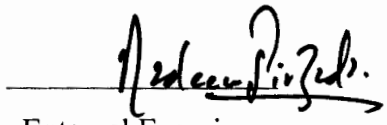

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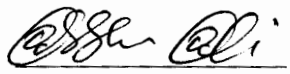

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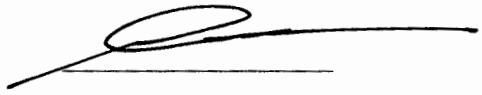

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Dedicated to

my family

especially

my

Father

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ABSTRACT

The purpose of the study was to predict students' academic achievement through their level of intelligence and academic self-concept. The data were collected from private schools and colleges (N = 273, 170 boys, 113 girls) ranging from grade 7 to 12. For the measurement of intelligence Raven's Standard Progressive Matrices test (RSPM, 1981) was used while students' academic self-concept was measured by Academic Self-Concept Scale developed by Ifitikhar and Anis (1986). Academic Achievement was operationalized as the marks obtained by the students in the examinations that were going to be held at the end of that academic session. Data analysis involved the use of Multiple Regression, Pearson's Correlation, Student's t-Test and One way ANOVA Test. The results indicated that the two independent variables of academic self-concept and intelligence were significantly predicting students' academic achievement, $F (2, 270) = 80.395$, $p < .001$). Pearson's Correlation analysis showed a significant positive relationship between academic achievement and level of intelligence and between academic achievement and academic self-concept. Additional analyses on demographic variables showed significant differences between boys and girls in the level of intelligence and academic achievement. Significant differences were also observed between students belonging to nuclear and joint family systems and between students with varying levels of parental education. It was suggested that school administration, teachers, counselling psychologists and parents should assist students in developing a positive academic self-concept and providing opportunities for intellectual stimulation for developing better intellectual skills to achieve the goal of high academic achievement. Practical implications of the study were also discussed briefly.

Chapter 1

INTRODUCTION

In the developed world, academic achievement is an important area of interest of educationists, intellectuals, philosophers, and researchers for curriculum development, implementation of effective pedagogical methods, enhancing student learning ability, and improving the social structure in general. Throughout the world, a lot of research work is available on those factors that have significant impact on the academic achievement of students, but unfortunately in Pakistan, provision of quality education is used only as a political slogan while in reality, no praiseworthy concrete steps have been taken for the betterment of educational sector. Furthermore, quality research work is not available on relationship between students' academic achievement with their intelligence or their self-concept.

Those nations go forward and prosper that have an access to high quality education and consist of a knowledgeable man power. No doubt, high quality education stimulates analytical ability and produces capability of judgment, comprehension, and reasoning in individuals to face and resolve day to day challenges of life. Therefore, we need to work on the problems related to the provision of quality education with keen sincerity and enthusiasm.

Academic achievement has been a topic of considerable interest and is been a focus of research for a very long time. Countless numbers of studies have been undertaken which focused either exclusively on academic achievement or investigated academic achievement in relation to other cognitive, social, and personal factors. Most of these studies have sought to determine factors that improve academic achievement. The significance of these relationships for education are apparent since

achievement in skill, concepts, and content are the acknowledged goals of the education process. Unlike creativity, which has been subjected to many different definitions, academic achievement or academic ability is relatively more easily defined, measured and interpreted. In the past few years many researchers have probed into the construct of academic achievement and into the factors that affect academic achievement and their correlation with other demographic and psychological factors. Several factors have been recognized to be contributing to academic attainment. The two essentials of them, which will be focused in this study, are intelligence and academic self-concept.

The construct of academic self-concept has been widely observed in many researches since the nineties, especially in relation to academic achievement. The use of *multicohort-multi-occasion* design was prescribed by Marsh, Craven and Debus (1998) who considered it the best for testing the causal ordering of these constructs with special reference to the developmental pattern. This design had the advantage of combining the aspects of cross-sectional (multiple-age cohorts) and longitudinal (multiple occasions) research in the investigation of any phenomenon. But the design proposed by Marsh et al. (1998) would have been very complex and time consuming and, hence, would have been out of the scope of this present study. Therefore, present research was designed to measure the relationship of the construct of academic self-concept and intelligence with the construct of academic achievement among secondary school children through the use of a cross-sectional survey design.

Although over the past few decades the researchers in both educational psychology and developmental psychology have been interested in self-concept, there is no universally agreed-upon definition of this term. Some researchers have defined

self-concept as the perceptions people have of themselves, but self-perceptions, in themselves, can be defined utilizing the terms such as self-esteem, self-concept, and self-efficacy. Although it could not be agreed as to what is the distinction between these self-related perceptions, the recent researchers seem to reach to a common agreement regarding the multidimensional nature of self-concept (Bong and Skaalvik, 2003; Shavelson, Hubner and Stanton, 1976). The concept and consciousness of the self-concept is not inborn but develops as a life-time process of the experiences of an individual and his interactions with the surroundings (Bong and Clark, 1999; Bong and Skaalvik, 2003; Marsh and Shavelson, 1985), where "significant others" play an important role (Shavelson, Hubner and Stanton, 1976; Sanchez and Roda, 2003). They have described self-concept as an important constituent of human personality, which is developed through the process of self-reflection and is a process that is always in the progressive stage, developing as the person interacts and gets feedbacks from those significant others. Shavelson et al. (1976) mentions that self-concept can be described as an organized, multidimensional, hierarchical, and developmental construct. Shavelson et al. have placed the construct of self-concept at the top of his hierarchy; academic self-concept, in the same model, is presented as a *sub-category* of general self-concept that can be further subdivided into four areas, those of English, History, Mathematics, and Science. It was noted that self-concept is not a static, but a developmental construct which has the tendency of becoming increasingly differentiated as a person ages. According to Chapman (1988) academic self-concept refers to "attitudes and feelings concerning tasks related to schools, such as writing, spelling, reading and maths". Several scholars have stressed the importance of self-concept within educational gain and many studies have been performed to probe into the part played by self-concept in school performance. According to Chapman, self-

esteem is extremely significant to educational development, and the academic performance and progress of the children may be highly affected by the way the children view themselves. Thus, self-concept is a key concept contributing to the development of any child and is certainly not a static construct. Children gain experience of the world through interaction; they develop a sense of self. A common observation is that an atmosphere of acceptance that permits the adolescent freedom and the chances to learn competencies (Litovsky and Dusek 1985) is suitable for optimal self-concept development. A thorough educational success of a student depends on his good academic self-concept. By developing an organized, orderly and supportive environment, the schools can boost the academic self-concept of their students. Classroom teachers can make their students learn good study habits, self-management skills coupled with self- actualization strategies. The results of the present study indicate the importance of cultivating a positive self-concept in every aspect in diverse psychological contexts.

Self-Concept is a construct of unrivalled importance in both the fields of psychology and education. Byrne (1984) came to the conclusion that self-concept is a multidimensional construct, having one general aspect and many other specific aspects, academic self-concept being one among them. The Shavelson model (Strein, 1993) describes the term academic self-concept by employing two terms. First, academic self-concept includes the descriptive aspect of self-perception (a perception that could be measured by articles such as: I like math) and the self-evaluative aspect (for the evaluation of which articles such as "I am good at math" were proposed to be sufficiently representative). Second, self-perceptions associated with academic self-concept focuses on scholastic abilities, more than it focuses on attitudes. It is defined as the perception a person has of self, relative to school achievements (Reyes, 1984).

The school performances of a student are surely affected by his self-evaluation of his academic performance (Marsh, 1990). Both the disciplines of psychology and education acknowledge the significance of the construct of self-concept. Psychologists assert considerable role of self-concept in personal adjustment of an individual on one hand, and on the other hand educators are becoming increasingly conscious of the fact that academic performance of a student is highly influenced by his own perception of himself. Positive interrelationship between these two constructs has been substantiated by various studies done over the years and it is becoming more and more impossible to overlook the mass of growing evidence that the two variables positively influence each other. This study may prove very significant for educators by providing utilizable insight related to the relationship between academic self-concept and academic achievement among primary and secondary school children. Out of the many factors contributing to academic success, the precepts that have been focused in this study are the constructs of academic self-concept and intelligence. Multifarious researches in the past have examined the correlation, and even cause and effect relationship that might exist between academic achievement and intelligence and academic achievement and academic self-concept, however, the issue of combined effect of intelligence and academic self-concept on academic achievement was not of very interest for the past researchers.

The construct of self-concept has been a focus of a multitude of psychological research in the recent years. Although a great number of studies have been devoted to it, there is still a disagreement among the researchers about a unanimously accepted definition of the term. The reason behind this is perhaps that the term has been observed from various differentiated theoretical perspectives. Nonetheless, that the term self-concept is multi-dimensional in nature, and that it comprises various

dimensions, areas of facets, seems to be generally agreed upon opinion of all the researchers. The personality aspects of self-concept seem to be more relevant to physical, social, and emotional facets, while others appear more relevant to academic achievement (in varying areas and subjects). Self-Concept "*is the set of perceptions or reference points that the subject has about himself; the set of characteristics, attributes, qualities and deficiencies, capacities and limits, values and relationships that the subjects knows to be descriptive of himself and which he perceives as data concerning his identity*" (Hamachek, 1981, quoted by Machargo, 1991, p. 24). Every person has some knowledge and opinion about him/herself, he perceives himself to be of a certain kind and in possession of certain qualities and capabilities, and describes himself in a certain relatively permanent manner. The construct is primarily understood as the descriptive assessment a person has about himself, yet there is some cognitive connotation attached to the meaning. The importance of self-concept stems from its notable contribution to personality formation.

Many studies in the past have investigated the relationship between Intelligence and Academic Achievement (Pérez, Otero Ojeda, Pliego Rivero, Ferreyra Martenez, and Manjarrez Dolores, 2008; Boykin et al., 2005; Caprara, Barbaranelli, Steca, and Malone, 2006; Contessa, Ciardiello, and Perlman, 2005; Finn,Gerber, and Boyd-Zaharias, 2005; Gooden, Nowlin, and Frank Brown and Richard,2006; Hong and Ho, 2005; Jeanne Horst, Finney, and Barron, 2007). Some researchers view the constructs of intelligence and achievement as identical and propose that there exists a reciprocal relationship between intelligence and achievement while another group of researchers asserts that intelligence and achievement are causally related. (Laidra, Pullmann, and Allik, 2007) have reported that the cognitive abilities of students are the most important factor that affect students achievement through all grades. The

significance of the relationship between measures of intelligence and achievement for research as well as education cannot be overlooked, if there is a strong relation between them, it might be deduced that the intelligence test has an important contribution in connection with other variables for instance the curriculum, study program, the teacher, the characteristics of the school, and others in scholastic performance (Naglieri and Bornstein, 2003). Researchers mentioned that there are empirical evidences for an unbreakable bond between general cognitive ability and academic achievement. Comprehending the nature of this relationship between general cognitive ability and academic achievement can have significant implications for both theory and practice (Rohde and Thompson, 2007). Academic achievement of students in high school strongly correlates (.50 to .70) with intelligence scores (Jensen, 1998).

It is a well-recognized fact that in any society individuals have different cognitive abilities, and *ability testing* is considered as the most effective measure of this sequentially significant trait. It is, however, one of the most debated exports from academic psychology to the practical world. If the predictability of psychometric tests for real-world success could be effectively proved, it would have significant impact on both the practical and the theoretical levels. As a consequence of such a finding the use of such tests as selection tools for prediction of subsequent educational and occupational efficiency would be reasonably justified. The need of acquisition of an ability to foretell individual differences in educational outcomes was the reason of the foundation of cognitive ability testing (Binet, 1905; Zenderland, 1998). Individual differences in school examination scores are also taken into consideration in the psychometrics of general intelligence for an overall evaluation of a person's cognitive capabilities (Spearman, 1904). The predictive validity, and rationale, of cognitive

ability tests is based upon, and valued due to, their claim to give a valuable appraisal of educational outcomes (Schmidt and Hunter, 1998) in addition to giving a good evaluation of the occupational outcomes. What then is the relationship between cognitive ability and educational achievement? Psychologists generally agree that there exists a moderate to strong relationship between intelligence and educational outcomes. Jencks et al.(1979, p. 102) has done an analysis of six longitudinal studies in which he has given a detailed account of eight samples showing that a correlation ranging from .40 to .63 existed between the amount of education obtained and the intelligence test scores. Some other researchers have computed the same variables and have found similar results (Brody, 1992; Neisser et al., 1996; Jensen, 1998; Sternberg et al., 2001; Bartels et al., 2002). Mackintosh's (1998) survey, for instance, acknowledged that a correlation between .4 and .7 existed between IQ scores and school achievements. Mackintosh stated that, "in Britain, the correlation between 11-year-old IQ scores and later 4 educational attainments, including performance on school examinations at age 16, is about 0.5".

The effect of gender gap for educational outcomes is another important issue that was addressed in the current study. It is a well-established fact that despite their similar scores on cognitive abilities tests, boys' performance in school assessments is usually lesser than girls (Fergusson & Horwood, 1997). It is also a well acknowledged fact that boys and girls perform very similarly on intelligence test scores at the age of 11. In this context, Deary et al. (2003), performed a research based on a massive sample Scottish population , another similar study was performed on a huge representative sample from the U.K. (Strand, Deary, & Smith), in the studies no significant variances in the overall intelligence capabilities of boys and girls at 11 years of age was found, on the verbal ability scale, however, the girls scored slightly

higher, and on general and specific ability scores, the boys performed slightly better than their counterparts. Although during the period of approximately one hundred years of research, a general agreement has been reached that there is no sex difference in overall general intelligence (Douglas and Rushton, 2006) but several studies have reported gender differences in intelligence (Furnham et al., 1999). (Deary et al., 2003) studied also the cognitive ability distribution in more than 80,000 students. It is found that the difference of genders does not reflect in cognitive test scores, but the difference in their standard deviation was found to be highly significant. Boys are found to be more at the lower and higher extremes of cognitive ability (Douglas and Rushton, 2006). Adrian and Buchanan (2005) stated also this difference is consistent across countries and populations although there are wide differences in level. Rammstedt and Rammsayer (2000) have investigated on 105 German students and their findings are consistent with many other researchers in that male self-concept for logical-mathematical and spatial intelligences is found to be significantly higher as compared to the females. Females, on the other hand, score significantly higher in the self-concept scales for musical and interpersonal intelligences.

This study purports to be a two-fold study attempting to examine the degree to which students' intelligence and self-concept correlate with their academic performance. The aim of this research is to answer the following questions: "what are the relationships between intelligence and academic achievement?", "what is the relationship between academic self-concept and academic achievement?" and "what is the joint effect of academic self-concept and intelligence on academic achievement?" In recent years, different researchers have studied the relationship between intelligence and academic achievement. It is important to note that the reason so many researchers have been interested in the correlation of cognitive ability and

academic achievement is that understanding the nature of this relationship has various applications in both practice and theory Watkins et al. (2007) stated that there has been a considerable debate regarding the causal precedence of intelligence and academic achievement. Some scholars have viewed intelligence and achievement as identical constructs, while others believed in a reciprocal relationship between intelligence and achievement, while considering both as different constructs. Some researchers have, on the contrary, asserted that there was a causal relationship between intelligence and achievement. (Laidra et al., 2007) reported that the cognitive abilities of students had the greatest impact on students' achievement through all grade levels. The predictors of academic achievement were studied by Laidra etc. In 2007; they considered a large sample of 3618 students (boys=1746; girls=1872) in Estonia. Intelligence was found to be the best predictor of students' academic achievement in all grades for appraisal of which they used the Raven's Standard Progressive Matrices. (Deary, Strand, Smith, & Fernandes, 2007) have also reported a strong correlation between academic achievement and intelligence. They found a correlation of 0.81 between a latent intelligence trait and a latent trait of educational achievement in their study regarding psychometric intelligence at the age of 11 years old and education achievement in 25 academic subjects at the age of 16. The findings from this study suggest that achievement had small to moderate positive correlations with the intelligence factor.

Spearman also found that people who performed well in one intellectual area had comparable achievements in other areas too. According to his findings, it was inferred that we could rely on an evaluation of a general factor of intelligence G for an appraisal of an intelligence of a specific type. Today, the term 'intelligence' is used to denote many kinds of cognitive abilities; however, there seems to be a general

agreement among the researchers that the ability to learn is a main constituting aspect of intelligence. This is in agreement with discoveries that *G* is a very good predictor of academic accomplishment. G is further divided into two sub-categories: crystallized intelligence (*Gc*) and fluid intelligence (*Gf*). Crystallized intelligence, commonly reperesented by symbol *Gc,* refers to knowledge acquired by past experience. It includes such knowledge as is acquired by the use of language in an environment (vocabulary); it may also include skills acquired by working in a workshop, for example. *Gc* can be measured with vocabulary tests or tasks requiring general knowledge. On the contrary, fluid intelligence, commonly represented by the symbol *Gf,* is the ability to cope with new situations. And, obviously, for dealing with novel situations an experientially gained knowledge is only marginally useful. Also, *Gf* has been frequently considered as the most dependable and predictive measure for positive outcomes in both educational and professional domains. Since a large quantity of empirical evidence shows *Gf* to be the best predictor for an extensive range of tasks, *Gf* is theoretically very close to *G.* Prototypical test to measure *Gf* is the commonly used matrix reasoning tasks, such as Raven's Progressive Matrices, which is considered to be one of the most frequently used tests. The participant of these matrix reasoning tasks is given a pattern of logically related pieces. One piece of the pattern is missing and the participant is required to pick the piece that logically fits into the vacant space by choosing the right one out of multiple possibilities.

Although the literature suggests that intelligence and self-concept are correlated, only a few researchers have examined the simultaneous effects of both of these factors on the construct of academic achievement. Thus, this study seeks to address the issue of correlation of self-concept and intelligence with academic achievement by implementing a cross-sectional design. An examination of the

findings from literature concerning the relationship of these constructs will be of a great help to place this proposed study in a theoretical context.

LITERATURE REVIEW

INTELLIGENCE AND ACADEMIC ACHIEVEMENT

Due to the significant implications of the relationship of general cognitive abilities and academic achievements, and the difference it could make in the predictability of admission tests, especially the intelligence test, many researchers have studied the relationship between intelligence and academic achievement in the last few years. Understanding the nature of this relationship has extensive implications for both practice and theory (Rohde & Thompson, 2007). Watkins et al. (2007) stated that there had been substantial argument concerning the causal antecedence of intelligence and academic achievement. There are differing views on the relationship of intelligence and achievement. Some researchers consider intelligence and achievement as identical constructs. Others believe that the relationship between intelligence and achievement is reciprocal. Many others assert that there exists a causal relationship between intelligence and achievement. (Laidra et al., 2007) reported that cognitive abilities of students were most predictive of their achievements through all grade levels.

A prominent aspect of human psychology is the varying degree of intelligence. These individual differences in intelligence have an impact on important outcomes in various areas of practical life. The present study will also discuss in brief the genetic and sometimes environmental factors playing a key role in people's differences in intelligence. Intelligence, in a common and broad way, can be studied as cognitive abilities, IQ and mental abilities. It is a quantitative characteristic. However, unlike

height and weight: it requires no straightforward and exact measurement using basic scientific units. Thus, the phenotype of intelligence will be discussed before addressing the genetic and environmental findings in this context are described. What is the reason of difference of performance in children in identical tests of intelligence and achievement? Why is it that some students attain some scores in standardized intelligence test and those scores are reflected in their achievement test scores, while there are large discrepancies in the intelligence scores obtained and educational outcomes in other cases? Given the ever-increasing role of standardized tests of intelligence and academic achievement in Pakistani education, it is important to continually strive to better understand the relationship among these constructs. Although many have attempted to develop general theories of intelligence (e.g., Gardner, 1983; Spearman, 1904; Sternberg, 1985; Thurstone, 1938), most of the standardized tests used in educational settings and employed historically in most empirical research are derived from the Bine´ t Simon scales of intelligence (1905). The Bine´ t scales were designed for the pragmatic purpose of identifying special needs children in the Parisian public school system. The Stanford Bine´ t scale was standardized by Terman (1916) and extended by Wechsler (1939). As the 20th century progressed, standardized tests of intelligence became commonplace in schools. Most group and individually administered intelligence tests are direct descendants, modifications of, or reactions to these measures. Almost all of these standardized tests of intelligence measure particular dimensions of cognitive functioning generally named as group factors. These group factors include such areas as memory, perceptual speed, spatial ability and verbal ability. Although these dimensions are different from one another, they, nevertheless, are proved to be correlated and collectively form important components of general intelligence

(Carroll, 1993). Although these standardized tests of intelligence surely do not explain all types of intelligent behaviour, they are highly reliable and predict later intellectual performance, educational attainment, and occupational status (Brody, 1992). Understanding the important dimensions of academic achievement has also been a focus of intense research. Many studies have used standardized achievement tests (Sattler, 1988) that attempt to measure specific types of academic performance (e.g., reading comprehension, mathematics computation). Others have argued that standardized achievement tests are nearly identical to measures of intelligence, preferring measures of classroom performance, such as teacher assessments or cumulative grade point average (McCall, Evahn, and Kratzer, 1992).

Several definitions of intelligence have been presented in earlier researches. Some, such as Gardner(1983) define it as something comprising of multiple abilities, still others, such as Sternberg(1985) think of it a wide range of behaviours, and others, e.g., Kline(1991) consider it as the reaction time. Researchers (Cattell, 1971) usually draw a distinction between crystallized (Gc) and fluid (Gf) intelligence. According to Cattell, Gf represents largely constitutional and physiological domains, while Gc is more linked to educational experiential facets, and thus represents the collective wisdom of a culture (Undheim, 1981). Research on academic achievement is most concerned with this particular aspect of intelligence. Cattell had placed fluid intelligence on the top of his model presenting a hierarchy of intelligence; he considered it higher than crystallized intelligence. However, fluid intelligence was not considered as a synonym for general intelligence, there are other important aspects of general intelligence which are represented by crystallized intelligence, as Cattell also acknowledged. Undheim (1981) and Gustavsson (1984) have expressed crystallized and fluid intelligence, along with verbal intelligence and cognitive speed, in a single

factor as general intelligence. In a similar model presented by Martinsen & Kaufmann (2000) Gc, Gf and spatial intelligence were considered as a single factor of general intelligence, with Gf having the closest proximity to the concept of general intelligence. According to some researchers Academic achievement is most suitably predicted by intelligence; for example, 25% of its variance may be explained by intelligence (Neisser et al., 1996). The evaluation of general intelligence involves using individual differences in school examination scores (Spearman, 1904). Occupational outcomes (Schmidt & Hunter, 1998), as well as the educational outcomes are the major concern of the predictive validity of the psychometrics of cognitive ability. What is the relationship between cognitive ability and educational outcomes? Most researchers agree that there exists a moderate to strong correlation between the two. Verbal ability also contributes a very small but significant amount to performance in Physics.

According to the orthodox view an individual's interaction with the environment and his/her heredity have a combined effect in the making of his/her intelligence, which, once formed, becomes a relatively stable attribute. Carroll (1993) has proposed in a detailed analysis that the structure of intellectual abilities can be discovered by applying factor analysis and other related techniques on tests of intelligence. Sternberg (1985) has explained intelligence to be comprised of three facets. In his theory of successful intelligence he presents the analytical, creative, and practical aspects of intelligence as the essential elements that make up intelligence. As there must exist a particular kind of ability in a person to perform well in any intelligence test, so, it seems, there should be some correlation between any such tests of cognitive abilities and subsequent performance at school or at the work place. This relationship would hold true to the extent, or in proportion to, the degree with which

this expertise required for the good scores a person attains in the intelligence tests coincides with the abilities required in the school or at the workplace, and up to this level we can say that good scores in intelligence tests do predict performance. But, scientifically, it would be hard to say that there exists an intrinsic relationship between intelligence and other kinds of performances. It is one of the goals of this study to find the nature, extent, or causal relationship that might exist in the two obviously related constructs.

According to some scholars the subjective evaluations of intelligence shows an incremental predictive value as compared to the predictability shown by the conventional intelligence. Subjective appraisals, they say, account for more than 40% of the variance in the academic and otherwise achievements. IQ measures are also supposed to predict educational accomplishment as they have had a long history of validation specifically against achievement criteria (Deary, Smith, Strand, & Fernandes, 2007; Sternberg, 2003). Psychology methodically studies predictive value of intelligence measures for educational achievements and this value is considered to be very important especially for its relevance to, and applicability in, the practical domain of setting up of admission criteria. Psychologists have found that the correlation between intelligence measures and educational achievement are usually moderate to strong (e.g., Deary, Smith, Strand, and Fernandes, 2007; McGrew and Knopik, 1993). Since orthodox psychometrics of intelligence normally explain only about 25% of variance in learning outcomes, and their predictive power appears to be much less significant when studied on higher levels of education or in selective samples (MacKinnon, 1962; Grigorenko and Kornilov, 2007; Sternberg, Grigorenko, and Bundy, 2001), some other researchers have given a broader meaning to the concept of intelligence itself to take a quite different perspective in the appraisal of

the predictability of intelligence for achievements. Sternberg's (1999, 2003), for example, has propounded quite a different view in his triarchic theory of intelligence; he purports that relatively independent analytical, practical and creative abilities each plays a unique role in the overall concept of achievement. This method takes into account formerly unobserved types of abilities that have an impact on adaptation and achievement; cultural variances in beliefs about capabilities that are regarded as being important; and individual profiles of students' shortcomings and capabilities. Similarly, self- and others'- report are also considered to be highly effective in explaining the significant explanatory power of measures of cognitive abilities. The concept of Self-estimated intelligence is closely related to the construct of self-concept by its definition. Self-estimated intelligence represents "individual differences in people's level of awareness of their capacity to perform on intellectually demanding tasks" (Chamorro-Premuzic and Furnham, 2006, p. 257) and is usually assessed with direct self-estimates, Likert scales, percentile ranks, and visual analog scales (Holling and Preckel, 2005). It seems obvious that if self-assessed intelligence as an evaluation of one's understanding of the level of his abilities has a relationship with the real measures of the same capabilities, this correlation must explain some of its predictive power. A study of a considerable number of researches shows that these self-evaluations positively and significantly correlate with orthodox IQ measures (Paulus, Lysy and Yik 1998; Rammstedt and Rammsayer, 2002). This implies that if self-evaluation of intelligence can be specifically and accurately used for the appraisal of abilities, as they really are, it can be used as a predictor of achievement just like the other methods of evaluating intelligence.

SELF-CONCEPT THEORY

Self-Concept theory, as is obvious from the title, is a theory of self-concept. According to the theory, self- concept is a network of ideas about the self and that self-consistency (being consistent with one self) and self-enhancement (the tendency to maintain positive belief about oneself) are its important features (Hattie, 1992). The main tenet of the theory is that maintenance of positive view of the self is universally considered healthy. Self-concept is one of the most ambiguous constructs of psychology. Various researchers define self-concept in different ways and, at times, the term self-concept is even used synonymously with terms like self-regard, self-esteem, and self-evaluation. To avoid such confusion, we concur with the self-concept model of Shavelson, Hubner and Stanton (1976) that recognizes the multi-dimensionality of self-concept. As defined by this model, self-concept is "a person's perception of himself" (p.411), which are as a result of his interaction with the environmental experiences and his observation of the significant others and the feedback he gets from them. Shavelson and colleagues place general self-concept (global self-concept) at the top of the hierarchy of the process of conceptualization under which academic and non-academic self-concepts are structured (Shavelson et al., 1976). According to this conceptualization, self-concept is a general affective self-concept of a person. Academic self-concepts and non-academic self-concepts are domain-specific self-descriptions. In this study, however, we will focus on academic self-concept alone.

CORRELATION BETWEEN ACADEMIC SELF-CONCEPT AND ACADEMIC ACHIEVEMENT

Many studies in the past have related the concept of self-concept to academic achievements and have claimed to prove the existence of a positive correlation between the two variables (Veiga, 1987; Marsh, 1990; Shunk, 1990; Hattie, 1992; Eccles, 1993; Byrne, 1996a), but the nature and ordering of the relationship have not yet been definitively shown. Shunk (1990) refers to a number of studies that seek to relate these variables and says that there exists an average correlation of 0.30 between self-concept and academic achievements. Hattie (1992) has done a review of a massive 128 studies in which a research on a correlation between the two concepts was done, and has found a correlation ranging from 0.09 to 0.39 is historically found between the two variables. Hattie has also discussed about the existence of an average correlation of 0.34 between academic results (operationalized as the average marks obtained by a person) and self-concept. The results discussed by Hattie only show that there is a weak relationship between self-concept and academic, and many aspects that could be significant have been overlooked and need further exploration. One such aspect is the motivation to maintain or enhance positive self-concept (Skaalvik, 1983); this also seems to be a very important factor in the explanation of the relationship between self-concept and academic achievement. As a matter of fact, as revealed by various researches, when students with different academic achievements are studied, no correspondingly significant difference in self-concept are observed (Robinson & Tayler, 1986, 1991; Correia, 1991; Senos, 1996; Alves-Martins, 1998; Peixoto, 1998). Therefore, although the correlation between academic self-concept and academic achievement is well recognized in the literature, there does not exist a universally accepted agreement regarding the causal ordering of these two constructs (Skaalvik &

Valas, 1999). On the contrary, various scholars are of the opinion that the question of causal precedence among the two remains an unsettled matter (Byrne, 1996b; Pottebaum, Keith, & Ehly, 1986). Various opposing models have been offered as logical or theoretical explanation in search of an answer to this important question. These models of causation include:

(a) *Achievement affects self- concept (skill-development model),*

(b) S*elf-concept affects achievement (self-enhancing model),*

(c) A*chievement and self-concept affect each other (reciprocal effects model), and*

(d) E*xternal variables affect both achievement and self-concept*

Hay, Ashman and Van-Kraayenoord (1998) did a detailed study in which students with a high self-concept were compared with others with low self-concept, feedbacks from teachers reveal that students who have a high self-concept are more popular, cooperative, and persistent in classwork, with lower anxiety levels, more supportive families and higher expectations of future success. Researchers have frequently revealed moderate-to-strong correlations between academic self-concept and academic achievement. With advancement in research regarding self-concept the researchers have started to acknowledge the importance of domain-specific self-concept regarding academic achievement. For example, English and Math achievement is found to be more relevant with their corresponding self-concept, i.e., significant correlations have been found between corresponding areas of achievement with their corresponding self-concept, while substantively low relationship has been found between non-corresponding and no-specific aspects of academic self-concept and achievement. (Marsh, Trautwein, Lüdtke, Koller & Baumert,(2004).

PURPOSE OF THE STUDY

The purpose of the present research is to investigate and establish a research-based validation for the significance of both intelligence and academic self-concept constructs for educational wellbeing and maximizing human potential.

SELF-CONCEPT – A CONSTRUCT OF PERVASIVE SIGNIFICANCE

The inculcation of a positive self-concept is considered as highly necessary for a general psychological well-being, as well as an important and fundamental component of various other highly sought conditions such as achievement of educational and career goals, high adoption of adaptive endeavouring behaviours, and improvement in achievements and performances. High significance is attached to the concept of self-concept in various fields and many programmes are now implemented by educational, mental and physical health institutions, social services organizations, industrial concerns, sports and exercise organizations. This shows us the universal importance of self-concept as a very important psychological construct. The fact that self-concept is so significant has been acknowledged by various educational and non-educational, government and non-government bodies. The Ministerial Council on Education, Employment, Training and Youth Affairs, Australia has formally acknowledged the importance of self-concept in its educational policy statement, and declared it as one of the major goals of the educational process. Therefore, a positive self-concept is considered and valued as a very desirable condition conducive to many other good outcomes and valued as being fundamental to the realization of full human potential in various fields of life. Given the establishment of the multidimensional model of self-concept, we emphasize in presenting research-evidence for the efficacy

of educational self-concept for positive development in educational achievements. Specific aspects of self-concept seem to be most rationally connected to specific results (a multifaceted perspective), rather than to overall measures of self-esteem (a uni-dimensional view). For example, a recent meta-analysis of self-concept intervention studies (O'Mara, Marsh, Craven & Debus, 2006) has extended previous research by accounting for the multidimensionality of the construct of self-concept. The varying constituents of self-concept have been classified as being directly linked, indirectly connected, or unrelated to the intervention. Findings have shown that for the self-concept scales that were directly relevant to intervention, the effect sizes were significantly larger than those constituents that were not directly related to intervention. The mean effect size was 0.51 and indicated that children and adolescents are gaining considerable advantage from interventions aimed at self-concept improvement. They also found that suitable praise and/or feedback strategies, especially those that are dependent upon, and proportional to, performance, and are more attributive and goal-specific should be embedded in any intervention strategy to make it more effective. The authors also found that if the problems in the children or adolescents are well identified, the intervention is expected to prove more positive and conducive, and is likely to produce a larger effect. They recommended that instead of using generic, general interventions that try to simultaneously improve all facets of children's and adolescents' self-concepts, a range of interventions that target area-specific aspects of self-concept needs to be developed to enhance psychological wellbeing (Craven & Bodkin-Andrews, 2006; Craven, Marsh & Burnett, 2003). Self-concept makes good things happen and underpins human potential – Academic Behaviours Research has proved that a development of a positive educational self-concept facilitates positive influences on multiple aspects of psychological and other

desired educational results comprising academic behaviours such as dedication to academic tasks, making of academic choices, setting up of educational goals, and the resultant academic performance (e.g. Byrne, 1996a, 1996b; Marsh, 1990, 1992; Marsh, 2007; Marsh and O'Mara, 2008; Marsh and Yeung, (1997). For example, Skaalvick and Rankin (1996) showed that positive developments in self-concept pertaining to math and verbal abilities have positive repercussions on intrinsic motivation, effort, and anxiety.

IMPLICATIONS FOR THEORY, RESEARCH, AND PRACTICE

Self-concept is one of the most encompassing characteristic of humans that is central to psychological well-being and has strong implications for other psychosocial constructs that define human potential. Clearly, self-concept makes a difference; people who think positively about themselves achieve more, are healthier, happier, and get more out of life. Hence, enhancing self-concept is primary for psychological well-being and maximizing human potential. This covers human age starting right from early development and school achievement, to physical/mental health and wellbeing, to enabling potential of our most disadvantaged groups and gifted groups. As such self-concept provides the fundamental grounds for informing interventions to address some of the social issues of our time. It has been argued that a positive psychological approach is a potent prophylactic strategy as well as a basis for developing potentially powerful new interventions. We have also emphasized that work with individuals, schools, and family's needs to take advantage of the best existing theory and research. The present researcher is more convinced that general self-concept cannot completely and properly encompass the multiplicity and predictive power of

specific self-concept domains, especially for the educational sphere. "If the role of self-concept research is to better understand the complexity of self in different contexts, to predict a wide variety of behaviour, to provide outcome measures for diverse interventions, and to relate self-concept to other constructs, then the specific domains of self-concept are more useful than a general domain" (Marsh & Craven, 1998, p.191). Theory, research, and practice are also closely linked to one another in the sense that weaknesses in one area will also affect the others. Therefore, it is recommended that the uni-dimensional models presented in the orthodox theories should be replaced with multifaceted approaches of the self-concept construct. Current theory and research indicate that child and educational psychologists should be utilizing, as diagnostic, intervention and evaluation tools, multidimensional self-concept measurement instruments with demonstrated psychometric properties for the client group targeted. Instruments selected should also measure the specific facets of self-concept which are most pertinent to intervention according to the subjects or subject groups. The latter allows accurate assessment of both individual self-concepts and enables educators and psychologists to evaluate the influence of interventions on specified domains of self-concept closely related to the aims of the any such mediation. For instance, if a subject is experiencing reading difficulties then the ideal intervention according to the results of REM research is for psychologists to enhance reading self-concept and skills concurrently and also educate teachers in the use of these techniques. Similarly, if we want to focus on the issue of school bullying, targeting global self-concept is of little value, but working with teachers and families to enhance academic self-concept and

behaviour simultaneously provides a strong foundation for intervention. We therefore advocate that self-concept needs to be recognized as vital to psychological wellbeing, and as a construct that makes good things happen in and of itself, it serves as a mediator of desirable outcomes. Given its importance for psychological wellbeing in general, and educational well-being in particular, the academic self-concept construct provides a potential turning point for developing both individual and school-based interventions targeting the needs of schools, in addressing and preventing family, educational, and psychosocial problems, and in responding to other critical issues of our time. Thus one major objective of this research is to provide a helpful starting point for assisting psychologists to address these challenges and in so doing, foster psychological as well as educational wellbeing and optimal human potential.

Chapter 2

METHODOLOGY

The main objectives of the present study are:

1. To examine the role of academic self-concept and intelligence in the prediction of academic achievement.
2. To examine the role of demographic variables (i.e. gender, family structure, parental education and parental occupation) in the context of intelligence, academic self-concept and academic achievement.

SAMPLE

The research sample was selected from private schools and colleges in Mirpur area of Azad Jammu and Kashmir, Pakistan. The research sample consisted of 273 students (boys 58.6 %, girls 41.4 %) of grades 7 to 12. Other demographic information was obtained related to fathers' and mothers' education and family structure (joint family/ nuclear family). The sample was selected by purposive convenient sampling method.

RESEARCH DESIGN

Cross-sectional survey research design was used for the present study. A cross-sectional survey research is a study of groups of individuals differing on the basis of specified criteria (for example, age) at the same point in time.

OPERATIONAL DEFINITIONS OF VARIABLES INVOLVED IN THE STUDY

INTELLIGENCE is defined as a very general mental capability that, among other things, involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly and learn from experience. It is not merely book learning, a narrow academic skill, or test-taking smarts. Rather, it reflects a broader and deeper capability for understanding our surroundings—"catching on," "making sense" of things, or "figuring out" what to do. For this study intelligence is defined as "total score on revised version of Raven's Standard Progressive Matrices" by Raven, (1981).

ACADEMIC SELF-CONCEPT is considered as a student's self-perception of academic ability formed through individual experiences and interactions with the environment. In this research academic self-concept is defined as "total score on Academic Self-Concept Scale developed by Ahmed and Haq (1986)"

ACADEMIC ACHIEVEMENT is defined as the total marks obtained by each student in the final exams conducted at the end of the academic year.

RESEARCH INSTRUMENTS

The following instruments were used in this research; Academic Self-Concept Scale (Ahmad and Haq, 1986) consisting of 40 statements rated on a 5-point Likert scale. The alpha co-efficient of the test score on the scale is 0.89 indicating a high internal consistency reliability.

Intelligence was measured through the revised version of Raven's Standard Progressive Matrices (1981). The Standard Progressive Matrices (SPM) is designed to measure a person's ability to form perceptual relations and to reason by analogy

independent of language and formal schooling, and may be used with persons ranging in age from 6 years to adult. The SPM consists of 60 items arranged in five sets (A, B, C, D, & E) of 12 items each. Each item contains a figure with a missing piece. Below the figure are either six (sets A & B) or eight (sets C through E) alternative pieces to complete the figure, only one of which is correct. Each set involves a different principle or "theme" for obtaining the missing piece, and within a set the items are roughly arranged in increasing order of difficulty. The raw score is typically converted to a percentile rank by using the appropriate norms. The majority of studies which have factor analysed the SPM along with other cognitive measures in western cultures report loadings higher than .75 on a general factor. Concurrent validity coefficients between the RSPM and the Stanford-Binet and Weschler scales range between .54 and .88, with the majority in the .70s and .80s. The median test-retest reliability value is approximately .82

Academic achievement of the students was calculated by the total scores obtained by students in the final examination conducted at the end of the academic year.

HYPOTHESES

Following hypotheses were formulated in the present study:

1. Intelligence and academic self-concept significantly predict academic achievement.

2. Female students get higher scores on intelligence as compared to male students and also show higher academic achievement as compared to male students.
3. There are differences in academic achievement for students varying on fathers' and mothers' levels of education.
4. There is a difference of academic achievement and level of intelligence of students belonging to nuclear and joint family systems.

PROCEDURE

Rapport was established with the sample respondents and confidentiality was ensured. Individual consent was taken prior to administering demographic data sheet and different measuring instruments. Six months prior to the final academic exams students were administered two psychological tools i.e. Raven's Standard Progressive Matrices and Academic Self-Concept Scale. Demographic data were also collected along with these assessment tools. Participants were allowed to choose to identify themselves or to answer the tests anonymously. Students received no rewards for filling out the test forms. After the end of exams students' results were collected at the time of result declaration as a measure of academic achievement. Data were entered into the SPSS version 16.

DATA ANALYSIS

Multiple Regression and Pearson Correlation were used to find out the predictability and to find out correlation of the variables with one another. The demographic variables were analysed by the use of *t*-test and ANOVA.

RESULTS

The main objective of the present study was to find out how academic achievement is predicted by level of intelligence and academic self-concept. Role of various demographic variables including father's education, mother's education, gender, and family structure was also analysed. Multiple Regression Analysis and Pearson correlation were applied to examine the role of intelligence and academic self-concept for the prediction of academic achievement among the students. One way ANOVA and *t*-test were also used for the analysis of demographic information. Multiple Regression analysis is computed with Intelligence and Academic Self-Concept as predictor variables and Academic Achievement as outcome variable. The ΔR^2 value of .369 indicates that 36.9% variance in the dependent variable can be accounted for, by the predictors with F (2,270) = 80.395, $p < .001$. The results indicate that Intelligence ($\beta = .475, p < .001$) and Academic Self-concept ($\beta = .346, p < .001$) has significant positive effect on Academic Achievement of the students.

Table 1

Multiple Regression analysis showing the effect of Intelligence and Academic Self-Concept in the Prediction of Academic Achievement (N = 273)

Model	*B*	*SE*	*β*	*t*	*p*
(constant)	-226.434	70.566		-3.209	.001
Intelligence	4.097	.417	.475	9.816	.000
Academic Self-Concept	6.042	.846	.346	7.145	.000

$R = .611$

$R^2 = .373$

$\Delta R^2 = .369$

Multiple Regression analysis is computed with Intelligence and Academic Self-Concept as predictor variables and Academic Achievement as outcome variable. The ΔR^2 value of .369 indicates that 36.9% variance in the dependent variable can be accounted for, by the predictors with F (2,270) = 80.395, $p < .001$. The results indicate that Intelligence ($\beta = .475$, $p < .001$) and Academic Self-concept ($\beta = .346$, $p < .001$) has significant positive effect on Academic Achievement of the students.

Table 2

Pearson correlation between Intelligence, Academic Self-Concept and Academic Achievement (N = 273)

Scales	*r*
Standard Progressive Matrices	.39*
Academic Self-Concept Scale	.51*

*$p<.01$

Table 2 shows Pearson correlation between Intelligence, Academic Self-Concept and Academic Achievement. Results show that intelligence and academic self-concept has significant positive correlation with academic achievement.

Table 3

Mean, Standard Deviation and t values for male and female students on Intelligence, Academic Self-Concept and Academic Achievement (N = 273)

	Male students (n = 160)		Female students (n = 113)		
Scales	*M*	*SD*	*M*	*SD*	*t*
Standard Progressive Matrices	38.51	10.714	41.65	9.119	2.533*
Academic Self-Concept Scale	153.67	19.430	155.70	20.827	.825
Academic Achievement	615.89	174.102	689.82	161.713	3.588**

*p<.05, **p<.01; df = 271

Table 3 shows Mean, Standard Deviation and t values for male and female students on Intelligence, Academic Self-Concept and Academic Achievement. Female students significantly scored higher on intelligence, t (271) = 2.533, p < .05, as compared to male students. Female students non-significantly scored high on academic self-concept as compared to male students. Female students significantly scored high on academic achievement as compared to male students.

Table 4

Mean, Standard Deviation and t values for students from nuclear and joint family system on Intelligence, Academic Self-Concept and Academic Achievement (N = 273)

	Nuclear Family System (n = 169)		Joint Family System (n = 104)		
Scales	*M*	*SD*	*M*	*SD*	*t*
Standard Progressive Matrices	40.96	9.257	37.64	10.531	2.725*
Academic Self-Concept Scale	156.15	20.199	151.85	19.494	1.732
Academic Achievement	677.15	163.995	596.67	175.577	3.833**

*p<.01, **p<.001; df = 271

Table 4 shows Mean, Standard Deviation and t values for students from nuclear and joint family system on Intelligence, Academic Self-Concept and Academic Achievement. Students from nuclear family system significantly scored high on intelligence as compared to students from joint family system. Students from nuclear family system significantly scored high on academic self-concept as compared to students from joint family system. Students from nuclear family system significantly scored high on academic achievement as compared to students from joint family system.

Table 5

Mean, Standard Deviation and F values for students' fathers with various educational levels including Matriculation and below, Intermediate, Graduation, and Masters and above on Intelligence, Academic Self-Concept and Academic Achievement (N = 273)

	Matriculation and below (n = 80)		Intermediate (n = 58)		Graduation (n = 57)		Masters and above (n = 78)			
Scales	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*
Standard Progressive Matrices	38.82	9.848	37.86	10.842	39.44	10.454	42.53	9.436	2.889	.036
Academic Self-Concept Scale	150.19	20.620	157.40	17.836	151.79	18.648	158.78	20.969	3.263	.022
Academic Achievement	584.55	184.004	653.52	171.657	631.16	149.789	716.01	152.87	8.473	.000

Between group df = 3, Within group df = 269, Group total df = 272

Table 5 shows Mean, Standard Deviation and F values for students' fathers with various educational levels including Matriculation and below, Intermediate, Graduation, and Masters and above on Intelligence, Academic Self-Concept and Academic Achievement. Students with fathers having masters and above education significantly scored high on intelligence as compared to students with matriculate, intermediate and graduate fathers. Students with fathers having masters and above education significantly scored high on academic self-concept as compared to students with matriculate, intermediate and graduate fathers. Students with fathers having masters and above education significantly scored high on academic achievement as compared to students with matriculate, intermediate and graduate fathers.

Table 6

Mean, Standard Deviation and F values for students' mothers with various educational levels including Matriculation and below, Intermediate, Graduation, and Masters and above on Intelligence, Academic Self-Concept and Academic Achievement (N = 273)

Scales	Matriculation and below (n = 114)		Intermediate (n = 50)		Graduation (n = 78)		Masters and above (n = 31)			
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*
Standard Progressive Matrices	38.10	11.432	41.12	8.424	40.95	9.193	41.10	9.820	1.858	.137
Academic Self-Concept Scale	150.77	20.438	155.12	19.433	156.15	20.003	163.13	16.571	3.531	.015
Academic Achievement	597.25	190.062	662.88	142.838	664.91	159.278	754.81	114.792	8.205	.000

Between group df = 3, Within group df = 269, Group total df = 272

Table 6 shows Mean, Standard Deviation and *F* values for students' mothers with various educational levels including Matriculation and below, Intermediate, Graduation, and Masters and above on Intelligence, Academic Self-Concept and Academic Achievement. Students with mothers having intermediate education non-significantly scored high on intelligence as compared to students with matriculation, graduation, and masters and above education. Students with mothers having masters and above education significantly scored high on academic self-concept as compared to students with matriculate, intermediate and graduate mothers.Students with mothers having masters and above education significantly scored high on academic achievement as compared to students with matriculate, intermediate and graduate mothers.

Table 7

Mean, Standard Deviation and F values for students having fathers with different occupations including academic jobs, non-academic jobs, and business on Intelligence, Academic Self-Concept and Academic Achievement (N = 273)

Scales	Academic Jobs (n = 27)		Non-academic Jobs (n = 121)		Business (n = 125)		
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*
Standard Progressive Matrices	45.56	10.10	39.47	10.38	38.89	9.68	5.019*
Academic Self-Concept Scale	164.19	19.66	156.23	19.29	150.75	19.98	6.025*
Academic Achievement	748.85	159.95	653.49	162.39	617.62	177.07	6.875*

*p<.01; Between group df = 2, Within group df = 270, Group total df = 272

Table 7 shows Mean, Standard Deviation and *F* values for students having fathers with different occupations including academic jobs, non-academic jobs, and business on Intelligence, Academic Self-Concept and Academic Achievement. Students with fathers having academic jobs significantly scored high on intelligence as compared to students having fathers with non-academic jobs and business. Students with fathers having academic jobs significantly scored high on academic self-concept as compared to students having fathers with non-academic jobs and business. Students with fathers having academic jobs significantly scored high on academic achievement t as compared to students having fathers with non-academic jobs and business.

Table 8

Mean, Standard Deviation and F values for students having mothers with different occupations including academic jobs, non-academic jobs, and housewife on Intelligence, Academic Self-Concept and Academic Achievement (N = 273)

	Academic Jobs (n = 54)		Non-academic Jobs (n = 10)		Housewife (n = 209)		
Scales	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*
Standard Progressive Matrices	40.72	9.53	42.30	9.32	39.45	10.39	.644
Academic Self-Concept Scale	159.02	19.07	163.10	17.99	152.93	20.14	2.985*
Academic Achievement	705.93	133.87	653.50	630.80	178.89	178.89	4.164*

*p<.05; Between group df = 2, Within group df = 270, Group total df = 272

Table 8 shows Mean, Standard Deviation and F values for students having mothers with different occupations including academic jobs, non-academic jobs, and housewife on Intelligence, Academic Self-Concept and Academic Achievement. Students with mothers having non-academic jobs significantly scored high on intelligence as compared to students having mothers with academic jobs and housewife. Students with mothers having non-academic jobs significantly scored high on academic self-concept as compared to students with mothers having non-academic jobs and housewife. Students with mothers having academic jobs significantly scored high as compared to students with mothers having non-academic jobs and housewife.

Table 9

Mean, Standard Deviation and F values for students belonging to low, middle, and high income groups on Intelligence, Academic Self-Concept and Academic Achievement (N = 273)

Scales	Low Income Group (n = 78)		Middle Income Group (n = 131)		High Income Group (n = 64)		
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*
Standard Progressive Matrices	36.68	10.87	40.65	9.33	41.42	8.99	5.395*
Academic Self-Concept Scale	151.27	19.55	155.52	20.89	156.39	18.48	1.478
Academic Achievement	597.59	192.78	671.44	170.82	655.05	137.01	4.697*

*p<.01; 7000-25000 Income = Low Income Group; 26000-55000 = Middle Income Group; 56000-400000 = High Income Group; Between group df = 2, Within group df = 270, Group total df = 272

Table 9 shows Mean, Standard Deviation and F values for students belonging to low, middle, and high income groups on Intelligence, Academic Self-Concept and Academic Achievement. Students from high income group significantly scored high on intelligence as compared to students from middle and low economic group. Students from high income group non-significantly scored high on academic self-concept as compared to students from middle and low economic group. Students from low economic group significantly scored high on academic achievement as compared to students from middle and high income groups.

DISCUSSION

Intelligence is among those concepts in psychology about which there are as many views as there are number of psychologists. It is one of the most controversial constructs in the subject of psychology so far. According to Wechsler (1955) intelligence can be judged by the display of intelligent behaviour on the part of a subject. Wechsler enumerates four essential behaviour elements that define intelligent behaviour:

1. Awareness of what and why, according to which an individual should be planned and clear about, as well as critically aware of, the details and reasons of his emitted behaviour.

2. The emitted behaviour must be purposeful and meaningful. He rules out the luck-and-chance behaviour from the definition of purposeful behaviour.

3. Intelligent behaviour must be rational. Thus, it should be in complete accordance with the objective system of logic.

4. Intelligent behaviour must be worthwhile. The value of such behaviour has to be judged according to socio-cultural norms and requirements. This last part imparts to the definition of intelligence a relative perspective. Hence, a behaviour that is considered as intelligent and contributive to one society or environment might be considered as dumb in another environment.

Now, academic achievements are universally considered as intelligent behaviour regardless of the society. But as scientific exploration and research does not follow hunches and presuppositions, however widespread they may be, hence the present study was undertaken to find the correct correlation of intelligence and academic achievement.

The construct has been investigated by several investigators and has traditionally been understood as an important predictor of academic achievement (Furnham, 1999). It is considered as a multidimensional concept encompassing several mutually exclusive abilities (Gardner, 1983), in wide range of behaviours (Sternberg, 1985) or as the time taken to react to any situation or problem at hand. (Kline, 1991). It is also widespread practice to make a distinction between crystallized and fluid intelligence represented by the symbols (Gc) and (Gf) respectively. Cattell defines Gf as representative of constitutional and psychological influences. Gc, on the other hand, he considers to be largely related to educational-experiential influences, which help to acquire techniques and strategies required to handle issues and problems. It is the sum total of skills and strategies acquired by a process of crystallization expanded over the life of an individual or what he has learnt as part of a culture. Thus, Gc may be considered as the accrued wisdom of a culture (Undheim, 1981). This is the name of a capability, which one employs to solve any newly encountered problem, and is dependent upon the intrinsic cognitive abilities. Such potentials are very important, it seems, for the understanding and extraction of the ever coming concepts and ideas that are daily posed in the educational process, which, in themselves, contribute, or at least seem to contribute, to the formation of a positive self-concept in the student. The examination process, on the other hand, seems to benefit from the crystallized intelligence that a student has acquired through a process

of experiencing and learning from events in his life which include, but are not limited to, his experiences with the educational process, examination system, institutional environments and beneficial classroom experiences, this domain takes advantage of the faculties of memory and verbal ability on the most. Thus both learning and performance in examinations, which seem to depend on one-another in a somewhat reciprocal manner, are obviously dependent on intelligence in general. Cattell, however, goes a little further and considers Gf as a higher value in his hierarchical model (than Gc). In a relevant research, done by Neisser and his fellows in 1996, intelligence was found to account for approximately 25% of the variance in academic achievement.

The other construct measured by the present researcher for its effect on academic achievement was academic self-concept. The construct of academic self-concept is a part of the larger construct of general self-concept. General self-concept has been an issue of great interest to several psychological researchers in the past. Many investigators into this construct have explored it in relevance to general performance. Does a better self-concept result in a better job-performance? Is self-concept a cause or an effect of general-performance? What is the nature of correlation between the two? These and various other similar questions have been considered and incorporated in the research designs of an array of studies in the past. This is an interesting research having great implications for both theory and practice. If, for instance, a significantly positive correlation is established as a result of research, then the practice of using intelligence tests as a tool of predicting subsequent job performance and the practice of intervention at school and in other organizations, aimed at enhancing self-concept will find justification.

Self-concept is also one of those constructs that has invited multiple definitions in the field of psychology. Many studies have focused on it, yet there exists quite a bit of disagreement regarding a universally accepted definition of the term. The reason behind this is probably that it has been observed from multiple differing points of views. One thing, however, is generally accepted that the term consists of various dimensions and many facets. Among the areas included in the term are physical, emotional and social aspects of the personality, while others are more relevant to academic achievement in different area and subjects. The term self-concept is defined as a set of perceptions and reference points that a person has about himself. It consist of, but is not limited to, the set of characteristics, values and relationships that the subject knows to be descriptive of himself and which he perceives as data concerning his identity (Hamacheck, 1981).

Measurement of academic achievement was adopted from the scores obtained by the students in the annual examinations. The total marks obtained from a sum total of 1000 marks per student were utilized as the expression of academic achievement. The marks came from a harmonious three-hour examination on per subject basis, which were arranged according to the normal schedule of the school at the end of the session. The data was analysed by means of SPSS version 16.

The first hypothesis, that is, intelligence and academic self-concept significantly predict academic achievement, was supported in the present study. Multiple regression analysis, computed with Intelligence and Academic self-concept as predictor variables and Academic Achievement as the outcome variable, has indicated that intelligence ($\beta = 0.475$, $p < .001$) and Academic self-concept ($\beta = 0.346$, $p < .001$) have significant effect on academic achievement of the students.

The results of the present study illustrate that intelligence and academic achievement have significant positive correlation (r = 0.39). The current findings are consistent with the findings of previous studies which revealed that an average correlation between the cognitive ability (intelligence) and academic achievement was about r = 0.5 (Schmitt et al, 2007; Laidra et al), having tendency towards lowering with age. Generally, the association between cognitive abilities and academic success depends on kinds of abilities and criteria chosen.

The results show that Academic self-concept has significant positive correlation (r = 0.51) with academic achievement. These results are supported by several studies, for example, Alexander (1997) had studied the relationship between academic achievement and academic self-concept. Data from this study showed a high degree of positive and significant association between general self-concept and academic self-concept as well as of academic self-concept and academic performance. Another prominent study by Acosta (2001) examined the relationship between the school climate, academic self-concept and academic performance. A multiple regression analysis showed that the predicting variables explained approximately 18% of the variance in academic achievement, but the variance explained by self-concept was the only one that was found to be statistically significant in his study. Marsh (1990) also found significant influence of academic self-concept upon the average marks obtained by the students of age-group 16 - 17. Marsh also suggested that this relationship might become stronger with age at least in the developmental period. But the causal order seems to vary with age.

Miujs (1997) proclaimed that there was a unidirectional relationship between the two constructs in which the influence of academic self-concept on academic

achievement was shown to be statistically significant. Results found by Gonalez-Pienda et al (2002) are also in line with other researches such as of Shavelson and Bolus (1982); Valle, Cabanach, Nunez and Gonzalez-Pienda , 1998; etc. Researchers who use a longitudinal research design such as Marsh 1990; Marsh and Yeung, 1997; Marsh Han and Kong, 2002; Valentine, 2002 , show evidence of reciprocal relationship between academic self-concept and academic achievement. These researchers also consider academic self-concept as a powerful motivating force that responds to the students' immediate achievement requirement. However, acquisition of good performance scores at this level does not seem to affect one's self-concept so instantly. It acts rather as an important source of information having consequences for self-concept in the longer run (e.g., in an interval of one year in the studies). This also seems in line with the point of view of personal stability (Gonzales, Pienda, Nunalez ,Pumariega and Garci, 1997) and, as shown by many studies, it is the academic side of the construct of self-concept that has more direct relationship with academic achievement (e.g., Hamacheck, 1981) and not the general aspect. Many educational psychologists, counsellors and educationists consider that positive and strong self-concept is a pre requisite of good academic achievement for a student. To cater for this need, in modern era, many institutions can (and some have) developed an organized ways to affect the self-concept of their students by creating an orderly and systematically supportive environment. The findings of the present study also support, advocate and justify as well as highlight the importance of providing an atmosphere and intervention strategy to enhance a positive self-concept in every aspect in various psychological contexts.

Findings from the present study also conform to the results of the earlier studies done over the last two decades. The result that academic self-concept is a

significant contributor to the prediction of academic achievement could be understood from the point of view that an individual who possesses a high self-evaluation with regard to performing a given task should naturally be more inclined toward hard-work to attain an acceptable (for himself) level of performance in academics. View of the self as being capable of producing results should no doubt affect the way a subject handles academic tasks. The results corroborate the view of Marsh et al (1991) and Vispoel (1995) which explain self-concept as a mediating variable that helps in attainment of desired outcomes in shape of good academic achievement. Self-achievement model of Byrne (1984) is of the similar view, according to which academic achievement is primarily determined by a learner's self-concept especially in school subjects.

DEMOGRAPHIC VARIABLES

The second hypothesis that female students get higher scores on intelligence as compared to male students and also show higher academic achievement as compared to male students was also accepted by the present research. Female students significantly scored higher on intelligence, t (271) = 2.533, $p < .05$, as compared to male students.

Some studies confirm the findings of the present research. According to Strand, Deary and Smith (2006) girls have an advantage on verbal ability on the CAT.

We also know from previous researches that girls show significant superiority over boys in the area of writing. Gender differences in GCSE also reflect wider factors related to motivation and affect, shown by greater likelihood of girls to complete and submit course work (OHMCI, 1997); gender patterns of subject choice

and gendered allocation to tiered subjects (Elwood, 1995). Salisbury, Rees and Gorard (1999) provide a review of the literature in this area.

Higher scores of girls on the RSPM are also in contradiction to some prior studies. For example Adrian and Buchanan (2005) noted that males show significantly higher estimates than females for general intelligence. The discrepancy in the results has probably been due to an observation made by the present researcher during the course of the study regarding a specific educational environment of the Mirpur society. It is found that female education is not an important consideration in the middle and lower class families, who consider male child's education as of primary importance. Similarly, parents with lower levels of personal education are reluctant about girls' education, while they are very pertinent about boys' education and schooling. Hence the girls that come to school either belong to upper class or upper middle class families and most have parents with higher level of education and those parents were also found to be doing jobs which gives more exposure to their female children, and since boys are representatives of families with both higher and lower socio-economic and educational status as compared to girls, and hence with more diversity towards lesser exposure to life-experiences, they should show a lower grade on the RSPM scale. But this is one interpretation based on what the present researcher has observed, and since this domain was not the major area of focus in the present research, we recommend further studies into this obvious contradiction to explore and find the extent and causes of this peculiar phenomenon.

The third hypotheses states that there are differences in academic achievement for students varying on fathers' and mothers' levels of education.

The results of the research have shown that the students with parents' education equivalent or higher than Masters Level show significantly higher academic achievement as compared to students with parents having graduation, intermediate and matriculation level education.

The fourth hypothesis of the study is that there is a difference of academic achievement and level of intelligence of students belonging to nuclear and joint family systems.

The results depict that student from nuclear family system scored significantly higher on intelligence test but not on academic self-concept scale and showed higher academic achievement as compared to students belonging to joint family systems. It seems obviously rational that a nuclear family should offer an atmosphere that is more supportive and less distracting for children to focus on education related activities while in a joint family other relatives such as the grandparents, uncles and aunts, etc. may put extra demands on children that usually produce ambivalent feelings in children for them, this ultimately affects children's academic performance as well. Due to this reason, a joint family may not offer an equally opportune environment for educational endeavours. This helps to explain the higher score obtained by students who belong to nuclear families.

EXPLORATORY FINDINGS

Some demographic variables were explored without formulating the hypotheses, and their mean differences were explored. Mean differences were also computed to achieve, in part, one of the objectives of the present study. Descriptive statistics were calculated for students having fathers with different occupations including academic jobs, non-academic jobs and businesses. Additional comparisons were made by the use of student's *t*-test. Findings show that children of fathers with academic jobs scored significantly higher than those of non-academic jobs and in business on all the three measures of intelligence, academic self-concept and academic achievement. In case of mother's occupation, however, students with mothers on academic jobs showed higher academic achievement as compared to those with mothers on non-academic jobs and housewives.

Students from high income group have also scored significantly higher on intelligence scale as compared to students from low income group. Students from low income group showed significantly lower academic achievement as compared to students from middle and high income group.

LIMITATIONS

The instrument used in this study for the measurement of academic self-concept i.e. Academic Self-Concept Scale was a self-report measure and self-report measures are universally considered as important limitations for such studies. It is also a fact that such measures are always prone to be influenced by various subjective factors (Spector, 1992), and individual differences (Burke, Brief and George, 1993). Similarly, the variables measured in the study were also vulnerable to be inflated by common method variance.

Another important limitation pertains to the fact that it uses a relatively smaller sample size. It may be advisable for any further research to use larger sample size, and longitudinal designs that incorporate at least three waves.

Specially, the sample was drawn from a private co-education school so the findings may be very limited in regards to their being conducive towards providing justifiably generalizable inductive extrapolations towards schools with different cultures, such as government schools and / or single - sex institutions. As such, it would be worthwhile to replicate the study in different types of schools.

RECOMMENDATIONS

This study generates questions of interest for further investigations in the following areas:

Further research might productively look into other domains and self-concept areas; different instruments may be utilized, different participant populations and larger durations; different research design, longitudinal (for example) may be employed.

Research with various family variables might also be of considerable importance, for instance, family background variables (Bachman and O'Malley 1986). Of course the variety of such variables and multitude of domains make it impossible for one study to justifiably probe into all these variables and hence more research is required.

The significance of this present study will be reflected in the planning and coordination of various kinds of academic and non-academic activities in schools. School administrators and counsellors will have a deeper insight into the correlation

of intelligence and self-concept with academic achievements and further research will have a road map to probe into the issue more thoroughly. This present study and any further studies into these constructs should help to improve student outcomes. Polite reinforcement provided by teachers, parents, mentors and caring adults etc., can also prove to be a critical component in developing a strong self-concept in the students. Positive reinforcement should communicate high expectations and a strong belief in student's capabilities. A high belief in a student's ability to learn and grow is a prerequisite for any such reinforcement.

Now, since the results of the present study have shown significant positive correlation of self-concept with academic achievement, the present researcher recommends that institutions arrange for a systematic and organized, as well as expert, intervention system to enhance self-concept among students.

Parents are recommended to pay attention to the internal and external factors that may influence intelligence and academic self-concept. Children should be provided positive environment conducive toward academic achievement. Further it is recommended by McClun and Marrell (1998), parents should build a positive family atmosphere to help establish a positive self-concept that is essential for academic achievement and for eradication of behavioural problems.

School administration, counsellors and teachers also play a very important role in providing the feedback and information about the problems faced by students. They need to encourage students towards a positive self-concept and to guide them towards attaining excellent academic achievement.

Students should be exposed to activities that can enhance their self-concept, self-esteem, identity and team spirit, and train them to interact with the community in

the most positive manner. Such activities should be a part of the co-curricular activities or any special program to motivate them.

Ministry of Educations and school administrations should organize programs or intensive courses for teachers and students to maintain these performance criteria. Programs should be designed to help improve the academic self-concept of the students and legislations regarding such programs should be made and implemented so that the students who need intervention may be helped.

CONCLUSION

This study shall serve as a pathway for developing a better understanding of the relationship between the independent variables of intelligence and academic self-concept and the dependent variable of academic achievement. It also offers guidelines and justification for developing effective educational interventions. It has opened the way for further studies not only in the areas of the above mentioned variables, but also in the domain of demographic factors where further research is recommended.

Marsh et al. (2004), etc., had already highlighted the significance of academic achievement for a long-term gain in general as well as educational outcomes. It is considered not only as an important outcome variable, but also a mediating variable that facilitates the gain of related academic performance outcomes (Marsh and Yeung, 1997). Hence, teachers should consider academic self-concept as a powerful motivating force that can optimize the learning process. Enhancement of academic self-concept should, therefore, be considered as an important goal of the educational process. The findings of the study, in accordance with those of earlier researches, advocate the development of a special care and personalized support and intervention

system as being essential for nourishing the potentials of students. Intelligence is very significant as an important tool of admission policy.

This study, therefore, offers to provide various implications for theory as well as for practice by providing guidelines for further research, to school and college administration and their guidance counsellors, teachers and parents. It seems to be vitally important that students from junior to college grades are exposed to counselling intervention with a view of enhancing intelligence and academic self-concept. A development in these capabilities should have significant implications for the learning capacities of students.

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Appendix-A

International Islamic University Islamabad

Faculty of Social Sciences, Department of Psychology

LETTER OF INFORMATION

I am a student of MS Educational psychology at Department of Psychology, International Islamic University, Islamabad. I am going to conduct a study on the topic of "Intelligence and Academic Self-Concept as predictors of Academic Achievement among secondary school students" as per semester requirement for the completion of my degree. This study is purely for research purpose and all the collected information will be kept confidential.

Informed Consent:-

I have complete information about this research and I am willingly participating in this study.

_____

Signature

Appendix-B

DEMOGRAPHIC INFORMATION SHEET

Name (Optional):_____

Gender: Male_____Female_____

Age (In Years): _____

Education (Grade Name): _____

Father's Education_____

Father's Occupation _____

Mother's Education _____

Mother's Occupation _____

Family structure; nuclear _____Joint_____

Guardian's Monthly Income _____

Appendix-C

INSTRUCTIONS

Instructions were given as mentioned in the in the manuals of the tests i.e. RSPM and Academic S elf-Concept Scale.

Appendix: D

تعلیمی نفسیاتی سوالنامہ

مندرجہ ذیل کوائف پُر کیجئے

نام _____ والد کا نام _____

کلاس _____ سکول/کالج _____

عمر _____ تاریخ _____

آپ کو یہ ایک سوالنامہ دیا ہے۔ اس سوالنامہ کے ذریعہ تعلیم اور پڑھائی کے متعلق آپ کی رائے معلوم کرنی ہے۔

سوالنامہ میں کچھ جملے یا بیانات لکھے ہوئے ہیں۔ آپ ہر بیان کو پڑھیں اور جواب دیں کہ وہ آپ کے متعلق صحیح ہے یا غلط۔ ہر شخص اپنی اپنی رائے رکھتا ہے لہٰذا آپ اپنی ذات اور رائے کو مدِنظر رکھتے ہوئے اپنا جواب دیں۔

سوالنامے میں لکھے گئے بیانات نہایت سادہ اور عام فہم زبان میں ہیں۔ آپ اطمینان سے جواب دیں۔ آپ کی سہولت کے لئے نیچے دو مثالیں دی گئی ہیں تاکہ آپ جان لیں کہ بیانات کس طرح کے ہوں گے۔ اور ان کا جواب ظاہر کرنے کا کیا طریقہ ہے؟

بیانات	بالکل صحیح	کسی قدر صحیح	نہ صحیح نہ غلط	کسی قدر غلط	بالکل غلط
مثال نمبر ۱: مجھے اخبار پڑھنا پسند ہے۔	○	○	○	○	○
مثال نمبر ۲: میں اندھیرے میں بہت گھبراتا ہوں۔	○	○	○	○	○

جواب بنانے کا طریقہ:

پہلے آپ بیان پڑھیں اور سمجھیں، پھر فیصلہ کریں کہ یہ بیان آپ کے (آپ کی ذات) متعلق صحیح ہے یا غلط یا پھر نہ صحیح ہے نہ غلط۔ اگر آپ کے متعلق یہ بیان صحیح ہے تو مزید سوچیں کتنا صحیح ہے یعنی کسی قدر صحیح ہے یا بالکل صحیح ہے؟ اسی طرح اگر یہ بیان آپ کے متعلق غلط ہے تو بتائیں کہ کسی قدر غلط ہے یا بالکل غلط؟ اپنا جواب دائرے ⊗ کا نشان لگا کر ظاہر کریں۔

فرض کیا کہ ایک طالب علم نے مثال نمبر ۱ کا جواب "نہ صحیح نہ غلط" کے دائرہ میں ⊗ لگا کر ظاہر کیا اس سے مراد یہ ہے کہ اسے اخبار پڑھنا نہ پسند، نہ ناپسند۔ اس طالب علم نے مثال نمبر ۲ کے لئے جواب "بالکل غلط" چنا یعنی یہ بیان اس کے متعلق بالکل غلط ہے کہ وہ اندھیرے سے بہت گھبراتا ہے۔

ہر بیان باقی بیانات سے الگ ہے۔ اس لئے ہر ایک بیان کا الگ الگ جواب دیں۔ ہر بیان کے لئے صرف ایک جواب دیں اور اپنا جواب موزوں دائرہ کے اندر ⊗ لگا کر ظاہر کریں

یہ ضروری ہے کہ اپنے متعلق سچ سچ جواب دیں تاکہ آپ کی رائے کا صحیح اظہار ہو سکے۔ اس ضمن میں کوئی سوال ہو تو پوچھ لیں اور پھر سوالوں کا جواب دینا شروع کر دیں۔

تیار کردہ

قومی ادارہ نفسیات

پوسٹ بکس نمبر ۱۵۱۱، قائدِ اعظم یونیورسٹی۔ اسلام آباد

جب تک کہا نہ جائے، اگلہ صفحہ مت الٹیں

تعلیمی نفسیاتی سوالنامہ

مندرجہ ذیل کوائف پُر کیجئے

نام _____ والد کا نام _____ تاریخ _____

کلاس _____ سرپرست کی آمدنی (ماہانہ) _____

عمر _____ سکول / کالج _____

والد کی تعلیم / پیشہ _____ والدہ کی تعلیم / پیشہ _____

جنس: لڑکا / لڑکی _____ مشترکہ خاندان / صرف ماں باپ کے ساتھ _____

آپ کو یہ ایک سوالنامہ دیا گیا ہے۔ اس سوالنامہ کے ذریعہ تعلیم اور پڑھائی کے متعلق آپ کی رائے معلوم کرنی ہے۔

سوالنامے میں کچھ جملے یا بیانات لکھے ہوئے ہیں۔ آپ ہر بیان کو پڑھیں اور جواب دیں کہ وہ آپ کے متعلق صحیح ہے یا غلط ہر شخص اپنی اپنی رائے رکھتا ہے۔

لہذا آپ اپنی ذات اور رائے کو مدنظر رکھتے ہوئے اپنا جواب دیں۔

سوالنامے میں لکھے گئے بیانات نہایت سادہ اور عام فہم زبان میں ہیں۔ آپ اطمینان سے جواب دیں۔ آپ کی سہولت کے لیے نیچے دو مثالیں دی گئی ہیں تا کہ آپ جان لیں کہ بیانات کس طرح کے ہونگے۔ اور ان کا جواب ظاہر کرنے کا کیا طریقہ ہے۔

بیانات:

	بلکل صحیح	کسی قدر صحیح	نہ صحیح نہ غلط	کسی قدر غلط	بلکل غلط
مثال نمبر ۱: مجھے اخبار پسند ہے۔	○	○	●	○	○
مثال نمبر ۲: میں اندھیرے میں بہت گھبراتا ہوں۔	●	○	○	○	○

جواب بنانے کا طریقہ:

پہلے آپ بیان پڑھیں اور سمجھیں پھر فیصلہ کریں کہ یہ بیان آپ کے (آپ کی ذات) متعلق صحیح ہے یا غلط یا پھر نہ صحیح ہے نہ غلط۔ اگر آپ کے متعلق یہ بیان صحیح ہے تو مزید سوچیں کہ کتنا صحیح ہے۔ یعنی کس قدر صحیح ہے۔ یا بلکل صحیح ہے؟ اسی طرح اگر یہ بیان آپ کے متعلق غلط ہے تو بتائیں کہ کس قدر غلط ہے یا بلکل غلط ہے؟

اپنا جواب دائرے میں ⊗ لگا کر ظاہر کریں۔

فرض کیا ایک طالبعلم نے مثال نمبر ۱ کا جواب "نہ صحیح نہ غلط" کے دائرہ میں ⊗ لگا کر ظاہر کیا اس سے مراد یہ ہے۔ کہ اسے اخبار پڑھنا نہ پسند ہے نہ ناپسند۔

اس طالبعلم نے مثال نمبر ۲ کے لیے جواب "بلکل غلط چنا" یعنی یہ بیان اس کے متعلق بلکل غلط ہے کہ وہ اندھیرے سے بہت گھبراتا ہے۔

ہر بیان باقی بیانات سے الگ ہے۔ اس لیے ہر ایک بیان کا الگ الگ جواب دیں ہر بیان کے لیے صرف ایک جواب دیں اور اپنا جواب موزوں دائرہ کے اندر نشان ⊗ لگا کر ظاہر کریں۔

یہ ضروری ہے کہ اپنے متعلق سچ سچ جواب دیں تا کہ آپ کی رائے کا صحیح اظہار ہو سکے۔ اس ضمن میں کوئی سوال ہو تو پوچھ لیں اور پھر سوالوں کا جواب دینا شروع کر دیں۔

جب تک کہا نہ جائے، اگلہ صفحہ مت الٹیں

	بالکل صحیح	کسی قدر صحیح	نہ صحیح نہ غلط	کسی قدر غلط	بالکل غلط
۱۔ مجھے تمام مضامین پسند ہیں ———	○	○	○	○	○
۲۔ میں ایک ہوشیار طالب علم ہوں ———	○	○	○	○	○
۳۔ امتحان میں اچھے نمبر لینا میرے لئے دشوار ہے ———	○	○	○	○	○
۴۔ پڑھائی میں میرا جی نہیں لگتا ———	○	○	○	○	○
۵۔ دوسرے کاموں سے مجھے پڑھنا زیادہ پسند ہے ———	○	○	○	○	○
۶۔ اساتذہ مجھے پسند کرتے ہیں ———	○	○	○	○	○
۷۔ میں امتحان میں مقابلہ کر کے وظیفہ حاصل کر سکتی ہوں ———	○	○	○	○	○
۸۔ مجھے پڑھنے کا شوق ہے ———	○	○	○	○	○
۹۔ میں اپنے تعلیمی معیار سے مطمئن نہیں ———	○	○	○	○	○
۱۰۔ چند دوستوں کے ساتھ میرا پڑھائی میں خوب مقابلہ رہتا ہے۔ ———	○	○	○	○	○
۱۱۔ کورس کی کتابیں مجھے بڑی مشکل سے سمجھ آتی ہیں ———	○	○	○	○	○
۱۲۔ میں اتنا / اتنی ہوشیار ہوں کہ کلاس کا مانیٹر بن سکتا / سکتی ہوں ———	○	○	○	○	○
۱۳۔ میں اکثر پڑھا ہوا سبق بھول جاتا / جاتی ہوں ———	○	○	○	○	○
۱۴۔ مجھے یقین نہیں کہ میں کالج تک تعلیم جاری رکھوں گا / گی ———	○	○	○	○	○

	بالکل صحیح	کسی قدر صحیح	نہ صحیح نہ غلط	کسی قدر غلط	بالکل غلط
۱۵۔ میں اپنے تعلیمی معیار سے مطمئن ہوں ———	○	○	○	○	○
۱۶۔ میں خوب لکھ سکتا/سکتی ہوں ———	○	○	○	○	○
۱۷۔ میں امتحان میں حاصل کردہ نمبر والدین سے چھپاتا/ چھپاتی ہوں ———	○	○	○	○	○
۱۸۔ میں بہت لگن سے پڑھتا/پڑھتی ہوں ———	○	○	○	○	○
۱۹۔ امتحانوں کے دنوں میں میری پریشانی میں اضافہ ہو جاتا ہے ———	○	○	○	○	○
۲۰۔ مجھے پڑھائی سے نفرت سی ہوگئی ہے ———	○	○	○	○	○
۲۱۔ میں پڑھائی میں کمزور ہوں ———	○	○	○	○	○
۲۲۔ میں گھر پر باقاعدگی سے پڑھتا ہوں/پڑھتی ہوں ———	○	○	○	○	○
۲۳۔ مجھے ٹیوشن کی سخت ضرورت ہے ———	○	○	○	○	○
۲۴۔ میں پڑھائی میں کم دلچسپی لیتا/لیتی ہوں ———	○	○	○	○	○
۲۵۔ میں ذہین طالب علم ہوں ———	○	○	○	○	○
۲۶۔ کلاس میں میری حیثیت ہمیشہ ایک نمایاں طالب علم کی سی رہی ہے ———	○	○	○	○	○
۲۷۔ میں کئی دوسرے طلبہ کی پڑھائی میں مدد کر سکتا ہوں/سکتی ہوں ———	○	○	○	○	○
۲۸۔ میں پچھلی جماعتوں میں ایک سست طالب علم تھا/تھی ———	○	○	○	○	○

	بالکل صحیح	کسی قدر صحیح	نہ صحیح نہ غلط	کسی قدر غلط	بالکل غلط
۲۹۔ میرا خیال ہے کہ پڑھنا میرے لئے ہرگز مفید ثابت ہوگا ———	○	○	○	○	○
۳۰۔ میرے اساتذہ میری کارکردگی سے خوش نہیں ———	○	○	○	○	○
۳۱۔ میں بیشتر طلبہ سے زیادہ محنتی اور کامیاب طالب علم ہوں ———	○	○	○	○	○
۳۲ پڑھائی سے کہیں زیادہ مجھے دوسرے کاموں میں دلچسپی رہتی ہے ———	○	○	○	○	○
۳۳۔ اکثر اساتذہ میری طرف متوجہ نہیں ہوتے ———	○	○	○	○	○
۳۴۔ مجھے یقین ہے کہ میں اعلیٰ تعلیم حاصل کروں گا/گی ———	○	○	○	○	○
۳۵۔ اس دفعہ مجھے امتحان میں نمایاں پوزیشن حاصل کرنے کی توقع ہے ———	○	○	○	○	○
۳۶۔ میں خود کو لائق طالب علم سمجھتا/سمجھتی ہوں ———	○	○	○	○	○
۳۷۔ مجھے دوسرے طالب علموں کی نسبت جلد سبق یاد ہو جاتا ہے ———	○	○	○	○	○
۳۸۔ میں پوری توجہ سے نہیں پڑھ سکتا/سکتی ———	○	○	○	○	○
۳۹۔ مجھے فیل ہونے کا ڈر رہتا ہے ———	○	○	○	○	○
۴۰۔ میں روانی سے پڑھ سکتا/سکتی ہوں ———	○	○	○	○	○