

Intelligence, Personality, and Emotional Intelligence as Predictors of Academic Achievement among Secondary School Students

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ABSTRACT

Academic achievement is a multidimensional phenomenon. Present study is intended to find out the relationship between predictor variables intelligence, personality, and emotional intelligence and criterion variable academic achievement. Two hundred secondary school students aged fourteen to sixteen years from Lalitpur, Uttar Pradesh, India served as the sample in the present study. A set of tools containing Test of General Mental Ability, High School Personality Questionnaire (HSPQ), and Emotional Intelligence Scale (EIS) were administered to gather information. A multiple regression analysis revealed an interesting pattern of relationship. It was found that intelligence; personality and emotional intelligence explain 0.752 of the variance in academic achievements. The results are consistent with some of the studies in the field and inconsistent with the others.

Keywords: *Intelligence, Personality, Emotional Intelligence, Academic Achievement, Secondary School, Students.*

Academic achievement is defined as the learning output. The concern for the child's academic success has prevailed since time immemorial. It has been the subject of many studies for a long period of time, because these areas of development are important aspect of educational development for students, students' family, and the educational authorities. Probably, since the time of ancient *rishis* and enlightened scholars, such as Socrates and his disciples Plato and Aristotle, educationists have been concerned with increasing the efficiency of their disciples. They have been interested in the causes/correlates of the efficiency or lack of it, and remedies for educational inefficiency. They have made numerous piecemeal efforts to sort out the problem. So, in the past, the problem has got considerable attention of educators and also has been the subject of wide and intensive study in the past three decades. The stress on the phenomenon has overly increased now-a-days. This is assuming special and greater significance as the society is advancing industrially and

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technically and the structure of education is growing more and more complex. Various attempts have been made to understand the true nature of academic achievement of students.

Academic achievement is a multidimensional phenomenon and function of many cognitive and non-cognitive factors. According to Good's Dictionary of Education (1959) academic achievement means knowledge attained or skills developed in the school subjects, usually defined by test scores or by marks assigned by teachers or by both. Steinberger (1993) holds that achievement is a multidimensional phenomenon. It includes student's ability and performance. In the present scenario, academic achievement is considered as a key factor for personal progress. Moreover, the whole system of education revolves around academic achievements.

Intelligence can be understood as the cognitive part of academic achievements. According to Hunt (1986, p. 102), "'intelligence' is solely a shorthand term for the variation in competence on cognitive tasks that is statistically associated with personal variables....Intelligence is used as a collective term for 'demonstrated individual difference in mental competence'". In case of school children, intelligence is the ability to learn and succeed in academic tasks. In classroom, some children learn quickly, others do not. While high intelligence is no guarantee of the "good life", low intelligence creates extremely difficult obstacles to complete participation in society and the attainment of a high standard of living (Morgan, King, Weisz and Schopler, 1993). Intelligence includes all the abilities that a student requires to learn something new, to adjust in their environment and to solve various problems of life. So it was believed that more intelligent students should be good learners, should have good memory, a good performer in academic activities and therefore should obtain high position in the classes, in terms of grades, in comparison with their less intelligent counterparts.

However, IQ tests rarely account for more than 50% of variance in academic performance (Chamorro-Premuzic and Furnham, 2004), which suggest that factors other than intelligence contribute to individual differences in academic performance. According to Watkins, Lei, and Canivez (2007) there has been considerable debate regarding the causal precedence of intelligence and academic achievement. Some researchers view intelligence and achievement as identical constructs. Others believe that the relationship between intelligence and achievement is reciprocal. Still others assert that intelligence is causally related to achievement. Several studies have demonstrated that specific personality traits such as conscientiousness and openness to experience are up to 10 times more important than IQ in determining academic achievement (Suloway, 1996).

Personality affects academic achievement through intelligence. There are several explanations for the relationships between personality and achievement through intelligence. At a general level, personality is weakly related to intelligence (Austin, Deary, and Gibson, 1997; Demetriou, Kyriakides, and Avraamidou 2003). Ackerman and Heggestad (1997), using meta-analysis, found that two categories of personality traits are positively related to

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intelligence. The first category involves extroversion, whereas, the second category includes intellectually oriented traits such as openness to experience, which has been found to be frequently related to crystallized intelligence. Other personality traits such as neuroticism and psychoticism were negatively related to intelligence.

In the 1940s and 1950s, there were several attempts to find a significant relationship between achievement and personality, but these attempts did not meet much success (Barton, Dielman and Cattle, 1972). Research by Ackerman and Heggestad (1997) has suggested that individual difference variables such as personality, intelligence, and vocational interests can be used to explain variance in academic performance.

Mayer (1955) and Vroom (1960) believed general performance to be a multiplicative function of intelligence and motivation, where motivation can be conceptualized in terms of personality characteristics (Rindermann and Neubauer, 2001). This interactive model suggests that intelligence and personality include salient individual differences which influence performance: intelligence through specific abilities which facilitate understanding and learning, personality through certain traits which enhance or handicap the use of these abilities.

Results obtained with the HSPQ (High School Personality Questionnaire) have shown that, intelligence (B), conscientiousness (G), self-discipline (Q3), warmth (A), boldness (H), non impulsiveness (–F), self-sufficiency (Q2), and insecurity (–O) were the most related primary factors to academic achievement (Mandryk and Schuerger, 1974; Cattell, Cattell, and Johns, 1984; Schuerger and Kuna, 1987; Busato, Prins, Elshout, and Hamaker, 2000; Kling, 2001). Psychoticism is most consistently negatively related to academic achievement (Sanchez-Marin et al. 2001; Heaven, Mak, Barry, and Ciarrochi, 2002).

According to Leeper (1970) emotions are among the most powerful of the forces that influence behavior. Almost all our sustained and goal-directed behavior is emotionally toned and it provides the motivation for long sequence of behavior. The notion of emotional intelligence broadens the concept of intelligence beyond the cognitive sphere/domain and considers that intelligence includes emotions. Emotional intelligence is a set of skills that underlie accurate appraisal, expression, and regulation of emotions. It is the feeling side of intelligence. In simple terms, emotional intelligence refers to the ability to process emotional information accurately and efficiently.

When psychologists began to define intelligence, they focused on cognitive aspects. At the same time, there were few researchers who recognized the importance of non-cognitive emotional aspects such as feelings, moods etc. At early decades of 20th century, Thorndike (1920) had identified the social dimension of intelligence and described it as the ability to understand and manage human beings to act wisely in their relations. His references to social intelligence included three elements- (i) the individual's attitudes towards society (ii) social knowledge, and (iii) the individual's capacity for social adjustment. Gardner (1993) presented

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‘Multiple Intelligence Theory’ and explained that ‘interpersonal’ and ‘intrapersonal’ intelligence are equally important as the types of intelligence typically measured by I.Q. and related test. By the adding the term ‘interpersonal’ and ‘intrapersonal’ intelligence, in his theory, he accepted the role of emotional intelligence.

Salovey and Mayer (1990) have introduced the term emotional intelligence and described it as a form of social intelligence that involves the ability to monitor one’s own and other’s feelings and emotions, to discriminate among them, and to use this information to guide one’s thinking and action. Mayer and Salovey (1997) further explained that emotional intelligence is the ability to perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth. The emotionally intelligent person, according to them, is skilled in four areas; identifying, using, understanding and regulating emotions.

Goleman (1998) defined emotional intelligence as the capacity for recognizing our own feelings and those of others, for motivating ourselves, and in our relationships. Emotional intelligence describes abilities distinct from, but complementary to, academic intelligence or the purely cognitive capacities measured by I Q. Intelligence Quotient (IQ) explains only 20% of success in life. The rest 80% is explained by emotional intelligence, social intelligence and factors such as luck (Goleman, 1995).

Academic activities require the ability to use and regulate emotions to facilitate thinking, enhance concentration, control impulsive behavior, perform effectively under stress, and nurture intrinsic motivation. As social adaptation to school involves establishing sound relationships with peers and teachers, emotional abilities and dispositions are vital to play a crucial role in these relations. Academic performance and social adaptation to school can be mutually reinforcing and further enhance students’ motivation to engage in school work and develop relationships with peers (Hawkins, Catalano, Kosterman, Abbott, and Hill, 1999). Children with lack of emotional skills are likely to experience difficulties in adapting to school, work, and social environments (Kagan, 1998; Caspi, 2000).

Evidence for associations between emotional intelligence and both social and academic success have been summarized in a number of recent book chapters and review articles (e.g., Brackett and Salovey, 2006, Marquez et al., 2006). There are mixed findings by researchers about the relationship between emotional intelligence and academic achievement. Sabapathy (1986), Miglani (2001), Kaur (2001), and Lekhi (2005) found a significant relationship between emotional intelligence and academic achievement. Correlations between emotional intelligence and grades are in the $r = .28$ to $.32$ range for high school students (Parker, Summerfeldt, Hogan, and Majeski, 2004). Sharma (2014) has not found significant correlation between emotional intelligence and academic achievement of 11th class students.

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Objectives Of The Study

- The objective of the study is to find the association of academic achievement with intelligence, personality, and emotional intelligence.

METHOD

Sample:

This study was conducted on a sample of 200 secondary school (10th class) students. The sample was taken from seven schools of Lalitpur, Uttar Pradesh, India using stratified random sampling method. The age range of students was 14-16 years.

Measuring Tools:

Following tools were used for measurement of intelligence, emotional intelligence and general well-being of students:

1. **Intelligence:** Test of General Mental Ability (Intelligence) was used for the measurement of intelligence. This test is constructed by Joshi (1969) and published by Rupa Psychological Centre-B.19/60-B, Deoriabir, Bhelupur, Varanasi-221010. Test contains 100 questions in the test which made with seven types of questions namely synonyms, antonyms, number series, classification, best answer, reasoning, and analogies. Test reliability is .883 according to Kuder Richardson's 20th formula proposed by Gullicksen (1949). Item validity of this test was ranged from .533 to .913 over the seven components. Saturation coefficients, according to Spearman's formula (1942), ranged from .600 to .774.
2. **Personality:-** In order to measure the personality traits of the subjects, Hindi adaptation of the Jr. Sr. High School Personality Questionnaire (HSPQ) prepared by Kapoor and Srivastava (2004) was employed. It measures 14 distinct personality dimensions which have found by psychologist to come near to covering the total personality. Each of the fourteen dimensions of personality measured by the HSPQ has a technical name and is defined by two poles, or extremes. These dimensions are (A) reserved/warmhearted, (B) less intelligent/more intelligent, (C) affected by feelings/emotionally stable, (D) undemonstrative/excitable, (E) obedient/assertive, (F) sober/enthusiastic, (G) disregards rules/conscientious, (H) shy/adventurous, (I) tough minded/tender minded, (J) zestful/circumspect individualism, (O) self assured/apprehensive, (Q2) sociably group dependent/self sufficient, (Q3) uncontrolled/controlled, and (Q4) relaxed/tense. A low sten score (1-3) and a high sten score (8-10) indicate first and second of the two poles, respectively, of each dimensions. This test is published by National Psychological Corporation-4/230, Kacheri Ghat, Agra-282004. The test- retest- reliability coefficient ranged from .72 to .88 over the fourteen sub-scales. Direct concept validity of the scale is ranged from .57 to .77 over the sub-scales.
3. **Emotional Intelligence:-** Emotional Intelligence Scale (EIS) was used for the measurement of emotional intelligence. EIS is constructed by Hyde, Pathe and Dhar (2007). This test is published by National Psychological Corporation-4/230, Kacheri

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Ghat, Agra-282004. It included 34 items and measures emotional intelligence through 10 factors namely (A) Self Awareness, (B) Empathy (C) Self Motivation (D) Emotional Stability, (E) Managing Relation, (F) Integrity, (G) Self Development, (H) Value Orientation, (I) Commitment, (J) Altruistic Behavior. Split half reliability coefficient of the test is 0.88 and the validity of the test is 0.93.

4. **Academic Achievement:** - Measurement of student's academic achievement includes their percent of marks in IX class.

Research Design And Procedure

Considering the ex-post-facto and multivariate nature of academic achievement a multivariate ex-post-facto research design was considered most suitable for the purpose of this research. All the respondents were given questionnaire. The researcher personally visited the respondent and sought their cooperation in filling the tests. Respondent were given sufficient time to respond to all the tests. Before accepting the response sheets back, the investigator verified that all the items are attempted. The participants were thanked for their cooperation.

The test responses were scored according to the prescription of the test manual. (Academic achievement was considered the criterion variable, and intelligence, personality, and emotional intelligence were considered the predictor variables of the study.)The obtained scores were analyzed using SPSS-17. Bivariate correlation and Stepwise multiple regression procedures were used to examine the relationship between the set of predictor variables and the criterion variable.

RESULTS AND DISCUSSION

Carl Pearson's product moment correlation was performed to find out the nature and extent of relationship of academic achievement with the intelligence, personality, and emotional intelligence. The results obtained in the analyses are presented in Table 1.

Table 1: Pearson's correlation of intelligence, personality and emotional intelligence with academic achievement

Variables	Academic Achievement
Intelligence	.808**
HSPQ factor A reserved/warmhearted	.164*
HSPQ factor B less intelligent/more intelligent	.459**
HSPQ factor C affected by feelings/emotionally stable	.258**
HSPQ factor D undemonstrative/excitable	-.068
HSPQ factor E obedient/assertive	.034
HSPQ factor F sober/enthusiastic	.154*
HSPQ factor G disregards rules/conscientious	.275**
HSPQ factor H shy/adventurous	.004
HSPQ factor I tough minded/tender minded	-.097
HSPQ factor J zestful/circumspect individualism	.018

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Variables	Academic Achievement
HSPQ factor O self assured/apprehensive	-.209**
HSPQ factor Q2 sociably group dependent/self sufficient	.306**
HSPQ factor Q3 uncontrolled/controlled	.275**
HSPQ factor Q4 relaxed/tense	-.284**
Emotional Intelligence	.154*

** significant at 0.01 level

* significant at 0.05 level

The results shown in Table 1 indicate that intelligence is positively and strongly correlated with academic achievement. The personality variables, warmth (A), intelligence (B), Emotional stability (C), enthusiasm (F), conscientiousness (G), self sufficiency (Q2), and self-discipline (Q3) are significantly and positively correlated with academic achievement. Personality variables, apprehensiveness (O) and tension (Q4) are negatively and significantly correlated with academic achievement. Emotional intelligence is also positively and significantly correlated with academic achievement.

Result of stepwise multiple regression is given in table 2. Model summary revealed a multiple R of 0.851. This value shows the degree of relationship between academic achievement and set of predictor variables is meaningful. This relationship is statistically significant ($F = 84.163$, $p = .000$). The coefficient of multiple determination (R^2) was found to be 0.723. It suggest that 72.30 percent variance in academic achievement has been predicted by the set of predictor variables. Thus the unpredicted variance ($K^2 = 1 - R^2$) equals to 27.70 percent. The Adjusted R^2 , the estimated population value of R^2 , is equals to 0.715. The adjusted R^2 gives us some idea how well our model generalizes and ideally we would like its value to be the same or very close to the value of R^2 (Field, 2005). For this model value of Adjusted R^2 (0.715) is very similar to the observed value of R^2 (0.723) indicating that the cross validity of this model is very high. The standard error for this estimate is 4.44038.

Summary of ANOVA for the relationship between predictor variables and academic achievement is given in Table 3. Table 3 reveals that the relationship between predictors and academic achievement is significant ($F(6,193) = 84.196$, $p = .000$).

The significance of the unstandardized coefficient- B was analyzed using Fisher's t-test. Table 4 revels that the partial regression coefficients or weights were significant for Intelligence ($t = 17.208$, $p = .000$), HSPQ factor B ($t = 4.264$, $p = .000$), EIS ($t = 2.278$, $p = .024$), HSPQ Q2 ($t = 2.732$, $p = .007$), HSPQ A ($t = -2.551$, $p = .012$), HSPQ Q4 ($t = -2.271$, $p = .024$)

Table 2: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.851	.723	.715	4.44038

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Table 3: ANOVA

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	9956.632	6	1659.439	84.163	.000
Residual	3805.368	193	19.717		
Total	13762.000	199			

Table 4: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.410	5.025		0.679	0.498
Intelligence	0.415	0.024	0.723	17.208	0.000
HSPQ factor B	1.208	0.283	0.181	4.264	0.000
Emotional Intelligence	0.023	0.010	0.089	2.278	0.024
HSPQ factor Q2	2.185	0.800	0.110	2.732	0.007
HSPQ factor A	-0.269	0.106	-0.104	-2.551	0.012
HSPQ factor Q4	-1.965	0.865	-0.092	-2.271	0.024

It was found that academic intelligence has highest overall effect on academic achievement. This finding is consistent with other findings (Mitra, 1985; Laidra et al., 2007; Deary, Strand, Smith, and Fernandes, 2007). On the other hand this is inconsistent with Ediseth, A. (2002) and Naderi et al. (2008). Emotional intelligence affects academic achievement positively. Finding is consistent with the findings of Sabapathy (1986), Miglani (2001), Kaur (2001), and Lekhi (2005) whereas, it is inconsistent with Sharma (2014).

The personality traits self sufficiency (HSPQ factor Q2) predicts academic achievement positively. Result is consistent with Mandryk and Schuerger, 1974; Cattell, Cattell, and Johns, 1984; Schuerger and Kuna, 1987; Busato, Prins, Elshout, and Hamaker, 2000; Kling, 2001). Warmth (factor A) affects academic achievement negatively. Result is inconsistent with Barton, Dielman, and Cattell, 1971; Mandryk and Schuerger, 1974; Cattell, Cattell, and Johns, 1984; Schuerger and Kuna, 1987; Forns et al., 1996; Busato, Prins, Elshout, and Hamaker, 2000; Kling, 2001). Personality factor tension (factor Q4) predicts academic achievement negatively. Result is consistent with Matthews, Davies, Westerman, and Stammers, 2000).

In summary, intelligence, emotional intelligence, personality factors self sufficiency, warmth and tension are significantly correlated and affecting academic achievement. However, as academic achievement is a complex phenomenon, there exists a further need to explore and validate the present study.

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Conflict of Interest

The authors colorfully declare this paper to bear not conflict of interests

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