Self Concept as Moderator of the Relationship between Mental Ability and Scholastic Achievement in High School Students

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Abstract

The present study was conducted on a sample of 300 (150 M, 150 F) students of high school from Varanasi, with a view to assess gender difference in scholastic achievement, to find out relation of self-concept and mental ability with scholastic achievement, and to ascertain whether self-concept moderates the relationship of mental ability and scholastic achievement or not. Scholastic achievement was measured on the basis of an average of marks obtained in previous three annual examinations. To measure mental ability and selfconcept, Verbal Test of Intelligence (Asthana and Verma, 1989) and Mohsin Self-concept Inventory (Mohsin, 1979) were administered. Obtained data were analyzed with the help of t-test, coefficient of correlation (r) and moderated regression analysis. Findings revealed that there was a significant difference in male and female students regarding their scholastic achievement. Girls were better than boys in academic performance. Mental ability and self-concept both were positively and significantly related to scholastic achievement Moderated regression analysis as well as sub group analysis revealed that relationship between mental ability and scholastic achievement is moderated by selfconcept.

Introduction

Nothing succeeds like success is a psychological advice to increase the ability of achievement among students. Psychologists to a large extent bothered about improving the vim and vigor of the learner.

Education has always been concerned with the prediction of scholastic achievement. Psychologists have termed it as 'Educational Forwardness',

'Educational Backwardness', Achievement', 'Academic 'Scholastic Backwardness' and so which refer to the scores on. obtained in the annual examination by a student, i.e. the end product of a student's whole year labor. Crow and Crow (1969) defined scholastic achievement as 'the extent to which profiting from learner is а instructions in a given area of i.e. achievement learning, as reflected by the extent to which skills or knowledge has been acquired by a person from the imparted training to him. Forecasting of performance of school and college students is a problem of obvious importance in education.

Researchers have tried to unveil the influence of psychological factors in increasing vim and vigor in the form of achievement. Among these factors intelligence has come forth as a prominent correlate. Intelligence test scores have been found to be fairly good predictors of success at school and college levels. therefore, played by The role intelligence scholastic in achievement has been studied frequently (Lassiter et al., 1995; Newsome et al.,2000: Busato et al., Farsides and Woodfield, 2000; 2003; Gurubasappa, 2005; Mayes and Cathoun, 2007; Deary et al.,

2007; Tomporowski et al., 2008; Kpolovie, 2016; Naderi et al. 2016).

There are investigators who hold view the that mental/intellectual ability is а primary determinant of collegiate achievement. On the contrary, such repudiated view has been а convincingly by a large number of investigators in recent years. Stagner (1961) observed that the relation between intelligence and scholastic achievement was dependent upon certain personality factors, in as much as wide differences were observed between intelligence and scholastic achievement of adjusted maladjusted students and (Gurubasappa, 2005). Here one personality variable, i.e. self-concept has been taken into consideration which may intervene the relationship of mental ability and scholastic achievement. Self-concept comprise of one's physical appearance, belief convictions. values. attitudes, thoughts and feeling which cover a major aspect of personality.

The present study aims to find out gender difference in scholastic achievement and its relationship with intelligence and self-concept. The study also aims to ascertain the moderating effect of self-concept on the relationship between mental ability and scholastic achievement.

METHODOLOGY

HYPOTHESES

In the light of above objectives, following hypotheses were formulated—

- 1. There will be significant gender difference in scholastic achievement.
- 2. Mental ability and selfconcept will be positively related to scholastic achievement.
- 3. Self-concept will moderate the relationship between mental ability and scholastic achievement.

SAMPLE

The sample consisted of 300 students of high school of both sex from various Inter colleges of Varanasi. The age range of the sample was 14 to 16 years. Number of boys and girls were taken equal in the sample.

TOOLS

- 1. Students' scholastic achievement was measured on the basis of the average marks obtained in the last three annual examinations.
- 2. Verbal Test of Intelligence constructed and standardized by Asthana and Verma (1989) was used to measure mental

ability of the students. It has 100 questions to be solved in only 20 minutes.

3. Mohsin Self Concept Inventory (Mohsin, 1979) was used to assess self-concept of the students. It consists of 48 items among which half are positively phrased and half are negatively phrased. Higher score on this inventory indicates a good self-concept.

RESULTS AND DISCUSSION

The scholastic achievement of the students was measured and compared for gender difference. ttest was applied to test the significance of difference between mean academic achievement scores of male and female students. Finding is presented in table 1

. **Table 1**: Gender Difference in Scholastic Achievement

Groups	N	М	S.D.	t
Female	150	57.02	11.00	
				3.77**
Male	150	53.13	7.03	

**significant at .01 level

Table1shows that male and female students differ significantly

regarding their scholastic achievement, and female students are quite better than their male counterparts. Gender difference in scholastic achievement has been obtained by several researchers (Hassan, 2001; Pajares and Valiante, 2001; Osborn, 2001; Honora, 2002; Bacharach et al. 2003; Luport et al. Livadits 2003: et al. 2003: Duckworth and Seligman, 2011; Weis et al. 2013). Most of the studies show that more females than males are achievers or over achievers in schools and colleges. Same has been obtained in the present study. This may be due to the fact that females tend to utilize their abilities more effectively than males. Boys on the other hand get less time for their studies because of various distractions.

The coefficient of correlation between scholastic achievement and mental ability (intelligence) and between scholastic achievement and self-concept have been worked out and presented in table 2.

Table 2: Correlation of MentalAbility and Self Concept withScholastic Achievement (n=300)

	Mental	Self
Scholastic	Ability	Concept
Achievement		
	.65**	.63**

** significant at .01 level

The relationship of intelligence (mental ability) and scholastic achievement is positive and highly significant. It reveals that mental ability plays a significant role in the academic success. At the same time the personality variable chosen in this study, i.e. self-concept is also positively and significantly correlated with scholastic achievement.

Positive relationship between scholastic intelligence and achievement has been reported in several studies (Lassiter et al., 1995; Newsome et al., 2000; Busato et al., Farsides and Woodfield. 2000: 2003; Gurubasappa, 2005; Mayes and Cathoun, 2007;Tomporowski et al., 2008; Kpolovie, 2016), but Naderi et al. (2010) found no relation between intelligence and scholastic achievement for both males and females.

The relation of self concept with the scholastic achievement of students has been studied by several researchers, and they also found it positive and significant (Grum and Musk, 2001; Zahra et al., 2010; Sagar, 2014; Herrera et al. 2020). In an extensive study Laryea et al (2014) showed that physical, social, educational orientation and religion self concept constructs were statistically significant with their contribution to academic achievement.

Here. the interest is in knowing whether this self-concept moderates the relationship between ability and scholastic mental achievement or not. To ascertain the moderating effect, the moderated regression analysis was performed. According to Zedeck (1971)moderator effect is present when the independent predictor both model and moderated regression model differ significantly from zero order correlation, and also significantly differ from each other respectively.

Table 3:Hierarchical MRCAnalysis of Criterion (Y), Predictors(X1 and X2), and ModeratedRegression Model (X1,X2,and X3)

	R	F	df	Р
	Y			
X ₁	.66	218.1	1,29	.0
		9	8	1
X ₁ .X ₂	.70	142.6	2,29	.0
		7	7	1
X ₁ .X ₂ .X	.71	241.5	3,29	.0
3		6	6	1

Y= Scholastic Achievement X₁=Intelligence X_2 =Self Concept X_3 =Interaction term, i.e. Intelligence x Self Concept

Table 3 indicates that the zero order correlation between mental ability and scholastic achievement is .65 which is significant. When scholastic achievement is predicted using both mental ability and self concept, R increases to .70, F (2,297); P<.01. When we add mental ability x self-concept as interaction term (X3), the increased R is found to be .71 (F=241.56, df=3,296, P<.01).

The difference between zero order correlation and predictor model as well as between predictor and moderated regression model for model were tested their significance. Findings are presented in table 4 which reveals that all the differences are significant.

Table 4: Significance of differencebetween zero order correlation andpredictor model, and betweenpredictor model and moderatedregression model

	R²	Δ	F	df	Р
	Y	(Incre			
		ment)			
X ₁	.42	.4225	218.	1,2	.0
	25		19	98	1
X ₁ .X ₂	.49	.0675	39.7	1,2	.0
	00		0	97	1
X ₁ .X ₂	.50	.0141	8.81	1,2	.0
.X ₃	41			96	1

Hence it is evident that selfconcept has moderating effect on the relationship between mental ability scholastic achievement. and To present this finding more vividly, the subgroup analytical strategy was adopted. For this, the data were first analyzed using product moment correlation for entire sample. Further the sample was divided in two sub groups of high self-concept and low self-concept on the basis of median self-concept score. The coefficients of correlation in these sub groups were worked out for mental ability and scholastic achievement. The difference between these two correlations was tested using t-test.

Table 5: Relationship between Ability and Scholastic Mental (Significance Achievement of 'r' values of sub difference in groups) (N=300,r for entire group=.65)

	N	r	t	Р
High Self Concept Group	150	.72	4.06	
Low Self Concept Group	150	.41		01

The sub group analysis reveals that significantly higher relationship between aforesaid two variables is found in the high selfconcept group in comparison to low self-concept group. It implies that self-concept has moderating effect on the relationship between mental ability and scholastic achievement.

Empirical investigations, from time to time, have shown that univocal and unilateral supremacy cannot be granted to intelligence only in accounting for variation in scholastic achievement of students. Scholastic achievement requires intelligence and ability on the one hand, and favourable contributory personality factors, on the other hand. Motivation (Busato et al, 2000; Farside and Woodfield, 2003), aptitude (Gazalez et al, 2002), social maturity (Malecki, 2002), emotional (Marjoribanks, 1991), stability cognitive style (Newsome et al, 2000), personality (Rindermann and 2001), Neubaurer, self-concept

(Kobal and Musek, 2001), level of aspiration (Dondy and Nelttlebeck, 2002), and several demographic found variables have been responsible to contribute academic success. It is quite evident that personality variables play significant role in determining scholastic success of a student.

The findings of the present study lead us to certain conclusions:

- -- There exists gender difference in scholastic achievement. Girls perform better than boys.
- -- Scholastic achievement is positively and significantly related with mental ability (intelligence) and self-concept.
- -- Self-concept of students moderates the relationship between mental ability (intelligence) and scholastic achievement.

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