

Gender differences in achievement motivation, self-efficacy academic stress and academic achievement of secondary school students

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ABSTRACT

Present study is an attempt to assess gender differences in, achievement motivation, self-efficacy, and academic-stress and academic achievement among high school students. A sample of 130 students (65 males and 65 females) of 9th and 10th class was collected from government schools of Jammu city. In case of academic stress the difference between means scores of male and female sample is 2.72 which is found significant at .01 level of significance with help of t-test. The difference found in the mean scores of self-efficacy between male and female samples is 19.33 which is significant at .01 level of significance. Significant difference at .01 level across gender is also found in achievement motivation but not in academic achievement. In addition to it we also calculated partial correlation coefficient of .18 between achievement motivation and academic achievement with self efficacy and academic stress as control variables. It is a significant correlation at .05 level as the calculated significance value is .04 only.

Key Words : Achievement Motivation, Self-efficacy, Academic-stress, academic performance, Partial-correlation and control variables

INTRODUCTION

It is claimed that academic success or failure is related to many factors. In general, the various studies that attempt to explain academic failure do so by beginning with three elements that intervene in education: parents (family causal factors); teachers (academic causal factors); and students (personal causal factors) (Diaz, 2003). When literature on physics education is reviewed, it is seen that the most frequently analyzed personal variables relating to achievement are gender, attitude and motivation. The correlation between students' achievement in physics and gender has been a popular research subject in recent years (Diaz, 2003). The findings of several studies show that there is a correlation between students' achievement in physics and their gender, and that male students are more successful than

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their female peers at learning physics (Pollock *et al.*, 2009; Kost-Smith *et al.*, 2010). The studies examining the relationship between achievement in physics and gender present findings demonstrating that factors such as student's age (Beaton *et al.*, 1996; Kahle and Meece, 1994), attitude and interest towards physics (Kahle *et al.*, 1993; Baker and Leary, 1995; Farenga and Joyce, 1997; Jones *et al.*, 2000) and social and linguistic behavior (Stadler *et al.*, 2000) are pretty effective.

There are numerous studies on sex differences in cognitive performance in the literature of psychology. One of the earliest studies was conducted by Morris (1959) which referred to the psychic and social differences between sexes, claimed that the education outcomes of men and women will, at least in part, be different at the graduate and collegiate level. Mackintosh (1998) claimed that there is no sex difference in general intelligence. He defined general intelligence as the reasoning ability and its best measure is the Progressive Matrices. After examining two tests administered by the Israeli Defense Forces which qualify IQ, Flynn (1998) finds no sex difference. Kimball (1989) finds that in contrast to standardized measures of mathematics achievement tests like SAT-M, female students outperform males in math classes.

Achievement motivation :

Achievement motivation is a theoretical model intended "to explain how the motive to achieve and the motive to avoid failure influence behavior in a situation where performance is evaluated against some standard of excellence" (Atkinson, 1957). Murray (1938) used the term firstly and she associated it with a range of actions including "intense, prolonged and repeated efforts to accomplish something difficult; to work with singleness of purpose towards a high and distant goal; to have the determination to win; to try to do everything well; to be stimulated to excel by the presence of others; to exert will power; to overcome boredom and fatigue (Murray, 1938).

She devised a taxonomy that included twenty-eight basic human needs and need for achievement was one of them which she conceived as the desire to accomplish something difficult; to master, manipulate or organize physical objects, human beings or ideas; to do this rapidly and as independently as possible; to overcome obstacles and attain a high standard to excel one's self; to rival and surpass others; to increase self regard by the successful exercise of talent (Murray, 1938).

Self-efficacy :

Albert Bandura (1977a) defined self-efficacy as individual's belief about their own capabilities to accomplish something successfully. According to Bandura's (1977a, 1986) social cognitive theory, individual possess a self-system which encompasses one's cognitive and affective structure that provides a reference mechanism of perceiving, regulating and evaluating behavior that results from between the system and the environmental sources of influence. Every individual estimates his ability to get things done, it may be an important element of a person's self-concept, which is a constellation of beliefs and experiences about his/her ability to deal effectively with the tasks and accomplish what needs to be done. Bandura (1977b) suggested that self-efficacy is an important component of self-concept.

He further suggested that low self-efficacy leads to negative mood, pessimism, stress, tension and psychological distress.

Researchers have shown that self-efficacy is predictive of student's ability to succeed and that student with higher academic self-efficacy work harder (Bandura *et al.*, 2001) are more persistent (Pajare and Miller, 1994) and develop better goal-setting and time-monitoring strategies than other students (Zimmerman, 2000). Choi (2005) found that high level of academic self-efficacy is positively related to academic performance.

Characteristics of people with high self-efficacy :

Many people can identify goals they want to accomplish, things they would like to change, and things they would like to achieve. However, most people also realize that putting these plans into action is not quite so simple. Bandura (1995) and others have found that an individual's self-efficacy play a major role in how goals, tasks and challenges are approached. People with a strong or high self-efficacy find an inner confidence which allows them to perform task that might otherwise seem beyond their reach thus makes life a little easier and a little brighter one (Bandura, 1995). It may cause them to:

- Form a stronger sense of commitment to their interests and activities
- View challenging problems as tasks to be mastered
- Recover quickly from setbacks and disappointments
- Develop deeper interest in the activities in which they participate
- Individuals overcome their daunting environments and go on to lead fulfilling lives free of crime, psychopathology and harmful behaviors
- Employees with self-efficacy can bring positive role models, resourceful social networks, and create nurturing environments, which result in progression and fulfillment.

It can be a tool to make better decisions in life to take control of one's health where possible - examples of these preventative self efficacy methods include being "physically active, reducing dietary fat, refraining from smoking, keeping blood pressure down, and developing effective ways of managing stressors" (Bandura, 2008).

On the other hand people with a weak or low self-efficacy are more prone to lack confidence in their own abilities. A low self-efficacy will manifest itself in a variety of ways in their daily lives in many ways, likely it may cause them to:

- Focus on personal failings and negative outcomes
- Avoid challenging tasks
- Quickly lose confidence in personal abilities
- Believe that difficult tasks and situations are beyond their capabilities.

Academic stress :

Academic problems have been reported to be the most common source of stress for students (Aldwin and Greenberger, 1987). Schafer (1996) found school-related stressors such as constant pressure of studying, too little time, writing term papers, taking tests, future plans, and boring instructors as the most irritating daily hassles. Stress associated with academic activities has been linked to various negative outcomes, such as poor health (Greenberg, 1981; Lesko and Summerfield, 1989), depression (Aldwin and Greenberger,

1987), and poor academic achievement (Clark and Rieker, 1986; Linn and Zeppa, 1984).

A number of studies have explored a relationship between stress and poor academic achievement (Clark and Rieker, 1986; Linn and Zeppa, 1984; Struthers *et al.*, 2000). Felsten and Wilcox (1992) found a significant negative correlation between the stress levels of college students and their academic performance. Similarly, in a study, Blumberg and Flaherty (1985) found an inverse relationship between self-reported stress level and academic performance. Struthers *et al.* (2000) also reported that a high level of academic stress was associated with lower course grades. Students experience a high level of academic stress due to exams, assignments, time pressure, grade pressure, and uncertainty. In summary, this stress has a detrimental effect on their academic performance.

METHODOLOGY

Objectives of the study :

- To assess gender differences in the achievement motivation of high school students.
- To assess gender differences in the self-efficacy of high school students.
- To assess gender differences in academic-stress of high school students.
- To assess gender differences in the academic achievement of high school students.

Hypotheses of the study :

- There will be significant gender difference in achievement motivation of high school students.
- There will be significant gender difference in self-efficacy of high school students.
- There will be significant gender difference in academic-stress of high school students.
- There will be significant gender difference in academic achievement of high school students.
- There will be significant correlation between achievement motivation and academic performance of high school students.

Sample of the study :

A total sample of 120 (60 males and 60 females) of 9th and 10th class students falling in the age group of 14 to 16 years is collected from the Jammu city.

Tools used :

1. Achievement Motivation Scale (n-Ach) (AMSn—DM) by Deo and Mohan (1985) which is an English version that consists of 50 items as suggested by McClelland and Atkinson. It is standardized on 13 to 20 years boys and girls.

2. Self-Efficacy Scale (SES - MGBR) by Mathur and Bhatnagar (2012) that consists 22 items in eight Area—1) Self Regulatory Skills, 2) Self Influence, 3) Self Confidence, 4) Social - Achievement, 5) Self, 6) Self Evaluation, 7) Self Esteem, and 8) Self-Cognition. It was standardized on 800 Male and Female Students age group of 14 year plus.

3. Academic Stress Inventory for School Students (SISS–SS) Hindi; by Rani and Singh consisting of 40 items. It was standardized on 400 pre-secondary students of age 6 - 14 years old.

4. Academic performance: immediate previous class percentage.

RESULTS AND DISCUSSION

First objective of study was to assess the gender differences in the achievement motivation. With the help of t-test analysis we found significant gender differences in achievement motivation as mentioned in Table 1, calculated t-ratio for means of male and female samples is 1.99 with a degree of freedom of 128 and corresponding significance value is .01 which shows that gender differences are statistically significant at .01 level of significance.

Group statistics					Independent samples test		
Sr. No.	Sample (N)	Variable	Mean	S.D.	t-ratio	df	Sig. (2-tailed)
1.	Male (65)	Achievement	142.58	13.94	1.99	128	.01**
2.	Female (65)	motivation	137.00	12.99			

From Table 2 it is clear that there is difference of 5.58 in the mean scores of male and female samples with males scoring more than females. Our second objective was to assess the gender differences in the self-efficacy of high school students and corresponding hypothesis was; there will be significant gender difference in the self-efficacy of high school students. We found significant differences as given in the Table 2 the calculated t-ratio is 2.465 and associated significance value is .01 with 128 as the degree of freedom. In addition to it males scored 4.42 points on average more than females. With reference to these values we can conclude that these differences are statistically significant at .01 level of significance that directs us to reject our hypothesis.

Group statistics					Independent samples test		
Sr. No.	Sample (N)	Variable	Mean	S.D.	t-ratio	df	Sig. (2-tailed)
1.	Male (65)	Self-efficacy	72.70	5.777	2.465	128	.01*
2.	Female (65)		68.28	6.312			

Third objective of our study was to assess gender differences in academic-stress of high school students. In this case, calculated t-ratio is 5.993 and associated significance value is .000 with 128 degree of freedom which means that differences in the mean scores of academic stress of male and female samples are significant at .01 level of significance. Unlike other variables of our study, in the case of this variable, on an average females scored 20.33 points more than males. Group statistics and independent sample test values are given in the Table 2 as:

Fourth objective was to assess the gender differences in the academic achievement and we found significant differences as given in the Table 4 the calculated t-ratio is 5.088 and associated significance value is .00 with 128 as the degree of freedom. Also, on an

Table 3 : t-test analysis for academic stress between the male and female samples

		Group statistics			Independent samples test		
Sr. No.	Sample (N)	Variable	Mean	S.D.	t-ratio	df	Sig. (2-tailed)
1.	Male (65)	Academic stress	88.18	16.740	5.993	128	.000**
2.	Female (65)		108.51	18.626			

Table 4 : t-test analysis for academic achievement between the male and female samples

		Group statistics			Independent samples test		
Sr. No.	Sample (N)	Variable	Mean	S.D.	t-ratio	df	Sig. (2-tailed)
1.	Male (65)	Academic	68.84	09.67	5.088	128	.000**
2.	Female (65)	achievement	60.52	08.16			

average, males scored 8.32 points more than females. Young and Fisler (2000) by examining SAT-M scores of high school seniors, found males to score better than females. Others have argued that the content of the test or of its administration favors males (Bridgeman and Wendler, 1991). Some other researchers have explained the gap by adhering to such factors as differences in classroom experiences, course taking behavior and cognitive processing (Byrnes *et al.*, 1997; Young and Fisler, 2000).

Table 5: Partial correlation between academic achievement and achievement motivation with self-efficacy and academic stress as control variables

		Correlations		
Control Variables			Academic performance	Achievement motivation
Self-efficacy & Academic stress	Academic performance	Correlation	1.00	0.183
		Sig. (2-tailed)	.	0.040
		Df	0	115
	Achievement motivation	Correlation	0.183	1.000
		Sig. (2-tailed)	0.048	.
		Df	115	0

In addition to these comparative t-test analyses we also used partial correlation technique to assess correlations among various variables. We found a significant coefficient of correlation (1.83) between academic achievement and achievement motivation with self-efficacy and academic stress as constant variables.

Conclusion :

- There is significant gender difference in achievement motivation of high school students.
- There is significant gender difference in self-efficacy of high school students.
- There is significant gender difference in academic-stress of high school students.
- There is significant gender difference in academic achievement of high school students.
- There is significant partial correlation between achievement motivation and academic

performance of high school students with self-efficacy and academic stress as constant variables.

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