

A STUDY OF THE RELATIONSHIP BETWEEN SELF-BELIEFS AND ACHIEVEMENT MOTIVATION

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The objectives of this study were to determine the relationship between self-beliefs and achievement motivation among engineering students. 305 boys and 254 girls from different engineering colleges of Punjab responded to all psychological measures used in the study. Self-Efficacy Questionnaire (Muris, 2001) and Perceived Competence Scale (Pintrich and DeGroot, 1990) were used to assess the self-beliefs of the students, whereas, Deo and Mohan's Achievement Scale (1985) was used to measure achievement motivation among the students. Pearson's Product Moment Correlation were computed to find out which variables correlate significantly with achievement motivation among these students. The results revealed that in case of male engineering students, two dimensions of Self-efficacy i.e. Academic Self-Efficacy and Social Self-Efficacy were found to be positively correlated with their achievement motivation, whereas, in case of female engineering students, all three dimensions of Self-efficacy i.e. Social-Efficacy, Academic-Efficacy and Emotional-Efficacy were found to be positively related to their achievement motivation. The results also revealed that the perceived competence was a significant correlate of achievement motivation among both male and female engineering students. Overall, the results indicate that self-beliefs play a significant role in influencing the achievement motivation among engineering students.

KEYWORDS: Achievement Motivation, Academic-Efficacy, Social-Efficacy, Emotional-Efficacy, Perceived Competence

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INTRODUCTION

Educators have long recognized that students' beliefs about their academic capabilities play an essential role in their motivation to achieve. Self-beliefs refer to one's convictions to successfully execute a course of action required to obtain a desired outcome (Bandura, 1997). Eccles et al. (1984) have emphasized that the self-concept of ability that affects a variety of achievement behaviors including academic performance, task persistence, and task choice; people with positive perceptions of their abilities approach achievement tasks with confidence and high expectations for success and, consequently, perform better on these tasks. Bandura (1986) argued that reasonably precise judgments of capability, matched to a specific outcome, afforded the greatest prediction and offered the best explanations of behavioural outcomes, because these were typically the sort of judgments that individuals used when confronted with behavioural tasks. Pajares and Schunk (2005) reported that students' self-beliefs played an integral role in their academic motivation, learning, and achievement.

Self-beliefs comprise of both self-efficacy and perceived competence, where former may be the general sense of belief in one's abilities; the latter refers to the task specific sense of belief about one's ability. Self-efficacy beliefs regulate human functioning through cognitive, motivational, affective and selection process and self-efficacy mechanism plays a central role in the exercise of personal agency (Bandura, 1990). Zimmerman (2000) highlighted that, in the past two decades, self-efficacy had emerged as a highly effective predictor of students' motivation and learning. Further, it helped in predicting common motivational outcomes, such as students' activity choices, effort, persistence, and emotional reactions. Various researchers have emphasized that, in order to understand relationship between abilities and achievement motivation, along with self-efficacy beliefs, it is important to study perceived competence of the students.

REVIEW OF RELATED LITERATURE

Different studies have highlighted that students' self-beliefs about academic capabilities play an essential role in their motivation to achieve. Some of the significant studies are reviewed and reported below.

Various researchers have highlighted significant relationship between self-efficacy and achievement motivation in academic settings. In this regard, Elliot and Thrash (2001) emphasized that self-efficacy had a causal influence on achievement goals. Pietsch et al. (2003) highlighted that self-efficacy beliefs were highly related with performance in mathematics and percentages. Also,

Finney and Schraw (2003) found that self-efficacy and statistical performances were positively related to each other. Valkyrie (2006) concluded that academic self-efficacy was positively related to academic achievement. While studying the implications of self-efficacy and attribution constructs to the motivation in the domain of foreign language learning, Hsieh and Schallert (2008) reported that self-efficacy was the strongest predictor of achievement, supplemented by ability attributions. Schantz and Conroy (2009) highlighted that individual differences in achievement motivation were a part of an integrated system of affect, cognition, and behaviour during competence pursuits. Further, Fast et al. (2010) revealed that higher levels of math self-efficacy positively predicted math performance. Abdi et al. (2012) reported that self-beliefs had relationship with achievement motivation among pre-university students.

While studying the role of perceived competence in relation to achievement motivation in academic settings, Pajares and Graham (1999) concluded that students' task specific self-efficacy was the only motivation variable to predict performance. Besides, Elliot (1999) argued that the connection between perceived competence and proximal achievement goals was quite clear i.e. high competence perceptions led to approach motivation, both mastery and performance-approach, while low competence perceptions led to avoidance motivation. Valentine et al. (2004) found consistent, small to moderate, associations of educational self- beliefs with achievement. They further clarified that perceived academic competencies were not equivalent to achievement, but the processes that supported and maintained a sense of academic competence were likely to contribute to achievement. Also, Spinath and Spinath (2005) reported that children's competence beliefs were moderately to strongly associated with their learning motivation.

Further, a number of research studies have found that girls exhibit lower academic self-efficacy than boys, particularly in mathematics (Middleton and Midgley, 1997; Middleton, 1999). In some studies, researchers reported that girls performed as capably as boys, in varied academic tasks, but nonetheless reported lower self-efficacy, particularly at higher academic levels (Pajares and Miller, 1994; Pajares and Johnson, 1996). Zeldin et al. (2008) analyzed the ways in which their self-efficacy beliefs were created of men and women who selected careers in science, technology, engineering or mathematics (STEM) and subsequently influenced their academic and career choices. The analysis revealed that mastery experience was the primary source of the men's self-efficacy beliefs, whereas, in case of women, social persuasions and vicarious experiences were the primary sources of self-efficacy beliefs. Therefore, these findings suggested that different sources are predominant in the creation and development of the self-efficacy beliefs of men and women, who pursue STEM

careers. Further, it was reported that self-efficacy beliefs of men in these male-dominated domains were created primarily, as a result of the interpretations they made of their on going achievements and successes and women on the other hand, relied on relational episodes in their lives to create and strengthen the confidence that they could succeed in male-dominated domains.

On the other hand, a number of studies have brought into fore the conclusion that there exists no relationship between self-efficacy and achievement. Lodewyk and Winne (2005) studied the links between achievement, the structure of learning tasks, and changes in students' self-efficacy. They found that after accounting for overall academic achievement, self-efficacy was a negligible predictor of achievement. Legault et al. (2006) analysed the reasons that gave rise to academic motivation and investigated its social antecedents and academic consequences. They found four dimensions i.e. ability beliefs, effort beliefs, characteristics of the task, and value placed on the task responsible for academic motivation. Moreover, on the basis of their study, Vancouver and Kendall (2006) concluded that self-efficacy was negatively related to motivation and examination performance at the within-person level of analysis, despite a significant positive relation with performance at the between-persons level.

Overall, these research studies highlight that self-beliefs play a significant role in determining the effort, persistence, and perseverance required by a student to achieve high in academic setting. In addition, the stronger the self-efficacy, the harder individuals will try to accomplish a task. This is particularly important when facing difficulties. Individuals with strong self-efficacy are less likely to give up than are those who are paralyzed with doubts about their capabilities. Thus, self-beliefs specific to one's perceived competence, or expectancy beliefs, are important in the study of achievement motivation in academic context.

THE RATIONALE AND SIGNIFICANCE OF THE STUDY

These days, students display strong preferences for higher education that makes them employable. This has resulted in more emphasis on professional education. Keeping in view, this increased demand for professional education, there has been a very rapid growth of professional higher education institutions in the country in recent years. The engineering institutions have come to constitute a major proportion of these professional institutions. Several students are entering these institutions sometimes only on the basis of prevalent job-market trends and even sometimes disregarding their capabilities and aptitude. But one can achieve success only when one's

ambitions match with his/her potentials. Therefore, it is quite significant to study achievement motivation of engineering students in relation to their self-efficacy and perceived competence.

OBJECTIVES

The present study has the following objectives:

1. To study the relationship between Achievement Motivation and Self-efficacy.
2. To study the relationship between Achievement Motivation and Perceived Competence.

RESEARCH METHODOLOGY

SAMPLE

In the present study, the sample consisted of 559 engineering students (305 boys and 254 girls). The sample was taken from various engineering colleges of Punjab. Care was taken that the colleges so chosen were more or less homogenous with regard to socio-economic, cultural background and academic milieu. The sampling technique used was incidental in nature.

TOOLS USED

Following tools/ tests were used in the present study to collect the required information from the subjects:

i. Deo - Mohan Achievement Motivation (n-Ach) Scale - (Deo and Mohan, 1985)

This is a self- rating type scale which is used to measure achievement motivation. The scale consists of 50 items, 13 are negative and 37 are positive items. The items of the scale are based on three factors i.e. academic factors, factors of general interest and factors of social interest. The scale is a reliable and valid one. The authors reported a reliability coefficient of 0.69 ($p < .01$) for mixed group, 0.67 ($p < .01$) for males and 0.78 ($p < .01$) for females' sample. The validity coefficient was 0.75 ($p < .01$).

ii. Self-Efficacy Questionnaire - (Muris, 2001)

Self-Efficacy Questionnaire is a self-reporting scale that purports to measure adolescents' beliefs about their competencies in social, academic, and emotional domains. These three domains are as under:

Academic Self-efficacy refers to beliefs regarding academic competence i.e. ability to succeed in academics and display appropriate learning behaviours. Social Self-efficacy involves beliefs regarding competence

in developing and maintaining social relationships i.e. ability to relate and get along with other peers. Emotional Self-efficacy refers beliefs regarding competence in controlling negative emotions i.e. ability to regulate unpleasant emotions.

The questionnaire is composed of 24 items. The three subscales, each contains eight items, in which participants rate their competence level on a 5-point Likert-type scale (1 = not at all to 5 = very well). Scores are summed to yield a measure of self-efficacy for each domain. The internal consistency reliability of the questionnaire appeared to be satisfactory as the author reported Cronbach's alpha coefficient as 0.88 for the total self-efficacy score and between 0.85 and 0.88 for the subscale scores.

iii. Perceived Competence Scale – (Pintrich and De Groot, 1990)

Perceived Competence Questionnaire is an 8-item 5-point Likert scale adapted from a subscale in the Motivated Learning Strategy Questionnaire (MSLQ) (Pintrich and De Groot, 1990). The Perceived Competence Questionnaire assesses students' perceptions of their ability to learn in the particular course they are taking. The items comprising this scale assess two aspects of expectancy: Expectancy for success and Self-efficacy. Expectancy for success refers to performance expectations, and relates specifically to task performance. The reliability coefficient of Perceived Competence Questionnaire has been reported to be 0.93.

Reliability of Psychological Measures

Before administering the above mentioned psychological measures, test-retest method was used to estimate the reliability of psychological measures. The retesting was done after fifteen days of first testing. For this purpose a mixed sample (both boys and girls, N=30) was taken. The reliability coefficients of both the measures have come out to be quite satisfactory and are given below in Table 1.

Table 1

Test-Retest Reliabilities for Various Variables Under Study

S.No.	Variables	Test-Retest Reliability
1	Academic Self-Efficacy	0.69**
2	Social Self-Efficacy	0.75**
3	Emotional Self-Efficacy	0.69**
4	Perceived Competence	0.72**

***Significant at 0.01 level*

Self-Efficacy Questionnaire indicated high test-retest reliability as reliability

coefficients of its dimensions range from 0.69 to 0.75. Perceived Competence Scale also shows high test-retest reliability, as its reliability coefficient is 0.72. Hence, we can say that both the instruments are psychometrically sound enough to be used for research purposes.

RESULTS AND DISCUSSION

The present study is aimed at studying the relationship between the self - beliefs and achievement motivation among engineering students, hence, Pearson product moment correlation was applied to analyse the relationship between the variables under study. Table 2 shows the inter-correlations of various variables taken in the study with achievement motivation among both boys and girls.

Table 2
Correlation Between Variables under Study with Achievement Motivation for the Engineering Students.

S. No.	Variables	Achievement Motivation	
		Boys	Girls
1	Academic Self-Efficacy	0.43**	0.37**
2	Social Self-Efficacy	0.21**	0.39**
3	Emotional Self-Efficacy	0.08	0.33**
4	Perceived Competence	0.27**	0.30**

***Value significant at 0.01 level (Boys, N=305; Girls, N=254)*

The correlation patterns revealed that two dimensions of Self-Efficacy i.e. Academic Self-Efficacy, Social Self-Efficacy were found to be positively correlated with achievement motivation among boys pursuing engineering courses. Whereas, all three the dimensions of Self-efficacy i.e. Social-efficacy, Academic-efficacy and Emotional-efficacy were found to be positively correlated with achievement motivation among girls pursuing engineering courses. Further, Perceived Competence has been found to be significantly related to achievement motivation among both boys and girls.

The first objective was to study the relationship between self-efficacy and achievement motivation. The results highlight that the various dimensions of self-efficacy were found to be significantly correlated with achievement motivation amongst both boys and girls enrolled in engineering courses. Table 2 reveals that both boys and girls, who scored high on academic efficacy, were

high in achievement motivation. This means that the students having beliefs regarding their ability to succeed in academic activities had high achievement motivation than those who lacked these beliefs regarding their academic competence. Thus, the students having confidence in their academic competence displayed appropriate learning behaviours; hence exhibited high achievement motivation in their academic pursuits.

Further, Table 2 reveals that social efficacy was found to be positively correlated with achievement motivation among these students. This implies that the students, who possessed the ability to relate and get along with peers, used to develop and maintain social relationships, had high achievement motivation in comparison to their counterparts, who lacked this social competence. Thus, beliefs regarding the competence in developing and maintaining social relationships were also related to their achievement motivation. In a longitudinal study, Ladd (1990) also found that pupils, who were able to make more new friends in the school, were also those who scored better in a standardized achievement tests. Wentzel (1999) also reported a positive association between the quality of students' peer relationship and school performance.

The results shown in table 2 highlight that beliefs of girls about their competencies in emotional domain were positively related to their achievement motivation. Thus the girls possessing the ability to regulate unpleasant emotions also had high achievement motivation. Hence, self-efficacy had been found to be a significant correlate of achievement motivation among girls.

The second objective was to study the relationship between perceived competence and achievement motivation, Table 2 reveals that perceived competence was positively correlated with achievement motivation among both boys and girls. This implies that the engineering students, who perceived themselves capable of learning, the particular engineering course, they had opted for, possessed high achievement motivation. Thus the students, who perceived themselves capable of learning and understanding engineering concepts, had higher achievement motivation than those students, who lacked such self-confidence. Pajares and Graham (1999) also reported in their research findings, that students' task specific self-efficacy was the only motivation variable to predict performance. Research has documented the role of perceived academic competence as an important correlate, if not determinant of academic achievement (Valentine et al., 2004).

CONCLUSION

The present study analysed the role of self-beliefs in relation to achievement motivation among engineering students. On the basis of analysis of data, it has been concluded that in case of boys, self-beliefs of learning engineering subjects and their ability of nurturing social ties with others correlate significantly with their achievement motivation. In case of girls, the learning competence, ability of going well along with others in society and emotional serenity contribute towards their high need for achievement. Thus, self-beliefs play a significant role in determining achievement motivation among engineering students.

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