

Self-Efficacy of Prospective Teachers in Relation to Gender and Academic Achievement

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Abstract:

Perceived self-efficacy is a significant determinant of performance that operates partially independently of underlying skills. It involves a generative capability in which one must organize cognitive, social and behavior skills into integrated courses of action. Over 501 secondary prospective teachers (B.Ed. students) from eight private B.Ed. Institutions of Himachal Pradesh were selected using simple random sampling. The instrument used in this study is Hindi version of Swarzer's General Self-Efficacy Scale which was adapted by the researchers. Results indicated that male prospective teachers were having higher level of self-efficacy than their counterpart female prospective teachers. Also, there was no significant difference in self-efficacy of high and average achieving groups but there existed significant differences in self-efficacy among high & low and average & low groups of prospective teachers. Further, prospective teachers with high academic achievement had significantly higher level of self-efficacy than low achievement group and average achievers were also significantly higher on self-efficacy than low achievers.

Key words: prospective teachers, self-efficacy, Bandura, judgment, social cognitive theory

Introduction

Derived from social cognitive theory, the construct of self-efficacy has been introduced by Bandura (1977). Self-efficacy perceptions are nothing but judgments regarding one's capability to successfully perform specific tasks and behaviors or an estimate of one's capacity to deal with any particular task. Bandura (1986) defined it as "People's judgments of their capabilities to organize and executive courses of action required to attain designated types of performances." It is concerned not with the skills one has but with judgments of what one can do with whatever skills one possesses. Thus perceived self-efficacy is a significant determinant of performance that operates partially independently of underlying skills. It involves a generative capability in which one must organize cognitive, social and behavior skills into integrated courses of action. Some time back Kanfer (1990) referred to it as complex cognitive judgments about one's future capabilities to organize and execute activities requisite for goal attainment. Earlier Meyer and Gellatly (1988) summarized it as a generalized belief concerning one's task relevant capabilities. Self-efficacious individuals consider themselves capable of performing any particular activity. It, therefore, partly determines people's actions, their decisions to engage in a task, to put forth effort and to persevere under failure. Moreover it affects thought patterns and how much stress people experience in the environment (e.g., Bandura, 1989). The three significant aspects of self-efficacy which have been aptly put forth by Gist and Mitchell (1992), are firstly, it involves a comprehensive summary or judgment of one's perceived capability for performing a specific task and the information that is used in the formation of this judgment comes from the individual himself, the task, as well as others in the organization. Secondly one must be motivate enough to form this judgement, thus self-efficacy also involves a motivational component.

Finally, self-efficacy is dynamic by nature and is changing all the time especially because one is undergoing new experiences as well as acquiring information and the dynamism of this construct becomes more profound with training.

Bandura (1986) argues that self-efficacy operates in several different ways as a mediator between individual knowledge, skills and beliefs and individual thoughts and actions. First it influences individual's decisions regarding choices of activities, tasks and social situations. Second, self-efficacy is related to how much effort individuals will extend and how long they will persist in the face of obstacles or aversive experiences. Third, self-efficacy influences how individuals think about and react emotionally to others and to their environments. At the individual classroom level teachers might find the scale useful for action research purposes. Suppose, for instance, that a teacher is attempting to understand more about how to motivate underachieving students. Student efficacy data might provide valuable clues about how individual students perceive their talents and/or the outcome expectancies associated with effort. This insight could serve to inform the teacher's instruction. A teacher might respond very differently with a child whose beliefs in his talent is low as opposed to the child whose talent beliefs are high but is underachieving for some other reason, boredom, perhaps.

Bandura (1986) argued that self-efficacy is related to gender role- playing because it is a key motivational factor that underpinned gender behavior. Some researchers reported no significance difference between males and females on self-efficacy (Busch, 1995; Pajares, 1996; Fouad and Smith, 1996; Middleton and Midgley, 1997; Pajares and Miller 1999; Pajares and Valiante, 1999). But some other researchers reported that males had higher self-efficacy than female (Matsui et al., 1988; Junge and Drentzke, 1995; Wigfield et al., 1996; Grainor and Lent, 1998; Fernandez-Ballesteros et al., 2002). On the other hand, Matsui et al., (1988) also reported that females reported

higher self-efficacy in female-dominated occupations. However, some researchers found significance difference between males & females but did not provide the direction of the difference. (Hackett, 1985; Phyllis and Philip, 1985). Attempts have also been made to examine the self-efficacy in relation to academic achievement. Some researchers (Marsh et al., 1991; Chapman and Tunner, 1995) found strong and direct effect of academic achievement on self-efficacy. While some researchers (Berman et al., 1977; Schunk, 1981, 1982; Collins, 1982; Lent et al., 1984, 1986; Multon, Brown and Lent, 1991; Pajares and Johnson, 1996) reported positive effect of self-efficacy on achievement. A number of researchers (Pajares and Johnson, 1994; Chemer, Hu and Garcia, 2000; Pietsch, Walker and Chapman, 2002) concluded that self-efficacy and academic achievement were strongly correlated. Pajares and Kranzler, 1995 found that self-efficacy was the stronger predictor of academic achievement and Zimmerman et.al., 1992 concluded that self-efficacy influenced academic achievement directly and indirectly.

Objectives of the Study

The following objectives were formulated to pursue in the present study:

1. To study the self-efficacy of prospective teachers in relation to gender.
2. To study self-efficacy of prospective teachers in relation to academic achievement.
3. To study interaction effect of gender and academic achievement with regard to self-efficacy of prospective teachers in relation to.

Hypotheses

The following non-directional hypotheses were tested in the present study:

1. There will be significant difference in self-efficacy of male and female prospective teachers.
2. There will be significant difference in self-efficacy of prospective teachers with high, average and low academic achievement.
3. There will be significant interaction between gender and academic achievement with regard to self-efficacy of prospective teachers.

Methodology

Sample

The initial sample for the study comprised 501 secondary prospective teachers (B.Ed. students) from eight private B.Ed. Institutions of Himachal Pradesh. These subjects were of both the gender and from both the streams science and arts. First of all institutions were selected as per convenience. Thereafter, two sections from each of the institutions were taken randomly.

Tool Used

Prospective teacher's self-efficacy was assessed through Hindi Adapted version of Swarzer's General Self-Efficacy Scale. The German version of this scale contained originally 20 items and was later reduced to 10 items (Jerusalem and Schwarzer, 1986, 1992). It has been used in numerous research projects, where it typically yielded co-efficient of internal consistency between alpha 0.75 and 0.79. The coefficient of internal consistency for 10 items scale, estimated by Cronbach's alpha was 0.91 (which is very high). Concurrent Validity and Test-Retest Reliability Indices of Hindi Version of General Self-Efficacy Scale were .708 and .703 respectively.

Procedure

In the Present study, survey method under descriptive research was employed as the purpose of the study was to simply find out the main and interaction effect of gender and academic achievement with regard to self-efficacy of prospective teachers without any rigorous control and manipulation of independent variables.

Classification of Subjects

Subjects were classified according to levels of academic achievements by using $M \pm SD$ formula. Those who scored $M + SD$ or above were identified as high achievers and those who scored $M - SD$ or below were designated as low achievers. Rests of the subjects were regarded as average achievers.

Statistical Techniques Used

Two-way ANOVA and 't'-test were used in the present investigation for analysis of the data.

Analysis and Interpretation of Data

Table 1 (a,b,c) presents the details of the analysis and interpretation of the main and interaction effects of gender and academic achievement of prospective teachers on self-efficacy. In order to ascertain the main and interaction effects of gender and academic achievement on self-efficacy, two-way ANOVA, means and t-tests were computed. The summary of the same have been provided in Tables 1 (a), 1 (b) and 1 (c) respectively.

Table 1 (a) Summary of Two-Way ANOVA for the Scores of Self-efficacy of Prospective Teachers

Source of variation	SS	df	MS	F-ratio
Factor A (Gender)	190.14	1	190.14	14.30 **
Factor B ((Academic	134.54	2	67.27	5.06*

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Achievement)				
Interaction (A X B)	5.41	2	2.71	0.20 NS
Within Groups	2314.23	174	13.30	
Between Groups	330.09			
otal	2644.32	179		

** = Significant at .01 level, * = Significant at .05 level, NS= Not significant at .05 level

Table 1 (b) Means and S.Ds of Self-Efficacy Scores of Various Groups Formed by Gender and Academic Achievement

Gender (A)	Academic Achievement			
	High (B1) N=30	Average (B2) N=30	Low (B3) N=30	Total (N=90)
Male (A1)	M= 33.70, SD= 2.42	M=32.97, SD=4.21	M=31.93, SD=3.87	M=32.87, SD=3.62
Female(A2)	M=32.13, SD=4.08	M=30.63, SD=4.20	M=29.67, SD=2.61	M=30.81, SD=3.82
Total N= 60	M=32.92, SD=3.42	M=31.08, SD=4.33	M=30.80, SD=3.47	M=31.84, SD=3.84

It is evident from table 1(a) that F-ratio comparing self-efficacy of male and female prospective teachers came out to be 14.30 which is significant at .01 level of confidence with dfs 1 and 174. It indicates that main effect for factor A (gender) was highly significant on self-efficacy of prospective teachers. It further means that male and female prospective teachers differed significantly with regard to their self-efficacy. Hence research hypothesis related to significant differences in self-efficacy of male and female prospective teachers was accepted. It may be seen from table 1(b) that male group had mean score as 32.87 and S.D. = 3.62 and female group had mean score as 30.81 and S.D. = 3.82. Hence the male group had greater mean score than female group on self-efficacy. Alternatively it may be said that male prospective teachers were having higher level of self-efficacy than their counterpart female prospective teachers.

Table 1(a) further exhibits that the second F-ratio (5.06) came out to be significant (at .05 level with dfs 2 and 174). This suggests that achievement had significant effect on self-efficacy

of prospective teachers. Hence the research hypothesis concerning to significant differences in self-efficacy of high, average and low achieving prospective teachers was accepted. Table 1(b) discloses that high achievement group, average achievement group and low achievement group had mean score as 32.92, 31.08 and 30.8 respectively. Since F-ratio does not indicate the exact source of difference between two means, t-tests were performed on self-efficacy and the obtained results have been provided in table 1 (c).

Table (c) 't' Values Showing Significance of Difference in Mean Scores of Self-efficacy in respect of High, Average and Low Achieving Prospective Teachers.

Group (Gp)	Comparison Groups	't'- value
High Achievers N=60, M=32.92, SD= 3.42	Gp1 vs Gp2	0.32 NS
Average Achievers N=60, M= 31.08, SD= 4.33	Gp1 vs Gp3	4.25 **
Low Achievers N=60, M= 30.80, SD=3.47	Gp2 vs Gp3	4.24 **

** = Significant at .01 level, * = Significant at .05 level, NS = Not significant at .05 level

It may be observed in table 1 (c) that the first 't' value of .32 was found to be non-significant with df 118. From this it was concluded that there was no significant difference in self-efficacy of high and average achieving groups. Table 1 (c) further shows that 't' value 4.25 was significant at .01 level of significance. It means that mean of high achieving group (32.92) was greater than the mean of low achieving group (30.8), from this it may be said that prospective teachers with high academic achievement had higher level of self-efficacy than low achievement group. The third 't' value (4.24) was also emerged as significant at .01 level of confidence with df 118. It means that average and low achieving groups differed significantly on self-efficacy. Since the greater mean (31.08) was found for average achieving group. It may be stated that

average achievers were significantly higher on self-efficacy than low achievers.

Further, Table 1 (a) shows that F-ratio (.20) for interaction of AXB factor was not significant with dfs 2 & 174. This suggests that gender and academic achievement did not interact with reference to self-efficacy of prospective teachers. It means that difference in the mean scores of general self-efficacy of male (A1) and female (A2) prospective teachers did not vary significantly for three levels of achievements i.e. high (B1) average (B2) and low (B3). Alternatively it may be said that difference in the mean scores of self-efficacy of prospective teachers with high, average and low achievement was the same for both the gender i.e. male (A1) and female (A2). Hence it may be stated that research hypothesis of significant interaction was not accepted.

Discussion of the Results

The findings of the study showed that male prospective teachers had significantly higher level of self-efficacy than female prospective teachers. This result is in consistency with the previous research (Matsui et al., 1988; Junge and Drentzke, 1995; Wigfield et al. 1996; Grainor and Lent, 1998; Fernandez-Ballesteros et al. 2002). In India, males get more support in the family, therefore they remain in advantageous position and consequently develop more confidence in themselves as compared to females. Therefore, in view of the sex roles in Indian set up, the findings of the present study may be reconciled. Further, prospective teachers with high level of academic achievement were found to have higher level of self-efficacy than their counterparts with low level of academic achievement. This findings is also in agreement with several studies conducted in western countries (Marsh et al. 1991; Chapman and Turner, 1995). These extend strong and direct effect of academic achievement on self-efficacy of students. The

studies carried out by Berman et al. 1977; Shunk, 1981, 1982; Collins, 1982; Lent et al. 1984, 1986; Multan Brown and Lent, 1991, Pajares and Johnson, 1996; showed significant effect of self-efficacy on achievement of students. These also give indirect support to the finding of the present study. This relationship between self-efficacy and academic achievement is understandable. If self-efficacy enhances the level of academic performances of the students. It is also likely that enhanced academic performance in turn results into higher level of self-efficacy of the students. Hence the results obtained in this context are logical. Another finding yielded non-significant interaction between gender and academic achievement with reference to self-efficacy of prospective teachers. No empirical support for the above results could be traced in the related literature.

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