



Comparative Analysis of Self-Efficacy and Students Scholastic Performance across Streams

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Abstract

Self-efficacy is considered as the belief and confidence of students towards their efforts for achieving success and high scholastic performance during their academic pursuits. The present study was undertaken to assess the self-efficacy and scholastic performance of the students pertaining to the high school male students in the province of Khyber Pakhtunkhwa, Pakistan. The main objective of the study was to compare the self-efficacy and scholastic performance of the students across various streams. A total of 5 out of the 17 Government Higher Secondary Schools for Boys located in Nowshera, Khyber Pakhtunkhwa covered the study population. The data was collected from 488 students with the help of a 19 items self-efficacy questionnaire. The data was analyzed applying t-test by using Statistical Package for Social Sciences (SPSS-17). The study results revealed a significant difference between self-efficacy and scholastic performances of the students across various streams. The study contributes significantly towards understanding the exact nature of relationship between the self-efficacy and scholastic performance. Recommendations have been made to enhance self-efficacy for students' motivation and success in their career. Further, it has been suggested to arrange different type of activities like competition program and expert lectures for awareness and boosting self-efficacy of students to enhance their performance.

Keywords: Efficacy, Self-efficacy, Scholastic, Performance, Student, Attribution

INTRODUCTION

Self-efficacy is the one's belief that he/she has the power to produce desired result by carrying out a given task or activity according to the competency. Self-efficacy is a person's perception of their capability to achieve the set objectives/ aims. It is a confidence about one's own abilities to perform certain tasks in a certain manner to attain goals. It refers to the expectancy that one can master a situation and produce a confident conclusion (Bandura, 2012).

Self-efficacy may be defined as a person's personal opinion or self-perception of performance capabilities based on prior outcomes, attributions, ability, present circumstances, perceived similarity, effort required and persuader credibility. The importance of student characteristics is to impress upon the teacher that a student entering a classroom is not a "new" student but one with a history of experiences with learning. Experiences are based upon previous experiences and follow the expectancy principle (Schunk, 1995).

Goal setting plays an important part in efficacy theory and involves comparing present outcomes with desired standards realistically. Progress towards specific, proximal goals of moderate difficulty is seen as being able to increase a student's self-efficacy. Metaphorically, these explicit goals are set to give students a bright light to walk towards which is not too far away and over ground with stable footing (Khan, 2001).

According to theories and researches related to self-efficacy, self-efficacy expectancy makes a difference in how people feel (affection), think (cognition) and act (motivation and behaviour). In terms of affection, a low sense of self-efficacy is associated with depression, anxiety and helplessness. Such individuals also have low self-esteem and harbour pessimistic thoughts about their accomplishments and personal development. In terms of cognition, a strong sense of competence facilitates cognitive processes in a variety of settings including quality of decision-making and academic achievement. Lastly, in terms of preparing action, self-related cognition is a major ingredient of the motivation process. Self-efficacy levels can enhance or impede motivation (Bandura 1995).

Khan (2001) conducted a research on self-efficacy to observe the effects of self-efficacy on the scholastic performance of the students. However, his research focused mainly on the area of science subjects. The outcome of the study showed that there was a positive correlation between self-efficacy



and the score of the learners in science subjects. The results of his research concluded that self-efficacy had a significant effect on the scholastic performance of the students. These findings also suggest that there is no difference on gender basis. In short, from this study it is also clear that self-efficacy plays a key role in the scholastic performance of learners.

Effect of Motivation on Self-efficacy

Motivation is a desire or aversion (wants to do something, or want to evade something). External or objective aspect of motivation is a goal or thing you desire to – and an internal or subjective aspect of motivation is that it is you who desire the thing or wants it to let it go. Minimally, motivation needs the natural substrate for pleasure and pain sense. Motivation moves on to include the ability to make and generalize concepts which enable humans to exceed this minimum state with the greater range of needs and aversions (Motivation, 2020).

Self-efficacy and Attribution

Self-efficacy also seems to be related to attribution. People with a strong sense of self-efficacy for a given task attribute their failures to lack of effort. People with a low sense of self-efficacy tend to attribute their failures to lack of ability. If a student held in entity view and low sense of self-efficacy, motivation would be destroyed when failures were attributed to lack of ability (Bandura, 1997).

Ability feedback had a stronger effect on self-efficacy and performance (Schunk, 1983). Skill training and attribution feedback role are mediated by Self-efficacy and had a direct effect on learned helpless graders performance. Attribution feedback displayed a moderate effect on students' performance and a stronger indirect effect arbitrated by self-efficacy (Relich, Debus, & Walker, 1986).

Students with similar previous performance attainments and cognitive skills may differ in subsequent performance as a result of different self-efficacy perceptions because these perceptions mediated between prior attainments and academic performances. As a consequence, such performances are generally better predicted by self-efficacy than by the prior attainments. Schunk (1991) suggested that variables such as perceived control, outcome expectations, perceived value of outcomes, attribution, goals and self-concept may provide a type of cue used by individuals to assess their efficacy beliefs.

Developmental Perspective of Self-efficacy Belief

Sensitivity to context of self-efficacy belief makes it an ideal vehicle for the exploration of differences in perception of competence as a function of developmental factors. The competence perception always has different meaning at different time in the life of individual (Wighfield & Karpathian, 1991).

Nicholls (1984) suggested that young and the children have the tendency to see efforts and ability as complementary; but when they join the school and they grow in age. Such things become contradictory. When a person or a learner understand in a right way that how to develop the academic self-efficacy belief, schooling influence and the developmental factors which make contribution to the change in self-efficacy will definitely require the longitudinal investigation which assess self-efficacy with allegiance to the theoretical guidelines. For the better and right improvements, it is required to know about the different factors that how students use efficacy at various ages and school level. Even, it will be better to know that how they use it at different grades. (Nicholls & Miller, 1984).

Method

A total of 5 out of the 17 schools participated in this research. To address study objectives and to draw comparison between Grade XI students of different streams studying at Government Higher Secondary Schools, a purposive sampling technique was applied. Total students were 488 in which 92,92,63,243 were studying in Pre-Medical, Pre-Engineering, Computer Science and Humanities group respectively. The students belonged to different social backgrounds and diverse abilities.

Departmental Board of Studies gives approval for the research after making review by the concerned supervisor. After this Board of Advanced Study and Research (BASAR) also approved, and the permission was given to conduct the present research. After proper approval the students were approached for the collection of data.



Adapted questionnaire of 19 items developed by Khan(2001) was validated by the field expert. For the purpose to check the reliability of questionnaire, 44 students took part in the pilot testing. Reliability factor obtained through Cronbach Alpha test was within good limits (0.842) . Before filling the questionnaire purpose of the study and code of ethics were explained to the students. They were also given freedom for withdrawal at any time they desire. The cut off score for the questionnaire was 9.5.

After collection of the data, it was tabulated and compiled. Marking standards were set for the questionnaire. The notation 00 was given to the incorrect and 01 to the correct answer. T-test was applied to make analysis of the data. The Z-test was used to check the significance (P-Values) as this provides criteria for the rejection or acceptance of a hypothesis. Statistical package for Social Sciences 22 was used for data analysis purpose.

Results and Discussion

Table 1: Significant difference in mean scores of Pre-Medical Grade XI students of GHSS A, B , C and E on self-efficacy

Group	School	t vale	p vale
-			
Pre- Medical	GHSS A and B	.79	.43
Pre- Medical	GHSS A and B	1.60	.11
Pre- Medical	GHSS A and B	-2.76	.00
Pre- Medical	GHSS A and B	2.96	.00
Pre- Medical	GHSS A and B	-2.39	.02
Pre- Medical	GHSS A and B	-5.89	.00
Pre- Medical	GHSS A and B	.08	.93
Pre- Medical	GHSS A and B	.36	.71
Pre- Medical	GHSS A and B	.43	.66
-			

The independent-samples test was applied to investigate the difference between mean scores of pre-medical students of GHSS A,B and C on self-efficacy. The value of Levine’s Test of Equality (GHSS A & B = .00 and GHSS A & C = .00) showed that equal variances were not assumed. Students of GHSS A, GHSS B and GHSS C have same self-efficacy. The results show statistical non-significant difference between self-efficacy scores of GHSS A and B $t(41.72) = .79, p = .43$; and GHSS A and C $t(38.70) = 1.60, p = .11$, therefore, the null hypothesis was accepted.

The independent-samples test was applied to investigate the difference between mean scores of pre-medical students of GHSS A and GHSS E on self-efficacy. The value of Levine’s Test of Equality (GHSS A & E= .00) showed that equal variances were not assumed. Students of GHSS E have higher self-efficacy than the students of GHSS A. The results show statistical significant difference between the self- efficacy scores of GHSS Shidu and Keshgipayan $t(36.23) = -2.76, p = .00$, therefore, the null hypothesis was rejected.



The independent-samples test was applied to investigate the difference between mean scores of pre-medical students of GHSS B, C and E on self-efficacy. The value of Levene's Test of Equality (GHSS B and C = .56; GHSS B and E = .20 and GHSS C and E = .45) showed that equal variances were assumed. Students of GHSS B and GHSS E have higher self-efficacy than the students of GHSS C. The results show statistical significant difference between the self- efficacy scores of GHSS B and C $t(44) = 2.96, p = .005$, GHSS B and E $t(45) = -2.39, p = .02$ and GHSS C and E $t(41) = -5.89, p = .00$, therefore, the null hypothesis was rejected.

The independent-samples test was applied to investigate the difference between mean scores of Pre-Medical students of GHSS A, B and C on self-efficacy. The value of Levine's Test of Equality (GHSS A & B = .48; GHSS A & C = .35 and GHSS B & C=.06) showed that equal variances were assumed. Students of GHSS A, GHSS B and GHSS C have same self-efficacy. The results show statistical non-significant

Table 2: Significant difference in mean scores of Pre-Medical Grade XI students of GHSS A, B , C and E on self-efficacy

Group	School	<i>t</i> vale	p vale
Pre- Engineering	GHSS A and E	-3.96	.00
Pre- Engineering	GHSS B and E	-3.15	.00
Pre- Engineering	GHSS C and E	-6.41	.00

The independent-samples test was applied to investigate the difference between mean scores of Pre-Engineering students of GHSS A, B, C and E self-efficacy. The value of Levine's Test of Equality (GHSS A & E = .033, GHSS B & E = .003 and GHSS C & E= .024) showed that equal variances were not assumed. Students of GHSS E have higher self-efficacy than the students of GHSS A, GHSS B and GHSS C. The results show statistical significant difference between the self- efficacy scores of GHSS A and E $t(30.822) = -3.96, p = .00$, GHSS B and E $t(21.00) = -3.15, p = .005$ and GHSS C and E $t(47.10) = -6.41, p = .00$, therefore, the null hypothesis was rejected.

Table 3: Significant difference in mean scores of Pre-Medical Grade XI students of GHSS A, B , C and E on self-efficacy

Group	School	<i>t</i> vale	p vale
Pre- Medical	GHSS A and B	-9.08	.00
Pre- Medical	GHSS B and C	-5.0	.00
Pre- Medical	GHSS A and C	1.56	.12
Pre- Medical	GHSS A and E	-1.86	.06
Pre- Medical	GHSS A and D	-5.53	.00
Pre- Medical	GHSS B and C	-18.86	.00
Pre- Medical	GHSS B and E	-14.25	.00

The independent-samples test was applied to investigate the difference between mean scores of humanities students of GHSS A, B and C on self-efficacy. The value of Levine's Test of Equality (GHSS A & B



= .11; and GHSS B & C $2 = .87$) showed that equal variances were assumed. Students of GHSS A and GHSS C have higher self-efficacy than the students of GHSS B. The results show statistical significant difference between the self- efficacy scores of GHSS A and B $t (114) = -9.08, p = .00$ and GHSS B and C $t (74) = -5.00, p = .00$, therefore, the null hypothesis was rejected.

Similarly the independent-samples test was applied to investigate the difference between mean scores of humanities students of GHSS A and C on self-efficacy. The value of Levine’s Test of Equality (GHSS A & C $2 = .39$) showed that equal variances were assumed. Students of GHSS A and GHSS C have same self-efficacy. The results show statistical non-significant difference between the self- efficacy scores of GHSS A and C $t (76) = 1.56, p = .12$, therefore, the null hypothesis was accepted.

After independent-samples test was applied to investigate the difference between mean scores of humanities students of GHSS A and E on self-efficacy. The value of Levene’s Test of Equality (GHSS A & E = .00) showed that equal variances were not assumed. Students of GHSS A and GHSS E have same self-efficacy. The results show statistical non-significant difference between the self- efficacy scores of GHSS A and E $t (85.67) = -1.86, p = .06$, therefore, the null hypothesis was accepted.

The independent-samples test was applied to investigate the difference between mean scores of Pre-Engineering students of GHSS A, B, C, D and E on self-efficacy. The value of Levene’s Test of Equality (GHSS A & D = .00, GHSS B & D = .00, GHSS B & E = .00, GHSS C & D = .00, GHSS C & E = .01 and GHSS D & E = .00) showed that equal variances were not assumed. Students of GHSS A, GHSS C, GHSS D and GHSS E have higher self-efficacy than the students of GHSS B. The results show statistical significant difference between the self- efficacy scores of GHSS A and D $t (75.22) = -5.53, p = .00$, GHSS B and D $t (91.77) = -18.86, p = .00$, GHSS B and E $t (91.77) = -14.25, p = .000$, GHSS C and D $t (20.26) = -5.26, p = .00$, GHSS C and E $t (21.17) = -2.97, p = .00$ and GHSS D and E $t (91.52) = 6.05, p = .00$, therefore, the null hypothesis was rejected.

Table 4: Significant difference in mean scores of Grade XI students of GHSS B and D on scholastic performance of computer science group

Group	School	<i>t</i> vale	<i>p</i> vale
Computer Science	GHSS B and D	2.09	.04

The independent-samples test was applied to investigate the difference between mean scores of GHSS Khairabad and Pirpayan students on scholastic performance. The value of Levine’s Test of Equality (GHSS Khairabad & Pirpayan = .79) showed that equal variances were assumed. Students of GHSS Khairabad (M = 659.05, SD = 72.37) have higher self-efficacy than students of GHSS Pirpayan (M = 621.78, SD = 67.16). The results show statistical significant difference between the scholastic performance scores of GHSS Khairabad and Pirpayan $t (61) = 2.09, p = .04$, therefore, the null hypothesis was rejected.

It shows that results obtained from Table1, Table 2, and Table 3 are aligned with Pavani and Agrawal (2015) steered a study of self-efficacy and academic attainment among college students. On the basis of obtained results, it is clear that there is a difference in the academic achievement of the students. Results showed that high self-efficacious students have high academic achievement.

Triantoro and Ahmad (2013) explored effects of self-efficacy on students’ academic performance. Study shows that pupils with higher level of self-efficacy contribute to higher goals as compare to the students with low level of self-efficacy; students with higher level of self-efficacy will be able to face the complex situation and to work in a stress as relate to the pupils with low S.E as they will be unable to do the same.

The study showed accordance with Aslam and Ali (2017), Pavani and Agrawal (2015), and Triantoro and Ahmad (2013) who discuss effects of S.E. on students’ scholastic performance. They found that pupils with higher level of S.E. contribute to higher goals as compare to the students with low level of S.E; students with higher level of S.E. will be able to face the complex situation and to work in a stress as relate to the pupils with low self-efficacy as they will be unable to do the same. Difference in the academic achievement of the students having high and low level of S.E. exists in accordance of their scholastic



performance. Results showed that high self-efficacious pupils have high academic achievement and vice versa.

Humans are different in their abilities and thinking styles, so some of the grade XI students of the schools exhibit self-efficacy. The school officials should make the effort to improve their self-efficacy for their success in life. The official should invite experts to deliver lectures on self-efficacy. Acceptable scholastic performance is based upon student progress toward successful course and program completion. The quality of education depicts from students' performance in the classroom. Their scholastic performance shows that how much they are capable to lead a successful life. Some of the grade XI students show optimum achievement in final examination. This may be due to their mastery over subject matter which may be more enhanced by taking into account their concern about subjects. To boost their motivational level, there is a need to engage them in co-curricular activities e.g. arrange science competition, programming competition, educational visits, educational galas, book fairs and study tours in which they understand their potential to do something unique that ultimately affect their scholastic performance.

Intelligence is diverse in humans. Due to different intelligence level, students' scholastic performance varies. In order to tackle this situation, teachers should know their beliefs about their competencies to cope up the situation. To achieve this goal, teachers should focus on students-centered approaches to cater their abilities, capabilities and potentials to make them good and successful person.

Conclusion and Future Work

The present research was conducted to compare self-efficacy across streams. It is concluded that some of the students have same self-efficacy while others differed significantly in this domain depending upon their class levels. Recommendations have been made to cater the this problem. The future research may be conducted in Government Girls Higher Secondary Schools in other part of the country to see the difference of self-efficacy between boys and girls at the same level and its impact on their scholastic performance.

Declaration of Conflicting Research

The author declared that we have no conflict of interest regarding authorship, research.

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