Effects of Self-Efficacy on Students' Academic Performance

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Abstract

Earlier studies show an effect of self-efficacy on students' learning and achievement. Self-efficacy has operationally defined as one's belief that people can successfully perform a given task. The main purpose of the paper is to discuss how self-efficacy developed and the way it influences students' academic performance in addition to social interaction with peers. A scenario was given to Pakistani high school students by solving mathematical problems. Present study was designed to study the impact of self-efficacy on 15 boys, students of the 5th grade of a local school. Hague's (1990) Urdu Self-efficacy scale was administered. It was found that students with high self-efficacy obtained higher scores on 50 mathematical problems test. Further, content analysis of interviewees' responses showed that students with high self-efficacy planned to study complex subjects in future. A cross-cultural study is strongly recommended in this issue that determines the students' future.

Keywords: Self-efficacy, mathematical problems, Pakistani students, complex course.

Introduction

Students' career is a byproduct of many factors. One of the most important variables is students' self-efficacy. Social cognitive psychologists emphasized on the concept of one's believe in performing a task. It is operationally defined as one's believe to perform a given task and is able to achieve the goal (Bandura, 1982). Persons with high self-efficacy are able to plan effectively and successfully in completion of a task (Bandura, 1982). Such persons believe about their capacities and confidently apply them in such a way thatthey achieve goals even highly completed tasks. In contrast a person who avoids complicated tasks, unable to plan to achieve goals, and believe in his/her capacities to attain the goals are persons with low self-efficacy. High self-efficacy are those who understands their capacities and successfully plan their activities while persons with low self-efficacy unable to perform their assignment (Bandura, 1982).

Social cognitive psychologists highlighted the effectsof self-efficacy on students' learning and achievement of academic goals. Students with high self-efficacy are confident to understand a lesson, to solve educational problems, and to select most difficult courses (Zimmerman et.al, 1992). The Bandura (1982) found that students with high self-efficacy able to complete a complex task. They believe that they can understand

and solve a mathematic problem as compared to students with low self-efficacy (Schwarzer, 1992; Zajacova, Scott, Lynch, & Espenshade, 2005). Self-efficacy affects selection of courses and extra-curricular activities as well (Bandura, 1982; Zimmerman et. al; 1992). Students with high self-efficacy study most advanced fields (Zajacova, Scott, Lynch, & Espenshade, 2005; Luszczynska, & Gutierrez-Dona, 2005). It helps in selection of special (optional) courses.

Self-efficacy is a major component of Bandura's (1977, 1986) social-cognitive theory, which contends that behavior is strongly stimulated by self-influence. That self-efficacy belief is a vital personal resource has been amply documented in the meta-analyses of findings relating to different spheres of functioning, achieved under laboratory and natural conditions (Bandura, 2000). The construct of self-efficacy reflects an optimistic self-belief. This is the belief that one can perform novel or difficult tasks, or cope with adversity, in various domains of human functioning (Bandura, 1997b). It is clear that Bandura's view of self-efficacy relates to the explication of self-efficacy in specific domains, rather than a global sense of competence. In this study, the operational definition of self-efficacy is refers to the global view of one's coping abilities in a wide variety of situations and global person's belief in his or her ability to organize and execute the courses of action required to achieve specific goals.

Earlier researches show that efforts and persistence are one of the attributes of students with high self-efficacy (Zajacova, Lynch, & Espenshade, 2005). Such students continuously work, if unable to follow course, they find out effective ways to control difficulties in achieving their goals. While students with low self-efficacy will discontinue, they are unable to remove barriers in achieving and learning (Ormrod, 2000). Earlier researches (Pintrich & Schunk, 1996) found important role of memory. The cognitive component helps in learning and memory. Students with high self-efficacy are able to pay serious attention, organize, and elaborate material effectively through their cognitive aspect (Pintrich & Schunk, 1996; Zajacova, Scott, Lynch, & Espenshade, 2005; Heslin, & Klehe, 2006).

Self-efficacy is a learned process. Social cognitive psychologists (Bandura, 1989; Schunk, 1989) identified three factors in the development of high and low self-efficacy discussed below:

1. Students' earlier academic record

Students with poor grades in previous examinations develop low–self efficacy. Teachers are required to help them in in organizing cognitive components of learning and memory. In addition to teachers' guidance, such students recognize the importance of effort and persistence for learning and achieving a goal by developing resilient self-efficacy (Bandura, 1989). Teachers must provide difficult task to students which can be achieved with effort, and hard work (Ormrod, 2000). This is one of the effective cognitive processes to re-socialize students to achieve goals. It goes without saying that students whose previous academic results are excellent, teachers must further enhance high self-efficacy of such

students and one effective techniques is intrinsic motivation.

2. Teachers' message

Motivational messages of teachers in particular will develop students' self-efficacy. Teachers politely point out the drawbacks of the students' work. Over was helping behavior may have an adverse impact on students' confidence regarding performance of academic work. Frequent guidance and help of the teachers may develop students' negative attitude towards capacities and believe to learn and achieve is injured. It conveys the message that "I don't think you can do this on your own" (Schunk, 1989). In my opinion, the moderate helping behavior of the teacher will have a positive impact while frequent guidance and supporting behavior of teachers may develop students' dependency and feelings of worth less.

3. Success and failure of others

This is based on observational learning. Students observe the outputof their class fellows and convinced that when their class fellows can improve grades and learn lessons, they are also able to learn and understand the difficulty. Class fellows of same age are significant model to enhance greater high self-efficacy as compared to teachers (Schunk and Hanson, 1985). Peer models have greater impact on developing self-efficacy in particular observing those students who had difficulties at some stage; later on removing barriers in academic tasks. Observation plays a significant role to enhance self-efficacy. Students with low self-efficacy will avoid interaction with peers. Such students have difficulties in making friends. Interaction with class fellows also enhances self-efficacy.

In Pakistan by and large teachers' messages to their students is neutral, they mark stars on their school homework or class tests, a few of them uses derogatory sentences. Teachers of private schools generally follow to some extent principal's educational psychology. Private academies and home tuition very common practice in Pakistan. Keeping in view significance of self-efficacy it was planned to study effect of self-efficacy on academic achievement. On the basis of the above literature review, following hypotheses have been formulated:

Hypothesis 1

Research participants with high self-efficacy will secure higher grade on a test of subtraction as compared to research participants with low self-efficacy. In other words, subjects with high self-efficacy believe to solve a greater number of mathematical problems.

Hypothesis 2

Research participants with high self-efficacy will prefer complex courses than research participants with low self-efficacy. In other words, subjects with high self-efficacy will choose difficult courses of studies in the future.

Method

Sampling

Fifteen boys, students of the 5th grade of a local school randomly selected as research participants. All subjects belonged to middle class and residing with their parents. They were nominally paid after the experiment. Ten items of Hague's' (1990) test of self-efficacy in Urdu language was administered tosubjects. Seven subjects were assigned to high self-efficacy and eight subjects to low-efficacy group according to Hague s' scoring manual. Thus our sample constituted of fifteen research participants.

Instruments

Abdul Hague's Test: Ten items that measured high and low self-efficacy of 5th graders was used as discussed above. Abdul Hague's test has high internal consistency ($\alpha = .80$).

Test of Subtraction and Multiplication: Present author prepared 25 subtractions and 25 multiplication problems in such a way that it consisted of simple to complex problems.

Interview Schedule

Presenting author prepared open-ended questionnaire regarding choice of courses to be undertaken in future by the subjects.

Procedure

At the request of investigator, subjects' parents permitted their children to act as subjects of the present study. They were brought to the comfort room. The report was developed. Clear instructions were given to them and assured those that this work is not related to their examinations and school. Subjects were asked to solve 25 subtraction and 25 multiplication questions and write answers on the left margin of the question paper. There was no limit. An interview was held after the first session. They were asked to name those subjects which they would study in future. They were served with chocolates after completion of study. In order to eliminate any possible adverse effects they were debriefed. Investigator escorted them.

Discussion

Self-efficacy refers to the person's belief in his or her ability to organize and execute the courses of action required to achieve goals (Bandura, 1997). Bandura (1982) refers to self-efficacy as the individual's conviction of being able to master specific activities, situations or aspects of his or her own psychological and social functioning. It can be concluded that self-efficacy made person believe with their capability to overcome obstacle that hindering achievement their goal. They believe that they can reach their willingness, their dreams, and their goal in effective ways.

It has been argued that human accomplishments and positive well being require an optimistic sense of personal efficacy. This is because ordinary social realities are filled with difficulties, adversities, setbacks and frustrations. According to Schwarzer (1997), people need to have a

healthy sense of personal efficacy to sustain the perseverant effort needed to succeed. An affirmative sense of efficacy contributes to psychological well being as well as to performance accomplishments. Furthermore, a person who believes in being able to cause an event can carry out a more active and self-determined life course (Schwarzer, 1997). Judge (1997) views self-efficacy as a type of self-evaluation, specifically regarding how well one can perform across a variety of situations.

In present study we examined the effects of high and low self-efficacy on the academic achievement of our subjects. The result showed that there is a difference between means of the two groups with a p of less than 0.01, and then this finding rejected the null hypothesis. It shows individual with high self-efficacy believes to solve a greater number of mathematical problems. This study confirmed that there is a significant difference between means of a group with high self-efficacy and with low self-efficacy among subjects. On the basis of the results we support earlier studies as discussed elsewhere in this paper. Subjects with high self-efficacy had confidence to perform assigned work. They believed to accomplish experimental tasks more. Table 1 shows results concerning hypothesis number one.

It is obvious that self-efficacy makes a difference in how people feel, think and act (Bandura, 1997b). In terms of thinking, a strong sense of competence facilitates cognitive processes and performance in a variety of settings. In terms of feeling, a low sense of efficacy is associated with depression, anxiety and helplessness. Such individuals also have low self-esteem and harbor pessimistic thoughts about their accomplishments and personal development. As far as action is concerned, people experiencing a high level of self-efficacy may have a sense of enhanced motivation, enabling them to select tasks and to persevere with these.

Table 1
Effect of High and Low Self-Efficacyon Subtraction and Multiplication Problems

	Mean	t	p
High Self – efficacy subjects	6.86	4.48	< 0.01
Low Self – efficacy subjects	1		

Self-efficacy facilitates goal setting, effort investment, persistence in the face of barriers and recovery from setbacks. It can be regarded as a positive resistance resource factor. Perceived self-efficacy is an operative construct - i.e. it is related to subsequent behavior and, therefore, is relevant for clinical practice and behavior change (Bandura, 1997b). The construct of perceived self-efficacy reflects an optimistic self-belief. This is the belief that one can perform novel or difficult tasks, or cope with adversity, in various domains of human functioning (Bandura, 1997b). It is clear that Bandura's view of self-efficacy relates to the explication of self-efficacy in specific domains, rather than a global sense of competence.

Self-efficacy is also a much stronger predictor of how effectively people will perform a given task than either their self confidence or their self-esteem. A high degree of self-efficacy leads people to work hard and persist in the face of setbacks. In a dynamic work context, where ongoing learning and performance improvement is needed, high self-efficacy helps individuals to react less defensively when they receive negative feedback. In areas where their self-efficacy is low, people often see a negative outcome as confirming the incompetence they perceive in themselves. This can set up a vicious cycle, whereby ambiguous results are considered as evidence of perceived inability, further lowering an individual's self-efficacy, effort, and subsequent performance. When people have low self-efficacy, they also tend to blame either the situation or another person when things go wrong. Denial of any responsibility for poor performance inhibits the chance that an individual will learn how to perform more effectively in the future (Heslin, & Klehe, 2006).

Content analysis of interviewee's responses shows that subjects with high self-efficacy showed higher effort and persistence to achieve goals while subjects with low self-efficacy discontinued their work. Our observation of subjects' behavior also confirmed lack of interest in accomplishment by giving tasks by the subjects with low self- efficacy. Our study verifies social cognitive theorists. Our research participants with high self-efficacy planed to study difficult courses as compared to their counterparts. In Pakistan majority of parents compel their children in selection of courses. Our student support that parents' role in choosing courses is not significant. We are in a strong position to support the positive impact of high self-efficacy on academic issues. The summary ofthe results of hypothesis 2 was presented in Table 2.

Table 2
Effect of Self-efficacy on Choice of Research Participants' Courses

High self-efficacy (n=7)	Low-self efficacy (n=8)
Medical (n=4)	Medical (n=2)
Engineering (n=2)	Humanities (n=5)
Not decided (n = 1)	Not decided (n = 1)

Previous study confirmed that individual with self-efficacy has more ability to face stressful situation. Study by Friedman (2003) found teacher with higher self-efficacy has more hardiness when experience a burnout situation. This study concluded that perceived sense of self-efficacy was inversely correlated with perceived burnout: the lower the sense of self-efficacy, the higher the perceived burnout. Perceived sense of self-efficacy was inversely correlated with perceived burnout: the lower the sense of self-efficacy, the higher the perceived burnout. Self-efficacy beliefs are a key factor affecting burnout directly and indirectly. Individuals with a stronger sense of self-efficacy experience low stress in threatening or taxing situations, and experience situations as less stressful owing to their belief in their ability to cope (Bandura, 1997). It was documented that self-efficacy predicts the level

of stress and anxiety experienced and manifested in interpersonal transactions (Friedman, 2003). Individual with low sense of efficacy when exposure to chronic occupational stressors will increases vulnerability to burnout because they cannot manage job demands with pessimistic attitude (Schmitz, 2000).

Conclusion

This study confirmed that student with high self efficacy contribute to higher goal than student with low self-efficacy. Students with high self-efficacy believe that they can achieve higher grade on a test of subtraction as compared to research students with low self-efficacy. In other words, students with high self-efficacy believe to solve a greater number of mathematical problems. The other finding suggested that students with high self-efficacy will prefer complex courses than research participants with low self-efficacy. In other words, subjects with high self-efficacy will choose difficult courses of studies in the future. Based on research finding we recommend that for futurestudy it is needed larger sample for more robust result. Cross-cultural study will further benefit for external generalization. Parents and particularly teachers must understand their role in developing high self-efficacy among children. Both of them also keep an eye on children's peer group.

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