Relationship between Self–Efficacy and Academic Achievement among High–School Students

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Abstract

Identifying the contributory factors to academic achievement and prevention of academic failure has always been of crucial importance. The present research was carried out to investigate the relationship between self–efficacy and academic achievement. The statistical population included all the high–school students studying in Arak in the academic year ran from 2012 to 2013, out of which a sample of 430 students (230 females and 200 males) was selected through cluster multi–stage sampling. The research tool included General Self–Efficacy Scale designed by Sherer et al and the overall score degree as an indicator of academic achievement. Data were analyzed using t–test and Pearson correlation coefficient. Results indicated that there exists significant relationship between self–efficacy and academic achievement at 0.99. Moreover, male students were found to exhibit higher self–efficacy as compared to female students. However, female students scored higher on academic achievement as compared to male students. It can be concluded that students’ encouragement and support offered by teachers, classmates and significant others enhances the students’ self–efficacy. What’s more, acquainting them with successful people and introducing them as role models, providing the basis for experiencing success and achieving dominance over conditions can boost their self–efficacy.

Keywords: self–efficacy, academic achievement, high–school students.

Introduction

In the recent years, professionals and experts in the educational psychology have administered considerable studies in the realm of students’ academic achievement and its related variables, among which self–efficacy belief is considered as an invaluable and vital tool in celebrating the educational achievement (Alborzi and Seif, 2002; Kadivar, 2003; Hejazi and Naghsh, 2008). Bandura who is a social cognitive theorist contends that efficacy beliefs are the foundation of human agency (Pajares, 1997; Pintrich, Rosser, de Groo, 1994). Moreover, he asserts that self–efficacy acts like cognitive–motivational factor and takes an important role in perceiving the individual and gender differences in the sphere of educational performance (Bandura, 2001). Bandura (1986) believes that efficacy beliefs is people’s beliefs in their capability to exercise some measure of control over their own functioning and over environmental events that influence the type of activity people choose to engage in, the level of effort they spend, and their perseverance in the face of difficulties. In attaining self–efficacy, the individual needs to acquire and refine the requisite skills and improved motivation to do his tasks (Ferrari, 1991, cited in Pajares, 1996). People estimate and judge their own capabilities of organizing and executing various courses of action. Their behaviors will be heavily influenced by whether or not they perceive themselves as capable of attaining specific goals. In many situations, to successfully accomplish a desired outcome, a person needs to be convinced of his her effectiveness, strength, or power to do so.

Another highlighted concept in Bandura’s social–cognitive theory is the learning concept of self–regulation. Self–regulation is regarded as a multifaceted and constructive process that includes cognitive, motivational and behavioral components. Self–regulation is the process of production and direction of thoughts, emotions and behaviors by an individual in order to attain a specific goal (Santrock, 2004). From Boekaert’s (1999) viewpoint, the capabilities of self–regulation can be placed into three layers: information process regulation, learning process regulation and self–regulation. In this kind of learning, students establish their desirable goals (Schunk, 1996), decide on and execute winning strategies to attain their goals.
(Zimmerman, 1989), and list the self-regulating factors to launch and intensify their efforts (Schunk, 1996). These students are known as the learners who manage their learning experiences effectively through employing various methods and can be regarded as motivated, independent and cognitively active participants in the arena of learning (Zimmerman, 1989; Zimmerman and Kitsantas, 1996).

With regard to what was mentioned, self-regulation is achieved through goal-setting and self-efficacy. Individuals who demonstrate strengthened self-efficacy tend to get highly involved in the assigned task, demonstrate greater persistence in the face of adversity, are willing to expend effort in completing the behavior and change their strategy when needed. Cognitive theorists believe that self-efficacy beliefs and people’s judgment on their abilities determine and organize the course of action and the individuals’ performance process (Pajares and Keranzler, 1995, cited in Bandura, 1986).

People who have high self-efficacy believe that they can effectively deal with the circumstances and conditions they are faced with. These individuals build up and hold optimistic expectations of success in overcoming problems, attempt to display untiring perseverance with tasks and often act in very high levels. These individuals also place and develop greater trust in their abilities and are less skeptical about themselves as compared to the individuals who demonstrate lower level of self-efficacy. They see problems as challenge not threat and actively looking for more suitable and newer opportunities. High self-efficacy conquers fear of failure, expands the wish list, heightens the level of problem-solving ability and improves the analytical thinking (Cooper, 1981). They remain committed to the goal of the encounter with requirements, setbacks and obstacles causing pressure the position requires a strong sense of self-efficacy (Bandura, 2001). Belief in the efficacy of motivational self-regulation may play a key role in fostering the flow of their lives. Actually people choose environments that are capable on its own.

People, who have low self-efficacy, feel helpless and unable to take the proper act in the face of adversity and life events. They believe that their effort is in vain. While encountering obstacles, they tend to quickly give up if their initial efforts are futile. People who have low self-efficacy do not even try to beat the odds and are convinced that whatever they do is futile and no change is made. Poor self-efficacy can reduce the motivation, lower the aspirations, interfere with cognitive ability and can adversely affect the physical health (Marsh et al, 1991). With regard to what was mentioned, self-efficacy plays a crucial role in mediating and facilitating and if assigned to a given task can be a better and more precise predictor of academic achievement. (Bandura, 2001).

Self-efficacy belief influences the individuals’ performance in four processes including: cognitive, motivational, affective and selective processes. Before venturing into any course of action, a person first needs to feel capable of achieving success. Entering a situation unprepared, unrehearsed, and feeling unskilled is unlikely to yield a successful outcome. Individuals’ beliefs about their own degree of efficacy will determine whether they feel optimistic or pessimistic, what courses of action to pursue, how much effort to expend in trying to achieve specific goals, and the degree of perseverance likely to be displayed in the face of impediments. Many studies have confirmed the significant role of perceived self-efficacy in human adaptation, coping, and change (Bandura, 2001).

Self-efficacy beliefs also influence how people cope with disappointments and stress in the pursuit of life goals. Human functioning is facilitated by a sense of control. High and low efficacy combine with responsive and unresponsive environments to produce four variables. When efficacy is high and the environment is responsive, outcomes are most likely to be successful. When low efficacy is combined with a responsive environment, people may become depressed when they observe that others are successful at tasks that seem too difficult for them. When people with high efficacy encounter unresponsive environmental situations, they usually intensify their efforts to change the environment. They may use protest, social activism, or even force to instigate change; but if all efforts fail, Bandura hypothesizes, either they will give up that course and take on a new one or they will seek a more responsive environment. Finally, when low self-efficacy combines with an unresponsive environment, people are likely to feel apathy, resignation and helpfulness.

Personal efficacy is acquired, enhanced or decreased through any one of combination of four sources: 1– mastery experiences 2– social modeling 3– social persuasion 4– physical and emotional states (Pajares, 1997). With each method, in formation about oneself and the environment is cognitively processed and, together with recollections of previous experiences, alters perceived self-efficacy. The most influential sources of self-efficacy are mastery experiences that is, past performances. In general, successful performance raises efficacy expectations; failure tends to lower them. Overall, how people act in a particular situation depends on the reciprocity of behavioral, environmental, and cognitive conditions, especially those cognitive factors that relate to their beliefs that they can or cannot execute the behavior necessary to produce desired outcomes in any particular situation. Therefore, beliefs of efficacy need to be cherished and followed through overcoming obstacles. When people begin to believe that they are capable enough to achieve success, they persevere with life challenges and break down the barriers (Pajares, 1997; Bong, Clark, 1999).

Research evidence shows that self-efficacy exerts effects on the educational performance (Pintrich, & De Groot, 1990; Pajares and Valiante, 1997; Pajares, Miller & Johnson, 1999; Pajares and Miller, 1994; Shell et al., 1989). According to Collins, Ingoldsby and Dellmann–Jenkins (1984) students’ actual ability is
their ability in mathematic (Cited in Pajares, 1997). Pajares (1997) indicated in his study that self–efficacy can exert strong influence on academic achievement and is as important as general mental ability. The studies carried out in Iran indicated the positive relationship between self–efficacy and students’ academic achievement (Jokar and Delavar Pour, 2007; Hosseini and Khayyer, 2009; Amini, 2008; Khamesan and Shirzadi, 2010).

However, self–efficacy beliefs are strong predictors of educational achievements. A metaanalysis investigated the relationship between self–efficacy beliefs and educational achievement and the mean correlation equaled 0.38 between the two variables (Multon et al, 1991). Identifying the influencing factors on the educational performance can help us better predict the variables at school, decrease the educational failure and adopt more effective strategies. Hence, self–efficacy produces its significant effect through trying to carry out the assigned tasks, employing the cognitive and meta–cognitive strategies, self–regulation, persevering in the face of adversities and setting explicit goals.

Method

The present research employed a descriptive method. The statistical population included all the high–school students studying in Arak in the academic year ran from 2012 to 2013, out of which a sample of 430 students (230 females and 200 males) were selected through cluster multi–stage sampling and based on Morgan table. The research tool included General Self–Efficacy Scale designed by Sherer et al and the overall score degree was used as an indicator of academic achievement. Data were analyzed using t–test and Pearson correlation coefficient.

Material

Self–efficacy questionnaire of Scherer et al (1982 is a Likert format 23–item Scale. The response format is a 5–point scale (1 = strongly disagree, 5 = strongly agree). Sum of 17 item scores reflects general self–efficacy. The higher the total score is, the more self–efficacious the respondent. This scale was made by Bandura and Maddox and based on social learning theory. Of these 23 articles, 17 are dedicated to general self–efficacy (GSE) and the rest are related to the experiences of self–efficacy in social situations (SSE). Efficacy scale in the areas of employment, education and the military gives a good prediction. Higher scores on this scale indicate higher self–efficacy. The reliability of this test is expressed 0.84 for public self–efficacy, and 0.65 for social self–efficacy using Cronbach’s alpha coefficient. In this test, the participants assigned a score between 1 and 7 to each component. To calculate the one’s score, at first reverse items points and then by adding the scores, person’s self efficacy scores are achieved (Barati, 1997).

Results

Table 1. Mean and standard deviation of self–efficacy and educational achievement based on the total sample and gender differentiation

<table>
<thead>
<tr>
<th>Indices</th>
<th>Total Sample</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
<td>No</td>
<td>Mean</td>
<td>Sd</td>
</tr>
<tr>
<td>Self–Efficacy</td>
<td>430</td>
<td>58.45</td>
<td>7.52</td>
</tr>
<tr>
<td>Academic Achievement</td>
<td>430</td>
<td>17.36</td>
<td>1.79</td>
</tr>
</tbody>
</table>

Pearson correlation was employed in order to provide an answer for the first question. As shown in table 2, the correlation coefficient between self–efficacy and education achievement equals 0.227. As observed, self–efficacy and academic achievement are significantly, positively correlated to one another.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Correlation coefficient</th>
<th>Level of sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self–efficacy</td>
<td>0.227</td>
<td>0.000</td>
</tr>
<tr>
<td>Academic achievement</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

T–test was employed in order to provide answers to the second and third questions and the results have been presented in table 3. As observed, there exists between–group difference regarding self–efficacy and academic achievement. As shown, male have scored higher on self–efficacy. Whereas, male students show to have higher level of academic achievement. Therefore, the null hypothesis is rejected.
Table 3. Results of t-test for the comparison of male and female students in the variables of self-efficacy and academic achievement

<table>
<thead>
<tr>
<th>Indices</th>
<th>T Value</th>
<th>Degree Of Freedom</th>
<th>Level of Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Efficacy</td>
<td>-2.697</td>
<td>428</td>
<td>0.007</td>
</tr>
<tr>
<td>Academic Achievement</td>
<td>2.150</td>
<td>428</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**Discussion and conclusion**

The present research was carried out to investigate the relationship between self-efficacy and academic achievement. As demonstrated in this study, there exists a positive significant relationship between self-efficacy and academic achievement. Pajares (1997) has shown in his research that self-efficacy along with general mental abilities exert direct and strong influence on academic achievement. Reinek et al. (2003) have assessed the relationship between self-related and personal variables (self-efficacy, progress goals and fear of failure), educational involvement and educational achievement based on Connell process model (1990). They concluded that students' general self-efficacy is strongly, positively correlated to educational achievement. The results of this research are in line with the research results carried out by Pajares, Miller, & De Groot, 1990; Pajares, Miller, & Johnson, 1999. Moreover, the result is in harmony with the research results carried out by Jokar and Delavvar Pour (2007), Hosseini and Khayyer (2009) and Amini (2008). Individuals' judgment of their capabilities (self-efficacy) is in interaction with their thoughts, feelings and behavior and influences them. Therefore, individuals who exhibit higher levels of self-efficacy beliefs are more successful in fulfilling their assigned tasks and producing better performance.

Self-efficacy beliefs are strong predicting factors of learning and educational success. The effects of self-efficacy beliefs on effort and performance can be so great as to wipe out otherwise large differences in ability (Pintrich & Schunk, 2002). Self-efficacy beliefs have strong motivational power and influence the individual's outcome expectation and also determine the amount of effort and perseverance that an individual invests (Efklides, 2011). Shell, Bruning and Murphy (1984). Pajares and Valiante (1997), Kadivar (2003) have shown that self-efficacy is a strong predictor of educational achievement. Khamesan and Shirzadi (2010) have indicated that perceived self-efficacy is a very good predictor of educational procrastination and educational achievement. This result is in line with the assumptions of social-cognitive theory (Bandura, 1986). Bandura demonstrated in his research that self-efficacious students demonstrate more perseverance in the face of adversities, maintain higher motivation and attain more educational achievement.

A between-group difference was observed between male and female students with regard to self-efficacy and male students were found to have higher level of self-efficacy. This result is in line with the research results carried out by Schunk (1991) cited in Pajares (1994), Watson et al. (1987) and Pajares and Miller (1996) who believed that self-efficacy differs in terms of age and gender and men score higher on self-efficacy as compared to women. However, this finding is not in harmony with the research results done by Zabihi Hesari, 2005; Khaksar Boldaji, 2005; Mortazavi, 2004; Ahmadian, 2005; Amirian, 2005; Pintrich, & De Groot, 1990; Arabian et al, 2003; and Motamedi and Afrouz, 2005 who concluded that female students score higher on self-efficacy.

It seems that prior to going to university, male students enjoy more freedom and social independence that results in their higher self-efficacy. On the other hand, the observed difference reaches its peak before the age 20 and decreases later (Watson et al., 1987). Moreover, many psychologists believe that the gender differences are colored by distorted perceptions that take its root from cultural and social factors (Pajares and Miller, 1994). Lack of similar methods of teaching and educational opportunities, expectations and low outcome are amongst the factors that influence the gender differences through mass media, governmental institutions, social institutions, schools and homes based on the cultural-social values and method of conduction.

Moreover, there were also significant differences between male and female students in terms of educational achievement. This result is in line with the research results done by Hosseini Tabatabae and Ghadim Moghadam (2007); Razavian Shad (2005), Ansari (1996), Warren (2000) and Brennan (2002). Ansari indicated that female students' academic achievement is higher due to the higher expectations and perception of the class environment, greater perseverance and collective cooperation. On the other hand, male students demonstrate more indifference and disruptive behavior which gives rise to more poor concentration.

Based on the research findings, women are more interested in education and educational achievement. Whereas, men are fonder of recreational and sport activities. What's more, men are more concerned about unemployment and post education employment which negatively influences their academic performance (Tamanaee Far, 2007: 35). The practical applications of this research can supply educational professionals with accurate and credible information. As mentioned, self-efficacy is a deciding factor on
students’ performance and learning. Therefore, self–efficacy enhancement can be regarded as one of the major goals of education.

Self–efficacy centers on the “I can” belief versus “I can’t” belief which can be an equivalent of Seligman’s concept of Learned helplessness which stands for unwillingness to perform any tasks, passiveness, isolation, fear, depression and acceptance of whatever that happens. Learned helplessness results from the individual’s imaginary inability. Therefore, it’s expected that teachers develop feelings of efficacy and self–confidence of students.

One of the best strategies is learning to the point of mastery (Zimmerman, & Pons, 1990). In this strategy students are helped to detect their tasks’ inefficiencies and correct them. Stipek (1996) cited in Santrock (2001) have offered the following suggestions that can be implemented by the teachers to improve the personal self–efficacy.

Some techniques like underlining and summarizing can be taught students to improve their ability to concentrate on their homework.

1. Help students in goal–setting, specifically, in short–term goals subsequent to setting the long–term goals.
2. Students should be rewarded based on their performance, which results in the mastery rather than the assigned homework.
3. Teaching strategies should be combined with emphasis on the goals. Provide the students with feedback on how to associate the learning strategies with their performance.
4. These supports should be lent by parents, teachers and peer group. Sentences like “You can do it.” can be encouraging while said by a teacher.
5. Make sure that your students are not over anxious. When students are concerned about the progress, their efficacy gets lower.
6. Provide positive role models for students. The specific characteristics of these models can improve the efficiency of individual students. For example, students can see the teachers and classmates dealing effectively with the challenges; often choose the models’ behaviors. When the success of students with similar abilities is observed, modeling is more effective in improving the personal effectiveness.

Gender differences in self–efficacy and academic achievement of students, necessitates the attention and regard which should be devoted to the male and female students based on the variables’ priority in reinforcing the strategies and fostering the beliefs.

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