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Academic self-efficacy: predictive role of attachment styles and meta-cognitive skills

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Abstract

The present study was carried out to determine the relationship among attachment styles, meta-cognitive skills, and academic self-efficacy and also the predictive role of attachment styles and meta-cognitive skills on students' self-efficacy in the high schools of the City of Torbat Heydarieh in year 2011-2012. For this correlation study 302 3rd grade high school students (145 boys and 157 girls) of Torbat Heydarieh were selected using Morgan's table and randomized multiple-stage sampling method. Collins and Reed's revised adult attachment scale (1990), state met-cognitive inventory of O'Neil and Abedi, and Jinks and Morgan's academic self-efficacy were applied to investigate the subjects. The results showed that there are statistically significant relationship between secure attachment style and self-efficacy (p<0.05), secure attachment style and meta-cognitive skills (p<0.05), and meta-cognitive skills and academic self-efficacy (p<0.01). According to the regression, meta-cognitive skills can be thought of as predictors for academic self-efficacy (p<0.05), but only the insecure attachment style is a negative predictor for self-efficacy (p<0.01).

Keywords: Attachment styles; Meta-cognitive skills; Academic self-efficacy

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1. Introduction

Self-efficacy is one of the key concepts in Bandura's socio-cognitive theory. This key concept together with some other social cognitive factors plays important roles in achieving success and maintaining health. Bandura (1997) introduces the concept of self-efficacy as a part of a self-control system which acts as a motivator and perpetuator for a certain behavior. This concept is related to the person's judgment on his/her ability in fulfilling a certain task or adapting to a certain condition.

Low self-efficacy is associated with negative physical and psychological outcomes. For example; Studies have found that a low level of self-efficacy was correlated to Coronary Heart Disease (Sarker, Ali and Whooley, 2007), Multiple sclerosis (Thomson, Riazi and Hobart, 2004), rheumatoid arthritis (Brekke et al, 2001), anxiety and depression (Tahmasian et al, 2011), suicide (Valois et al, 2013). Self-efficacy beliefs are effective on school achievement in students and can predict their forthcoming abilities in completing certain tasks or succeeding in educational activities. Certain researches have shown that students with high levels of self-efficacy become involved in doing homework in a meta-cognitive manner, show more stability in doing their assigned tasks, and achieve ultimate success (Pajares 1986; Schunk 1980; Pintrich and De Groot 1990). According to Schunk (1994) and Zimmerman and Martinez-Pons (1990), students' self-regulated learning is dependent on their feeling of self-efficacy in fulfilling their tasks efficiently. However, in some other studies it was shown that teaching the self-regulated learning strategies can also improve the students' self-efficacy (Tavakolizadeh and Ebrahimi-Ghavam, 2011). Krademas & Kalantazi (2004) recognize self-efficacy as one of the most important factors which regulate behavior and claim that persons with high level of self-efficacy regard difficult tasks as challenges to dominate and tend to choose more challenging tasks which in turn will boost their feeling of self-efficacy and helps them to maintain trying over and over.

One of the factors regarded to have important roles in the formation of self-efficacy beliefs is the attachment style. From Bawly's viewpoint (1998), attachment is “a stable affective bond to certain persons in life”. Bawly suggests that the early experiences of a child have drastic effects on his/her development and future behaviors especially on the degree of independence. Bawly regards attachment as a primary need which is not a derivative from any other. He recognizes attachment as a very crucial factor in the development of personality. In an experiment designed to analyze the types of child and care givers' relationships, Ainsworth and colleagues (1978) differentiated three different patterns of secure, avoidant and ambivalent attachments. Hazen and Shaver (1987) succeeded in tracking these three patterns in the adults’ relationships. Normal and abnormal characteristics of a person are deeply impressed by their attachment patterns. According to the results of related studies, secure attachment style is attended by characteristics such as intimacy, trust, and independence. On the other hand, insecure attachment style is accompanied by lack of self-confidence, fear from intimacy, lack of trust, and dependency (Hazen and Shaver 1987). Hastinger et al (2002) also demonstrated that people with secure attachment show higher self-esteem and healthier behaviors when compared to the persons with insecure attachment.

It seems like that a person's attachment style is attended by the formation of certain expectations and beliefs towards one's self. One of these is the self-efficacy belief which is thought to be of higher level in secure attachment style than the insecure/avoidant/ambivalent attachment styles. As previously mentioned by Collins and Reed (1994), the persons with different attachment styles tend to choose environments which are compatible with their beliefs about yourself and others (Yar-Ahmadi, 2009). According to Bartolimo and Horowitz (1992) the self-efficacy beliefs towards one's self is formed parallel to the formation of attachment style during early relationships which may have significant effect on the person's performance. In certain studies such as those done by Yar-Ahmadi (2009) and Mooyed-far (2007), it has also been shown that there are significant differences between persons' level of self-efficacy and different attachment styles. Also, Marzban (2010) showed in a study that there are a positive and statistically significant relationship among secure attachment style, academic self-efficacy, and meta-cognitive strategies. Greenberg and colleagues (1993) demonstrated that responsive and sensitive parenting styles and kind of the attachment style of each family improves the self-regulatory skills in children.

Alongside persons' attachment styles, the level of awareness of meta-cognitive strategies can also be thought of as another factor effective on the level of self-efficacy. The term of “metacognition” was first introduced to the
field of cognitive psychology by John Flavell in 1976. He defines this term as “any kind of knowledge or cognitive act whose subject is cognitive activities and its regulation”. Also, Beiker and Brown (1984) describe metacognition as the knowledge and control of a person on his/her own thoughts and learning activities (Maqsud, 1997). To solve problems, the students need to understand how important cognitive tasks such as memorizing and learning and problem solving actually work. In a study by Haffman and Spatariu (2008), it was shown that the students with better cognitive/meta-cognitive strategies are more successful in problem solving. Using a causative pattern of relationships among progress goals, Kharrazi-Eje'ei and colleagues (1998) studied meta-cognitive strategies and self-efficacy. The results approved that meta-cognitive strategies have a statistically significant and positive direct causative effect on the students' self-efficacy. Other similar studies have been formed, from which one can mention Maleki (2005) and Seyf & Mesr-Abadi (2003) on the effect of teaching cognitive/meta-cognitive strategies on increase of understanding/learning/recalling lesson texts, Foolad-Chang (2005) on meta-cognitive teaching on math academic achievement, and Salari-Far and Paak-Daaman (2009) on the positive relationship between meta-cognitive state and students' educational performance.

With regards to these theoretical principles, it seems that the three different variables of self-efficacy, attachment style and meta-cognitive strategies be related. According to the search of this article authors, the relationships between these three parameters have never been studied simultaneously. The present study aims to answer this essential question: Is it possible that attachment style and meta-cognitive strategies predict academic self-efficacy?

2. Method

This is a descriptive -correlational study. The study population included all the 3rd grade high school students of Torbat e Haydarieh (1200 subjects) studying between 2011-2012. Using Morgan's table, the estimated sample size was 302 people (145 boys and 157 girls) that were selected using randomized multiple-step sampling from the students of Torbate Haydarieh. To account for research ethics, after providing the subjects with sufficient information and explaining the goals and putting enough emphasis on the necessity of honest answers and confidentiality, the samples of each school filled the Collins and Reed modified attachment scale for adults, state meta-cognitive assessment questionnaire of students, and academic self-efficacy questionnaire with consent.

Collins and Reed's Revised Adult Attachment Scale: This scale has been devised and validated by Collins and Reed in 1990. It includes 18 items in 3 subscales of CLOSE, DEPEND and ANXIETY, each with 16 Items. In scoring this 18-item scale, 5 point Likert Scale (“not at all characteristic of mine=0” to “very characteristic of mine=4”) was used. Its test-retest reliability index for each subscale of CLOSE, DEPEND, and ANXIETY were 68%, 71%, and 52% respectively. Using Cronbach's alpha, Reliability coefficient was calculated 80% and above in all cases (Collins 1994, as quoted Pakdaman, 2001). Using test-retest yielded a reliability coefficient of 95% in Iran. Using Cronbach's alfa, Hamidi (2005) calculated the reliability coefficients of ANXIETY, DEPEND, and CLOSE subscales in Iran 0.74, 0.28, and 0.52, respectively. In this study, using Cronbach's alpha yielded a reliability coefficient of 0.45.

Students' state meta-cognitive questionnaire: This questionnaire was designed in 1996 by O'niel and Abedi to gain information on skills needed to solve complicated tasks and to analyze the students' ability to achieve systematic thinking while confronting a problem. This questionnaire includes 20 items in 4 subscales Awareness, Cognitive Strategy, Planning, and self-checking. The subjects are expected to express their level of agreement/disagreement using a 4 point Likert scale (“not at all” to “very much”). Investigating the test Construct Validity, O'niel and Abedi achieved good results (Salari-Far et al, 2009). Using Cronbach's alpha, the questionnaire reliability coefficient in Awareness, Cognitive Strategy, Planning, and self-checking was reported 0.78, 0.77, 0.78, and 0.73, respectively. In the present study using Cronbach's alpha yielded a reliability coefficient of 0.77.

Academic self-efficacy questionnaire: Morgan-Jinks student efficacy scale (MJSES, 1999) was used to measure academic self-efficacy. This questionnaire includes 30 items in 3 subscales of talent (13 items), effort (4 items), and context (13 items) designed using Likert scale. The deviser has reported the overall reliability coefficient
0.82, and the reliability coefficient of talent, effort, and context subscales 0.78, 0.66, and 0.70, respectively. In Iran, the overall reliability coefficient and the talent, effort, and context subscales have been estimated around 0.76, 0.66, 0.65, and 0.60, respectively (Karim-Zadeh, 2006). In our study, using Cronbach's alpha yielded an overall reliability coefficient of 0.70.

The procedure of research was such that after the title was approved and the letter of introduction was issued to the organization of education in Torbat heydarieh, the schools were selected randomly. Afterwards, the questionnaires were filled by the subjects in each school.

Data analysis was done by SPSS version 18, and using Pearson's coefficient of correlation and multiple regression analysis.

3. Findings

48% (145) of our subjects (302) were boys and 52% (157) were girls. Students' mean age and school achievement were 17.1 years and 17.46, respectively. Table 1 demonstrates the mean and standard deviation of the subjects’ scores in predictor and criterion variables.

Table 1. Descriptive statistics of predictor and criterion variables.

<table>
<thead>
<tr>
<th>Predictor &amp; criterion variables</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic self-efficacy</td>
<td>302</td>
<td>86.93</td>
<td>8.59</td>
</tr>
<tr>
<td>Awareness</td>
<td>302</td>
<td>13.91</td>
<td>2.90</td>
</tr>
<tr>
<td>Cognitive strategy</td>
<td>302</td>
<td>13.27</td>
<td>2.96</td>
</tr>
<tr>
<td>Planning</td>
<td>302</td>
<td>14.31</td>
<td>2.99</td>
</tr>
<tr>
<td>Self-checking</td>
<td>302</td>
<td>14.19</td>
<td>2.66</td>
</tr>
<tr>
<td>Ambivalent style</td>
<td>302</td>
<td>14.64</td>
<td>3.41</td>
</tr>
<tr>
<td>Secure style</td>
<td>302</td>
<td>18.45</td>
<td>4.05</td>
</tr>
<tr>
<td>Insecure style</td>
<td>302</td>
<td>15</td>
<td>3.99</td>
</tr>
</tbody>
</table>

Table 2 demonstrates the degree and the direction of correlation between the predictor variables and academic self-efficacy. According to this table, there exist a positive statistically significant relationship between academic self-efficacy and secure attachment style (P<0.05), whereas there is a negative correlation between academic self-efficacy and insecure attachment style (P<0.01). This means that the higher the secure vs. insecure attachment style in a person, the higher the academic self-efficacy. No statistically significant correlation was found between the ambivalent attachment style and academic self-efficacy (P>0.05). The data in Table show that there exist positive statistically significant correlation between the 4 meta-cognitive skills (Awareness, self-checking, cognitive strategy, and planning) and academic self-efficacy (P<0.01); in other words, one can conclude that the higher levels of meta-cognitive skills are accompanied by higher levels of academic self-efficacy. The data regarding the relationship between attachment styles and meta-cognitive skills demonstrates that there exist positive statistically significant correlation between secure attachment style and the 3 meta-cognitive skills including awareness (P<0.05), cognitive strategy (P<0.01), and planning (P<0.01). The reverse is true between insecure attachment style and awareness (P<0.01), cognitive strategy (P<0.05), and self-checking (P<0.01). Negative significant correlation was found between ambivalent attachment style and awareness (P<0.01), cognitive strategy (P, <.01), planning (P<0.05), and self-checking (P<0.01).
According to Table 3, one may say that predictor variables (attachment styles and meta-cognitive skills) have been able to explain up to 70% of the criterion variable (academic self-efficacy) variance.
Table 5 demonstrates that among all the predictor variables put in the equation, insecure attachment style, self-checking, cognitive strategy, and awareness have an appropriate predictive power for the criterion variable (P<0.05). This cannot be said about the secure and ambivalent styles (P>0.05). One can summarize these finding as all the meta-cognitive skills have been able to predict academic self-efficacy, but from the attachment styles, only the insecure attachment style is a negative predictor for self-efficacy.

4. Discussion and conclusion

The findings of our study on the relationship between attachment styles and academic self-efficacy showed that there exist a positive significant correlation between secure attachment style and self-efficacy (P<0.05), and a negative correlation between insecure attachment style and self-efficacy (P<0.01). However, no statistically significant relationship was found between ambivalent attachment style and academic self-efficacy (P>0.05). These finding are consistent with Yar-Ahmadi (2009), Greenberg and Colleagues (1993), and Moayyed-Far (2007). It seems experiencing a secure and supportive relationship with mother during childhood enable the person to trust himself/herself and others in the future relationships and be robust when facing problems which enables him to solve them with a positive attitude. This approach may provide the groundings for success, self-esteem and self-efficacy in the student.

The results also showed that there exist positive significant relationship between all meta-cognitive skills and academic self-efficacy (P<0.01). These results are consistent with the previous works from Salarifar and Pak-Daman (2009), Foolad-Chang (2005), Seyf and Mesr-Abadi (2003), and Maleki (2005). In explaining these results we can say that the higher the level of meta-cognitive skills are, the higher level of academic self-efficacy can be anticipated. In other words, more knowledge on effective cognitive strategies and the limits of the learning abilities and the students' memories will be accompanied by higher levels of academic self-efficacy. Since the knowledge of meta-cognition is the knowledge of how to learn, achieving this knowledge and awareness of the rules, strategies, and the problems goals will enable the person to look for more efficient and more flexible means to adapt his/her
cognitive abilities with subject and tasks. Learning of meta-cognition skills will boost learning skills and will in turn increase academic self-efficacy.

The findings on the relationship between the attachment styles and meta-cognitive skills showed that there exist significant positive correlation between secure attachment style and the 3 meta-cognitive skills including awareness, cognitive strategy, and planning (P<0.05). Whereas, significant negative correlation was found between insecure attachment styles and meta-cognitive skills of awareness, cognitive strategy, and self-checking (P<0.05). And also, between ambivalent attachment style and awareness, cognitive strategy, planning, and self-checking skills (P<0.05). These findings are consistent with the study by Marzban (2010) in which the causative effect of attachment styles on academic progress with intermediate role of cognitive/meta-cognitive processes was investigated, but since no other similar study is present, more researches are needed to confirm this hypothesis. In explaining these results, we can cite to the views of Borkoskys (1990). According to his model of meta-cognition, cognitive, meta-cognitive, affective and social factors are in interaction as development takes place. He explains that children with positive feelings towards their abilities will be awarded a positive self-system and this feeling beneficial provides an appropriate motivational opportunity for meta-cognitive systems to be activated. This self-system is formed in social interactions and is a complement for meta-cognitive systems (as quoted Amin Yazdi, 2005).

Finally, the data from regression model showed that all meta-cognitive skills have been able to predict academic self-efficacy, whereas among attachment styles, only the insecure attachment style is a negative predictor for academic self-efficacy. These findings are compatible with the results of certain previous studies, such as the ones done by Yar-Ahmadi (2009), Kharrazi, Eje'ei, Bartolimo and Horowitz (1992), and Marzban (2010). It seems like the students' level of self-efficacy is dependent on many factors, each of which can affect the person's performance in academic environment. Probably, insecure attachment style in a child is would be accompanied by the formation of a weak self-concept, inability to form relationships with cohorts, and ignorance of the norms, and bad academic performance. These will reduce the student's academic self-efficacy later on. On the other hand, students with good meta-cognitive skills tend to apply planning strategies (such as assigning study goals, glancing before fully studying the text, forming questions before reading the text, estimating the amount of needed time for studying, adjusting studying speed, and choosing an appropriate learning strategy), control and monitoring techniques (evaluating their improvement, surveying their attention and comprehension, forming questions while reading, self-assessment, controlling their studying speed and the allocated time, and predicting the exam problems), and self-regulatory (adjusting studying speed, and correcting/modifying their cognitive strategy) more efficiently and, in this way, boost their self-efficacy.

One must note this study limits from which we can mention: limited samples, mere use of self-report tools and the accompanying bias, high number of questionnaires questions and the possible weariness of the subjects.

Conflict of Interest
No conflicts of interest have been claimed by the authors.

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References


Pintrich, P.R., and De groot, E.v (1990). Motivation and self-regulated learning journal of educational psychology. 82, 33-44.


