The Effectiveness of Cognitive Self-Regulatory Education on Academic Burnout and Cognitive Dissonance and Academic Achievement of Elementary Students

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Abstract

The main objective of the present study is to investigate the effectiveness of education and cognitive self-regulation on academic burnout and cognitive dissonance and academic performance of elementary school girl students. The research method of this research is based on quasi-experimental type with pre-test-posttest with control group. The statistical population of this research included 40 elementary school girl students of Qom city who were selected through random sampling and were placed as 20 in the control group and 20 in the experimental group where the subjects were trained during 10 sessions in self-regulation strategies with no educational intervention in the control group. The tool of self-regulation educational package was used in ten sessions and another tool used was Brosu et al. (1997) academic burnout and a further tool related to the Cognitive Dissonance Questionnaire of Remon Jonz (2001). Academic performance was also calculated by obtaining the final scores of the students. In order to analyze the data, Covariance test (ANCOVA), homogeneity of variances and Levin test were applied.

The data analysis results indicate that all three research hypotheses, which included: Learning of cognitive self-regulation strategies to reduce the students' academic burnout, learning of cognitive self-regulation strategies to reduce the students' cognitive dissonance and learning of cognitive self-regulation strategies to progress the students' academic performance.

Key words: Cognitive self-regulation, Academic burnout, Cognitive dissonance, Academic performance

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Introduction

Today, self-regulation in educational psychology and teaching has been allocated an important place, because emphasis on this concept introduces a situation in which the learner’s role increases in the learning process. The self-regulation approach is a complex process that creates changes in self-regulation skills of strategic knowledge, abilities and motivation of learners (Maris, 2013). It is more than two decades since the role of the self-regulation model has been proven as an educational approach to the development of academic strategies and self-regulation among students with special learning and cognitive problems. (Graham et al., 2013).

In the cognitive self-regulation training program in order for the learner to develop the ability to accept learning responsibility, the four skills of goal determination, self-monitoring, self-assessment, and personal rewards are taught to the students. (Egene and Kaochak, 2012).

From Zimmerman’s view (2010), self-regulation learning consists of three main components of cognition, metacognition and motivation, which in our present research, the cognitive training section is our intended subject. Cognition includes the necessary skills for encryption, memorizing and remembering information, and consists of the subsets of simple problem solving strategies, thinking and critical strategies. Self-regulation only occurs when the students are allowed to learn that which they can tradeoff the satisfaction and desirability of their actions and goals. Zimmerman, (2008), from his point of view, the perception of freedom of action in a supportive context to the students and learners can help meet their needs, expectations and demands for clear goals (Graham et al., 2013).

From Bogatere’s view (2009), self-regulatory behaviors are controversial, in which the child has the right to choose and decide. Of course, there are few students who are completely self-regulated and those who acquire self-regulation with less effort, are likely to learn more and report higher levels of performance and academic satisfaction, and can also coordinate between their dimensions and cognition, and thus they are not involved in academic burnout.

Cognitive dissonance is an unpleasant feeling that occurs based on a situation when a person has two conflicting thoughts at the same time. This theory states that the individuals have ways to reduce inconsistencies and they do this by changing their beliefs and actions (Festinger, 1975). According to this theory, the cognitions of one person, such as thoughts, attitudes and beliefs, may be coherent, inconsistent or unrelated, then the degree of created inconsistency depends on two factors: (1) The uncoordinated cognitions; (2) The importance of each cognition.

This theory has many applications in various fields, such as politics, education, and learning. To create interest and change the attitudes and behaviors in such a way to coordinate each other and to reduce the degree or importance of each of the heterogeneous elements or to increase the degree or importance of consistency cognition is the way of reducing cognitive dissonance (Behner and Wank, 2005).

In general, students who have passed the cognitive self-regulation education and have been able to take responsibility for their learning and create a special order among their cognitive knowledge, never experience cognitive dissonance, and their academic performance is improved, and with interest and motivation to learn and do not suffer from academic burnout. (Sha’ari Nezhad, 1992, quoted by Farzamikhah, 2014).

Both cognitive self-regulation and cognitive dissonance parameter have a close relationship with another variable, academic burnout. As Miller (2006) states, the cognitive self-regulation is an integral part of learning. He claims that there is a relationship between cognitive self-regulation with learning and academic performance.

Perky (1990) states that cognitive coordination among individuals will not only be effective in the field of education, but also this cognitive coordination can assist the person towards growth and development and prevent academic burnout. Cognitive dissonance can create a kind of burnout which covers various aspects of life, including the field of education and which leads to academic burnout (Quoted by Farzamikhah, 2014).

Academic burnout is the same feeling of tiredness because of the demands and requirements of education and having a sentimental feeling without interest toward the school assignments and a feeling of disability as a student. Academic burnout includes the three components of emotional exhaustion, pessimism, and lack of efficiency. (Sha’ari Nezhad, 1992, quoted for Farzamikhah, 2014).

With regard to the importance of cognitive self-regulation and its impact on academic performance, our purpose in the present study is to teach cognitive self-regulation strategies to students who can improve their academic performance by using it and reduce their cognitive dissonance and prevent academic burnout.

At the end of the research, we answer this question as to whether cognitive self-regulation education of the students can achieve the mentioned results, which includes reduction of cognitive dissonance and improvement of the curriculum performance quality.
Cognitive Self-Regulation Strategies:
The different definitions of self-regulation are provided. Zimmerman (2002) describes self-regulation learning based on spontaneous thoughts, emotions, and behaviors that individuals use to achieve their goals. Zimmerman (2002) states that “The self-regulation learner is an active participant in their own learning; it means that in terms of motivation, metacognition, and behavior the learning process has their active involvement.”

With regard to the motivational dimension, the self-regulated learner is assured of their own ability, he/she is independent and curious, and in other words, has self-esteem and more inner interest. With respect to cognitive processes, the self-regulated learner during the learning and when doing assignment planning, is involved in self-assessment targeting. In terms of behavioral processes, the self-regulated individual organizes to optimize the learning, and creates suitable environments (Zimmerman, 2002).

Rohuti (2000) defines self-regulation learning as “Voluntary control of learning and factors affecting on learner’s learning motivation” (Quoted by Azizi Abarghoei, 2010). According to theories of will, motivational factors are distinct from voluntary factors (Corno, Cool, 2007; Quoted from Taheri, 2014).

The academic self-regulation strategies mean that the learners organize their learning in terms of behavioral and motivational meta-cognitive beliefs(Namdarpour, 2011, quoted by Farahani, 2013).

Academic Burnout:
Academic burnout can be described as a chronic stress response in students who initially have been involved with the educational requirements. This response is due to a difference between students and others’ expectations for their academic success in the field of education (Salmela and Aro, et al. 2009).

Yang (2005) defines academic burnout as “Students in the learning process because of the stress of the academic period, or due to a course of study or other psychological components that cause emotional exhaustion modes, a tendency to disregard individual identities (Personality deterioration) and also shows the feeling of low personal development”(Quoted by Jallilian, 2012).

Academic Performance:
Academic performance and its effective factors are one of the pivotal and fundamental variables in education. In fact, it can be said that academic performance of students has been allocated an important contribution of the existing research in the field of educational psychology. There are different definitions of academic performance. Atkinson defines academic performance as an acquired ability or individual acquisition. (Quoted by Jafar Tabatabai et al., 2012). It can be said that academic performance is as follows: the success in passing of different lessons by the students or learners and showing the proper performance in society or their lives based on the learned material.

Cognitive Dissonance:
The theory of cognitive dissonance was presented by Festinger in 1957. This theory is the most popular cognitive consistency pattern and most effective theory in social psychology. The starting point for this theory for Festinger was the situation in which we are usually in = does not follow according to our attitudes (Behner and Vaank2002, quoted by Safari Nia 2010). As the theory of cognitive dissonance was presented by Festinger in 1957, it begins with this assumption that different cognitions (Knowledge and information elements) can be related to each other. If two cognitions are related to each other, they are either coordinated or dissonant. Two cognitions are coordinated when one of them is logically deducible from the other, and when they are dissonant with each other = it can be deduced from the other (Zandi, 2010).

Research Background

The results of Moghadasi’s research (2015), about the relationship between target orientation and perceived social support with academic burnout of the students showed that there is a relationship between target orientation components and perceived social support resources with academic burnout. The other findings showed that the target of dominant-avoidance, the target of dominant-orientation, and perceived family-based social support were able to predict academic burnout, as well as the obtained results indicate the difference between male and female students in the combination of target orientation, perceived social support and academic burnout.

Nekoei (2015) investigated the relationship between creativity, motivational beliefs, self-regulatory learning strategies with the academic achievement of male students. The results showed that self-regulation was effective in their academic achievement.

Tahmasebi (2015) investigated the relationship between the impact of metacognitive strategies on the motivation of progress and the academic burnout of elementary school girl students where the results showed that there is no significant difference between the two groups of control and experiment in terms of the motivation of academic achievement. The analysis results also showed that the metacognitive strategies of learning is affected on the students’ academic burnout and caused reduction of academic burnout in the experimental group.

Newsome, Day and Catano (2014) investigated the relationship between emotional intelligence, cognitive ability, cognitive self-regulation and personality traits with academic achievement. The research results showed that both cognitive ability and some personality traits such as extraversion and self-control, as well as cognitive self-regulation had a significant relationship with
academic achievement, but emotional intelligence had no relationship with academic achievement, so it can be said that emotional intelligence is not identical in the intelligent and normal students.

Novita et al., (2013) in their research were paid to investigate the relationship between the use of self-regulation strategies with academic achievement and academic acceleration in their subsequent tests. Their sample was the students of the last years of high school in Italy.

In this research, a self-regulation interview program was used which was focused on cognition, motivation, and behavioral strategies that are applied in the course of learning in the class and non-class environment.

The results showed that these strategies in Italian language courses, mathematics and technology had a significant impact on learning these lessons; other classes’ average and university exams. Motivational self-regulation strategies were a significant predictor of success in the final examinations for high school diplomas.

Research Methodology

The method of this research is based on quasi-experimental type with a pretest- posttest plan with control group. The statistical population of this research included 40 people of elementary school girl students of Qom city who were selected through random sampling and 20 people were placed in the control group and 20 people in the experimental group where the subjects during 10 sessions were trained in self-regulation strategies while there was no educational intervention on the control group. They were tools used were a self-regulation educational package in ten sessions and the other was Brosu et al’s (1997) academic burnout and another tool related to the Cognitive Dissonance Questionnaire of Remon Jonz (2001). The academic performance was also calculated by obtaining the final scores of students, and the validity of questionnaires was calculated by experts and reliability of the questionnaires were approved by Cronbach’s alpha coefficient equal to 0.78, 0.81 and 0.82, respectively.

Self-regulation group therapy performance method: In the 10 sessions of 2 hours, the following cases were taught to the control group students:

Session 1: (Subject of the Session: Self-assessment): It is expected that the learners receive an accurate understanding of the meaning and concept of self-assessment and in addition to recognizing their strengths and weaknesses by focusing and calculating on their past behaviors and comparing them with expected levels and take steps could be taken to improve their performance.

Session 2: (Subject of the Session: Targeting and Planning): The learners’ familiarity with a good target (Clear, apparent, use of time, measurable in the form of positive sentences). Increase the probability of reaching the target through adjusting of activities, focusing on the priority targets in the priority and avoiding diversions from that route.

Session 3: (Subject of the Session: Organizing and transferring information): Familiarity with increasing the efficiency of daily work, prioritizing according to necessity, planning in a scientific way.

Session 4: (Subject of the Session: Searching for information and recording and taking notes): The learners familiarity with different ways of summarizing, taking notes and encoding.

Session 5: (Subject of the Session: Self-outcome): The learners’ familiarity with how to reward and punish their successes and failures and to create mental imagery.

Session 6: (Subject of the Session: Environmental management): The learners’ familiarity with how to prevent irregularities and disorganization, analysis of their current situation, and also dominating on the external environment and available resources.

Session 7: (Subject of the Session: Self-efficacy): Increasing learners’ ability in order to meet challenging issues, commitment to their activities and interests, and overcoming the feeling of hopelessness and disappointment.

Session 8: (Subject of the Session: Correct ways of studying): The learners’ familiarity with the scientific methods of studying and quantitative and qualitative enhancement of study efficiency.

Session 9: (Subject of the Session): Assistance from people (Peers, teachers and adults): The learners’ familiarity with the use of synergistic methods that help their academic achievement.

Session 10: (Subject of the Session: Time Management): The learners’ familiarity with prioritization of life, improving the time and duration of exploitation of time, understanding the value of time.

In order to analyze the data, covariance test (ANCOVA), homogeneity of variances and Levin test were used.

Findings

First hypothesis: The cognitive self-regulation strategies education causes reduction of the students’ academic burnout.

In order to test the first hypothesis, covariance test (ANCOVA) was used, and its results are presented in Table 1.

Based on the obtained data from Table (1), with the control of the effect of pre-test, a significant effect was found between the group subjects factor at the level of 0.01 (P = 0.01, F (1,41) = 32.6), so that the information in Tables 2-3 also show, the “Academic burnout” scores of subjects in experimental groups after intervention have significantly decreased, so the null hypothesis at the level of 0.01 is rejected and with 99% confidence level, can be assured that “Cognitive self-regulation strategies education” has
Table 1: Summary of ANCOVA test for intergroup factor to investigate the impact of cognitive self-regulation strategies on reducing academic burnout

<table>
<thead>
<tr>
<th>Source of Changes</th>
<th>Square Sum</th>
<th>Freedom degree</th>
<th>Square mean</th>
<th>F ratio</th>
<th>Significance level</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariance</td>
<td>1360.6</td>
<td>1</td>
<td>1360.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>298.4</td>
<td>1</td>
<td>298.4</td>
<td>345.5</td>
<td>0.01</td>
<td>0.903</td>
</tr>
<tr>
<td>Error</td>
<td>338.4</td>
<td>37</td>
<td>9.1</td>
<td>32.6</td>
<td>0.01</td>
<td>0.469</td>
</tr>
<tr>
<td>Total</td>
<td>4123.1</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Summary of ANCOVA test for intergroup factor to investigate the impact of cognitive self-regulation strategies on reducing cognitive dissonance

<table>
<thead>
<tr>
<th>Source of Changes</th>
<th>Square Sum</th>
<th>Freedom degree</th>
<th>Square mean</th>
<th>F ratio</th>
<th>Significance level</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariance</td>
<td>4250.1</td>
<td>1</td>
<td>4250.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>91.4</td>
<td>1</td>
<td>91.4</td>
<td>378.6</td>
<td>0.01</td>
<td>0.911</td>
</tr>
<tr>
<td>Error</td>
<td>415.4</td>
<td>37</td>
<td>8.1</td>
<td>8.1</td>
<td>0.01</td>
<td>0.180</td>
</tr>
<tr>
<td>Total</td>
<td>60064</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Summary of ANCOVA test for intergroup factor to investigate the impact of cognitive self-regulation strategies on academic achievement

<table>
<thead>
<tr>
<th>Source of Changes</th>
<th>Square Sum</th>
<th>Freedom degree</th>
<th>Square mean</th>
<th>F ratio</th>
<th>Significance level</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariance</td>
<td>198.4</td>
<td>1</td>
<td>198.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>21.4</td>
<td>1</td>
<td>21.4</td>
<td>68.7</td>
<td>0.01</td>
<td>0.752</td>
</tr>
<tr>
<td>Error</td>
<td>106.9</td>
<td>37</td>
<td>2.9</td>
<td>7.4</td>
<td>0.01</td>
<td>0.167</td>
</tr>
<tr>
<td>Total</td>
<td>10275</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reduced the “Job burnout” of Qom elementary girl students. The effect size also indicates that about 46.9% of the reduction of “Academic burnout” of subjects is explainable by groups.

Second hypothesis: The cognitive self-regulation strategies education causes reduction of the students' cognitive dissonance.

The research second hypothesis was also tested by covariance test (ANCOVA). Its results are presented in Table 2.

The results of Table 2 show that with the control of the effect of pre-test, the F-value related to groups at the level of 0.01, F (1, 37) = 8.1) is significant. This result means that there is a significant difference in terms of “Cognitive Dissonance” between the groups.

The comparison of Tables 1-4 also suggests that the mean of “Cognitive dissonance” of subjects who were under cognitive self-regulation strategies education, has significantly been reduced, so that the null hypothesis at the level of 0.01 is rejected and with 99% confidence level, it can be assured that “Cognitive self-regulation strategies education” has reduced the “Job burnout” of Qom elementary school students. The effect size also indicates that about approximately 18% of the variance of “Cognitive dissonance” of subjects is dependent on “Cognitive self-regulation strategies education”.

Third hypothesis: The cognitive self-regulation strategies education causes improvement of the students’ cognitive achievement performance.

The research third hypothesis was also tested by covariance test (ANCOVA) model. Its results are presented in Table 3.

Based on the obtained data from Table 3, with the control of the effect of pre-test, a significant effect was found between the group subjects factor at the level of 0.01 (P = 0.01, F (1, 37) = 7.4) so that there is a significant difference between experimental and control groups in terms of “Academic achievement”. It can be concluded that “Cognitive self-regulation strategies education” is effective in Academic performance achievement, so that the amount of this effectiveness has been estimated as equal to 16.7 percent.

Results

The main objective of the present study was to investigate the effectiveness of education and cognitive self-regulation on academic burnout and cognitive dissonance and academic performance of elementary school girl
students. The data analysis using covariance analysis showed that the cognitive self-regulation strategies education causes reduction in the students' academic burnout, the cognitive self-regulation strategies education causes reduction in the students' cognitive dissonance, and also the cognitive self-regulation strategies education causes improvement in students' academic performance. The results of this study along with the research results of Shafiei Sorek and Badri Gargari (2011) showed that there is a relationship between self-regulation learning and academic burnout and self-regulation can reduce academic burnout. This hypothesis is consistent with the research results of Abarghoei(2010) and the results of Carior (2003) which indicated that the students had better academic achievement after becoming familiar with self-regulatory strategies.

The results of this study along with the results of Panahandeh (2013) which was about the relationship between cognitive self-regulation and the academic burnout of girl students in human and medical sciences showed that the higher the use of cognitive self-regulation during learning to be increased, the academic burnout is reduced and academic performance is better and more consistent.

**References**

1. Adhami, Ashraf; Nohi, Esmat; Mohammad, Alizadeh; Sakineh, Jallili, Fatahi, Zahra The attitudes of teachers towards counseling and academic guidance and their views on counseling tasks. Iranian Journal of education in Medical science, 7-14: (1) 8. (2014).
2. Ersfalian, Ali. The investigation of the relationship between academic failure and self-concept and control location among the students of the Faculty of Humanities of Gilan University. PP. 71-80. (2011)
3. Aminiyat, Fatemeh;Deris, Fatemeh and Soleiman, Nooshin. Decrease of academic failure of the medical sciences students of Shahrekord University by using counseling. The article set of Third Seminar on Mental Health of Students No. 3 & 4. (2013)
17. Samanreh, Razavieh. The investigation of the relationship between Emotional Intelligence and Organizational Intelligence with Cognitive Dissonance and job burnout on Employees of Marvdasht Electricity Department, Master's thesis of Marvdasht Azad University. (2011).
University. (2014).
40- Maleki, Faramarz. The investigation of the relationship between Spiritual Intelligence and Emotional Intelligence with Teacher’s job Burnout in Primary Schools in Isfahan. Master’s Thesis of Khorasan Azad University. (2014).
41- Nowshadi, Zahra. The investigation of the target orientation and self-regulatory learning and academic achievement in secondary school students of Shahrekord.
50- Graham A, Moolet M & Weir, The effectiveness of advertising in Persuading women to consider the military as a career option. School of journalism and broadcasting. Oklahoma state university. (2013)
60- Vermont F, Villy C. Enhancing student progressing Norway. Teaching and Distance ,23,19-24. (2011)