The Study of Effectiveness of Teaching Metacognitive Strategies on Academic Motivation in Girls Students

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Abstract: This study was conducted to evaluate the effectiveness of teaching metacognitive strategies to enhance academic motivation on first graders in Yazd girl's junior high schools. In this research, the semi-experimental method of pre-experiment and post-experiment types with control group is used. The Applied tool in this research was Khosro Rashid's Academic Motivation Questionnaire. Statistical population was included 150 girl students with 13.2 years old average from 1nd district of Yazd Education Organization which were selected by cluster sampling method and 30 of them who had lowest academic motivation grade were assigned to two groups, randomly (15 in experimental group and 15 in control group). In order to analyze the collected data, the method of Repeated MANOVA was used. The finding showed group metacognitive processing training on girl students was effective and results in academic motivation increases.

Keywords: Academic Motivation, Metacognitive Processing, Self-Controlling, Interest in Learning, Compatible with the Needs, Strive for Success.

INTRODUCTION

Metacognition is one of the latest slogans in education and psychology1. Metacognitive knowledge in terms of knowledge about one’s own cognitive system, it is of interest to researchers. 2 Unlike cognition, which is merely the act of knowing, metacognition is the learner’s reflection about what he or she already knows or is in the process of learning.3 Education and learning researchers and experts believe that there are two possible factors that are associated with poor academic motivation. First factor: the Lack of use of cognitive strategies in learning and applying knowledge of previously learned information in new situations and ideas in evaluation of a subject and the lack of monitoring, control and evaluation of its work. Second factor: Poor performance on assignments and being reactive in learning that sometimes returns to the motivational problem. These students attribute failures to uncontrollable external factors, their lack of ability, task difficulty, and the behalf teachers.4 In
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general, both the lack of use cognitive and metacognitive strategies and poor performance in school are associated with poor academic motivation. It seems to familiarize students with cognitive and metacognitive strategies increase their academic motivation and improve their academic performance and problem-solving skills. \textsuperscript{5} Zimmerman\textsuperscript{4} indicate that students have strong incentives to make their learning more than the other students are planning. Also Coutinho \textsuperscript{6} showed that teaching metacognitive strategies have no different impact on boys and girls. Lovet's studies \textsuperscript{7} showed that compliance and compatibility with the surrounding world require new structures and change the previous personal and structural and corrections and alternative strategies will help their adjustment process to re-acquire. Lin ET all \textsuperscript{8} showed that the use of metacognitive skills more emphasis on learning skills and increase the efforts for success. In much research, metacognitive awareness and their importance in the curriculum of studies has significant effect. Moreover, metacognitive skills for success in other aspects of life, including social, economic and career have been necessary. \textsuperscript{9} Boekaert's\textsuperscript{10} reports stated that learners were interested in the course content, Motivation and readiness to recognize significantly more positive emotions were learning about the real situation. Willes\textsuperscript{11} study was conducted on learning strategies showed bilateral causal interactions between multiple factors and cognitive control, attention, and self-regulation is a continuous process.

The purpose of this study was to assess the effectiveness of teaching metacognitive strategies to enhance academic motivation on first graders in Yazd girl's junior high schools the research hypotheses are:

- Teaching Metacognitive strategies is effective on students' academic motivation
- Teaching metacognitive strategies is effective to compatibility with the needs of students.
- Teaching metacognitive strategies is effective to efforts for success in students.
- Teaching metacognitive strategies is effective to Interest in learning in students.
- Teaching metacognitive strategies is effective to self-controlling in students.

MATERIALS AND METHODS

The study sample includes all girl students who were studying in the third grade of Yazd guidance schools during 2012-2013. This population has been reported about 4,252 people in the mentioned year. This study did on a randomized cluster sampling. A total of 30 persons were in experimental groups (n = 15) and control groups (n = 15) that they were girl students in first grade of guidance school with an average age of 13.2 years. Present study is an applied research. In this study, we used semi Experimental of the pre-test and post-test by a control group. Both groups were three times measured. For both groups
pre-test was done in the first session and post-test carried out after the sessions. The follow-up test was conducted one month after the end of sessions. 150 students completed the Khosro Rashid's\textsuperscript{12} Academic Motivation Questionnaire that 30 individuals among them who received the lowest score, were randomly assigned to the two groups of test and control. The experimental group was trained on Teaching Metacognitive strategies in 8 sessions of 90 minutes and the control group did not receive any training method. The sessions were held weekly that lasted for 8 weeks. For data analysis, we have used Repeated MANOVA.

Data collection tool in this study is Khosro Rashid's\textsuperscript{12} Academic Motivation Questionnaire. This questionnaire was designed by Rashid with 30 questions in three subscales of talent, effort and context. The primary form of the questionnaire has 53 locutions that the makers asked the three groups including: university professors, teachers and students to evaluate the locutions and then remove or replace items were inappropriate or vague, in order to investigate its content validity. To evaluate the validity of scale factors, by confirmatory factor, analysis we extracted three factors of talent, effort and context. Finally, the number of items was reduced to 30. Khosro Rashid\textsuperscript{12} reported the reliability of this questionnaire using Cronbach's alpha for whole questionnaire and each subscale of talent, context and effort respectively: 0.77, 0.69, 0.81 and 0.67.

**RESULTS**

In this study, a group variable with two levels (control and experimental groups) and five continuous variables (academic motivation, compatibility with the needs, efforts for success, interest in learning and self-controlling.) each measured in three stages (variable with three levels: pre-test, post-test and follow-up tests) were used. Therefore, Repeated MANOVA chosen to use. Table 1 shows the results of this test. In this table, the statistics Pillai’s Trace has positive value between zero and one. As the value of this statistic is close to one the grouping variables have a significant effect on the dependent variables. Also the significant value is less than 0.01. Thus the test variable (repeated variable), group variable and the interaction of these two variables (group × test) affected the dependent variables at the significance level of 0.01.

<table>
<thead>
<tr>
<th>Effect</th>
<th>Statistics</th>
<th>Values</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test (repeated)</td>
<td>Pillai's Trace</td>
<td>0.843</td>
<td>33.2</td>
<td>0.000</td>
</tr>
<tr>
<td>Groups</td>
<td>Pillai's Trace</td>
<td>0.981</td>
<td>21.34</td>
<td>0.000</td>
</tr>
<tr>
<td>Test*Groups</td>
<td>Pillai's Trace</td>
<td>0.934</td>
<td>27.2</td>
<td>0.000</td>
</tr>
</tbody>
</table>

**Table 1.** Result of multivariate analysis of variance with repeated measures
To investigate this effect was on which of the dependent variables, the ANOVA tables for each of the dependent variables is investigated. Result of MANOVA test in each of the dependent variables is listed in Table 2.

Table 2. Results of MANOVA test for the variable of the research

<table>
<thead>
<tr>
<th></th>
<th>self-controlling</th>
<th>Efforts for success</th>
<th>compatibility with the needs</th>
<th>academic motivation</th>
<th>Interest in learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effect</td>
<td>F</td>
<td>Sig</td>
<td>F</td>
<td>Sig</td>
<td>F</td>
</tr>
<tr>
<td>Test(Repeated)</td>
<td>33</td>
<td>0.000</td>
<td>41.2</td>
<td>0.000</td>
<td>27.3</td>
</tr>
<tr>
<td>Group</td>
<td>7.89</td>
<td>0.003</td>
<td>51.6</td>
<td>0.000</td>
<td>21.5</td>
</tr>
<tr>
<td>Test*Group</td>
<td>4.56</td>
<td>0.021</td>
<td>43.9</td>
<td>0.000</td>
<td>19.3</td>
</tr>
</tbody>
</table>

Table 2 shows the effect of group variables (test variable, group variable and the interaction between these two variable (group × test)) at alpha level of 0.01 on academic motivation, compatibility with the needs, efforts for success, interest in learning and self-controlling is significant.

Significant effect of group variable shows the mean scores of dependent variables (academic motivation, compatibility with the needs, efforts for success, interest in learning and self-controlling), have significant difference between control and experimental groups.

Because the mean of these variables in experimental group is larger than the mean of the control group in the post-test, we conclude that teaching metacognitive strategies on girl students was effective and results in academic motivation and its subscales increases.

Also significant the effect of test variable with three levels (pre-test, post-test and follow-up tests) shows that the mean of dependent variables have significant difference in three times that scores measured.

In table 3 Using LSD post hoc-test indicated that the differences in which levels of test have been different.

Table 3. LSD post hoc test

<table>
<thead>
<tr>
<th>Groups</th>
<th>self-controlling</th>
<th>Efforts for success</th>
<th>compatibility with the needs</th>
<th>academic motivation</th>
<th>Interest in learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groups</td>
<td>F</td>
<td>Sig</td>
<td>F</td>
<td>Sig</td>
<td>F</td>
</tr>
<tr>
<td>Experimental group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest</td>
<td>29.3</td>
<td>0.00</td>
<td>42.5</td>
<td>0.00</td>
<td>34.2</td>
</tr>
<tr>
<td>posttest</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Follow-up</td>
<td>2.33</td>
<td>0.12</td>
<td>2.11</td>
<td>0.21</td>
<td>1.99</td>
</tr>
<tr>
<td>tests-post test</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Control group**

<table>
<thead>
<tr>
<th></th>
<th>Pretest – post test</th>
<th>Follow-up tests – post test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control group</td>
<td>1.44 0.26 1.39 0.54 1.79 0.44 2.98 0.21 2.45 0.43</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.67 0.21 0.36 0.51 2.43 0.31 2.45 0.46 1.97 0.27</td>
<td></td>
</tr>
</tbody>
</table>

The result of LSD test shows that in the experimental group the mean of the dependent variables in the post test and follow-up test is significantly larger than the mean of the pretest. But in control group the means have no significant difference in three times that measured.

**DISCUSSION**

This study examined the effectiveness of teaching metacognitive strategies on academic motivation and its subscales improvement in girl students. According to the results, Hypothesis 1 at p <0.01 were accepted. This result indicates that teaching metacognitive strategies on academic motivation. The results of the present study on the above hypothesis are agreed to the findings of Pintrich and Schunk and Zimmerman.

Hypotheses 2 at p <0.01 were accepted. Confirm the hypotheses 2 means that performance of control and experimental groups are different in post-test. It shows that teaching metacognitive strategies could improve the compatibility with the needs of students. In this area Lambert (2000) shows that the use of metacognitive skills leads to adjust to new situations and to monitor their progress. Chemers and Garcia in their study expressed more metacognitive strategies, increases school compatibility of student. Jabari in his study shows that compliance and compatibility with the surrounding world require new construction and alteration of personal constructs previous monitoring.

Hypotheses 3 were accepted at p <0.01. Confirming hypotheses 3 means that the performance of test and controlling groups in post-test were different and teaching metacognitive strategies has been able to improve girl's efforts for success. This hypotheses state that metacognitive strategies lead to enhance education efforts for success. Findings of Safari, Vaidya and Kayashima & Inaba confirm these hypotheses.

Hypotheses 4 at p <0.01 were accepted. These hypotheses indicate that Teaching metacognitive strategies increase students' interest in learning. Pintrich & Schunk Have found that students are interested in their courses than students who are not; they were used cognitive and metacognitive strategies. The result of this hypotheses is agree with Boekaerts' s report (1996) stated that Learners who were interested in the course content have considerably higher
motivation and readiness to recognize and positive emotions about the real situation.

Hypotheses 5 accepted at p < 0.01 level. This hypotheses Implies that teaching metacognition strategies increase self-control in students. Results from several studies have confirmed this hypothesis. Vaidya 16 shows s that Students who use the skills of Learning Strategies grow their self-learning and Self-regulatory. In this regard, findings of Schunk & Zimmerman 18 show that Learning strategies and to control the learning help the achievement of its objectives and supports learning. Willes 11 indicate that tow way causal interactions between multiple factors and the cognitive - beliefs and cognitive control and self-regulation of attention and there is a continuous process corresponded.

REFERENCES


