Studying the Effects of Teaching Cognitive and Metacognitive Strategies on Self-efficacy and Goal-selecting of Orphan Girl Students

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Abstract

The research was performed aiming at studying the effects of teaching cognitive and metacognitive strategies to the self-regulation learning of girl students in orphanage centers and at guidance school level. The sample included 20 girl students living in residential centers supervised by the Tehran Welfare Organization; 10 of which were assigned in the experimental group and 10 in the control group. The standardized motivational strategies questionnaire (MSLQ), was administered as pre-test and post-test to collect data. In this process, after the experimental group took the pre-test, they were assigned in an 8-session course in which they learned cognitive and meta cognitive strategies and then the post-test was administered for both experimental and control groups and their scores were compared by T-test. The results showed that:

There’s a significant difference between the self-efficacy of the orphan girl students who took the learning cognitive and metacognitive strategies and those who didn’t take the course. There’s a significant difference between the goal-selecting of the orphan girl students who took the learning cognitive and metacognitive strategies and those who didn’t take the course.

Keywords: Cognitive Strategies, Meta Cognitive Strategies, Self-efficacy, Goal-selecting;

1. Introduction

One of the important issues in differentiating successful and unsuccessful students is their self-concept and point of view about their learning capacities and performance. According to Zimmerman (1995) personal processes including perceived competence and efficacy are proved to be appropriate to explain motivational characteristics such as effort, persistence and task selection (Nekouyi, 1998). Among different thoughts which effect on people’s performance, they're judging their ability to control life is the most essential. In this sense we can say that educational achievement increases self-efficacy; while educational failure decreases it, in case of its weakness. Learners who compare their performance with that of successful learners in doing homework, trust themselves in accomplishing the assignments. Bandura (1986) defines self-efficacy as the personal beliefs about their ability to learn and perform learned skills. According to Khadem (2005) self-efficacy refers to our expectations and confidence about the effectiveness of our responses to face the problems; people with high self-efficacy are more persistent in confronting with problems and try as many solutions as they can so that they could accomplish the task.
Bandura (1986) proposes that students’ processes of self-efficacy and self-regulation are totally correlated and influenced by achievement objectives. Objectives are the standards in accordance with which the performance achievements are defined. According to general model of expectancy-value of self-regulated learning, students’ objectives in participating educational activities can be both intrinsic and external (Alhasan, 2004). The students who adopt intrinsic educational objectives focus on domination, understanding, challenge and curiosity; whereas, external objective setters focus on reward, score and others’ confirmation. According to Zimmerman (2001) objective selecting is adopting a standard as the objective of students’ activity. As Gholami (2003) concluded, intrinsic objective setting is in most accordance with self-regulated learning; because if students regard learning and self-improvement as their objective, they will apply cognitive and metacognitive strategies in a better sense. However, adopting an external objective will lead them not to achieve their objectives with deep cognition. According to Wolters (1998), there is a close relationship between motivation and self-regulated learning in which motivational constructs (self-efficacy, objective selecting and interest) are applied to explain the regulative nature of cognitive and metacognitive learning strategies which have proved to be effective on students’ learning skills.

Strategy is a general map or a set of operations which are planned to achieve a certain objective. Learning strategies requires making some changes in educational plan, e.g. applying questions during and after instruction in order to enhance students’ learning rate. Learning strategies involve behaviors and images which are applied to select, organize and integrate new information with previous ones (Weinstein and Mayer, 1986). Two impressive strategies which have been widely used and tested in all aspects are cognitive and metacognitive learning strategies. According to Weinstein and Mayer (1986), cognitive strategies focus mainly on information processing and include rehearsal, semantic elaboration and organization; while metacognitive strategies include the behaviors that the learner exhibits through learning situation, some of these behaviors help the students to control their attention, anxiety and interest.

As mentioned above, motivation is a key factor for students to apply learning strategies in order to acquire high self-efficacy and select intrinsic educational objectives. However, do all students have equal capacities for motivation. One group which the researcher always is concerned about is the group of orphan students; students who don’t have a family life and live in orphan centers. Masoumi (2006) has quoted from Bender and Yarnel (1941) that due to their clinical symptoms, this group are children referred to as psychopathic or institutional children. Saleh (2000) proposes five characteristics for these children: a) lack of concentration; b) communication problem; c) aggression; d) attachment.

Much research has been proposed and performed to prove the effectiveness of cognitive and metacognitive learning strategies on students’ self-efficacy and objective selecting; however, regarding the mentioned clinical characteristics of orphan children, is teaching the strategies enough by itself and without providing some motivational courses to enable them to apply the strategies and become self-regulated learners. This research was designed and performed to find out the effects of teaching cognitive and metacognitive strategies on these students’ self-efficacy and objective selecting regarding the fact that they suffer from great motivational and emotional problems.

2. Method

2.1 Participants

20 students living in orphan centers were selected through random sampling from the statistical universe of orphan girl students living in orphan centers of Tehran and studying at guidance school. The mean score of the sample’s age was 13. 10 of the students were assigned in experimental group and other 10 were assigned in control group. Both groups took Pintrich and DeGroot’s (1990) MSLQ measurement tool as pre-test and the scores were recorded. Then the experimental group was taught the cognitive and metacognitive learning strategies by the researcher and finally MSLQ was again given to both groups and the scores were recorded again.
2.2 Measurement

The MSLQ was developed using a social-cognitive view of motivation and self-regulated learning (Pintrich, 2003). In this model, students’ motivation is directly linked to their ability to self-regulate their learning activities (where self-regulated learning is defined as being metacognitively, motivationally, and behaviorally active in one’s own learning processes and in achieving one’s own objectives (Eccles & Wigfield, 2002). This framework assumes that motivation and learning strategies are not static traits of the learner, but rather that “motivation is dynamic and contextually bound and that learning strategies can be learned and brought under the control of the student” (Duncan & McKeachie, 2005, p. 117). Said another way, students’ motivations change from course to course (e.g., depending on their interest in the course, efficacy for performing in the course, etc.), and their learning strategies may vary as well, depending on the nature of the course. With this theoretical framework in mind, the MSLQ was designed to measure students’ motivation and self-regulated learning as they relate to a specific course. That is, the course is seen as the unit of measure, with the idea that the course is ideally situated between the very general level of “all learning activities” and the very specific and unworkable level of “every learning situation within the course” (Duncan & McKeachie, 2005).

The MSLQ consists of 81, self-report items divided into two broad categories: (1) a motivation section and (2) a learning strategies section. According to the MSLQ Manual: The motivation section consists of 31 items that assess students’ objectives and value beliefs for a course, their beliefs about their skill to succeed in a course, and their anxiety about tests in a course. The learning strategy section includes 31 items regarding students’ use of different cognitive and metacognitive strategies. In addition, the learning strategies section includes 19 items concerning student management of different resources (Pintrich et al., 1991) All told the MSLQ consists of 15 sub-scales, six within the motivation section and nine within the learning strategies section. The instrument is completely modular, and thus the scales can be used together or individually, depending on the needs of the researcher, instructor, or student. Table 1 lists the 15 sub-scales that comprise the MSLQ. Scoring the Instrument Students rate themselves on a 7-point Likert scale, from 1 (not at all true of me) to 7 (very true of me). Scores for the individual scales are computed by taking the mean of the items that make up the scale. For example, the test anxiety scale is composed of five items. A student’s score would be calculated by summing these five items and computing the mean. Cronbach’s alpha for motivational sub-scales was 0.62 to 0.93 and it was 0.52 to 0.80 for cognitive strategies’ sub-scales (Valleau Achacose, 2002). Pintrich and DeGroot applied factor analysis and Cronbach’s alpha to study the validity and reliability of MSLQ; their findings show that Cronbach’s alpha is 0.89 for self-efficacy, 0.87 for intrinsic value, 0.75 for test anxiety, 0.83 for applying cognitive strategies and 0.74 for applying metacognitive strategies.

3. Results

Independent-sample T Test was applied to study if there is a significant difference between control and experimental scores.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive strategies' application</td>
<td>Experimental</td>
<td>4.5</td>
<td>10.731</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>3.5</td>
<td>8.276</td>
</tr>
<tr>
<td>Metacognitive strategies application</td>
<td>Experimental</td>
<td>0.5</td>
<td>5.93</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>-0.1</td>
<td>5.13</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>Experimental</td>
<td>-3.6</td>
<td>7/07</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>3.1</td>
<td>9.68</td>
</tr>
<tr>
<td>Intrinsic objective selecting</td>
<td>Experimental</td>
<td>-1.5</td>
<td>4.97</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>3.3</td>
<td>5.68</td>
</tr>
</tbody>
</table>

*p<0.05

The Independent T score for the mean of differential scores of control and experimental groups in applying cognitive strategies variable was 0.23 (df=18) and regarding the fact that the significance level was p<0.81 which is more than p<0.05, with 95% confidence there’s no significant difference between control and experimental groups’ applying cognitive strategies. According to table 3.1, the mean of experimental group (4.5) was more than that of
control group (3.5); therefore the independent variable of teaching learning strategies was effective on participants’ application of cognitive strategies but not significantly.

The Independent T score for the mean of differential scores of control and experimental groups in applying metacognitive strategies variable was 0.24 (df=18) and because the significance level was p≤0.81 which is again more than p≤0.05, with 95% confidence that there’s no significant difference between control and experimental groups’ applying metacognitive strategies. However, according to table 3.1, the mean of experimental group (0.5) is more than that of control group (-0.1) and this shows that teaching learning strategies was effective but not significantly.

The Independent T score for the mean of differential scores of control and experimental groups in self-efficacy was 1.76 (df=18) and since significance level was p≤0.009 which is less than p≤0.05, with 95% confidence there is a significant difference between control and experimental groups’ self-efficacy. However, according to table 3.1, the difference of the two groups’ means (experimental group: -3.6 and control group: 3.1) could imply that that this significance difference isn’t due to the independent variable being teaching learning strategies.

The Independent T score for the mean of differential scores of control and experimental groups in intrinsic objective selecting was 1.97 (df=18) and the significance level was p≤0.006 which is less than p≤0.05 and therefore with 95% confidence there is significant difference between control and experimental groups’ intrinsic objective selecting. Teaching learning strategies as being the independent level seem not to have effected on this difference, since the mean of experimental group (-1.5) is less than that of control group (3.3).

4. Discussion

According to Reev (2005), motivational failure is the reduction in the interest to try. Motivational failure is discovered when the person’s interest in providing voluntary confronting responses is reduced or totally vanished. Usually when people care about a consequence and the environment is relatively appropriate for the consequence to happen, they will endeavor eagerly to achieve those outcomes.

Cowan and Cowan (2002) proved that different conditions both in classroom and out of that effect on children’s development and learning. On the other hand, neglectful parenting is a style in which children are left alone and nobody cares about them and therefore they have low self-control, aren’t independent learners and don’t have achievement motivation (Byabangard, 2005). The whole situation is a representation of orphan children’s condition. Accordingly the research participants had low learning motivation and therefore low intrinsic objective selecting and self-efficacy.

Saif (2007) defines learning strategies (both cognitive and metacognitive) as being capable to be learned. Referring to previous research, Slavin (2006) concluded that we can teach the learning strategies to students and enable them to act consciously in their learning and thinking process. This research tried to find the effects of learning strategies on orphan children’s self-efficacy and objective selecting which are important elements of learning motivation. Applying cognitive and metacognitive strategies was also studied and taken to consideration. The results showed that orphan children’s self-efficacy increases after teaching learning strategies; i.e., there’s a significant difference between the self-efficacy of the orphan students who take learning strategies’ course with that of those who don’t take this course. This result is in accordance with that of Ablard and Lipschultz (1998) whose research was about the relationship between learning strategies and motivation and also proves that Ebrahimi Ghavamabadi’s (1998) finding about the effectiveness of learning strategies on students’ self-concept is true for orphan children.

Objective selecting was another motivational element which increased in orphan students after the instruction of learning strategies. This result supports that of Ablard and Lipschultz (1998) and isn’t in accordance with the result of Tolou Takmili’s (2004) research on the effectiveness of teaching learning strategies on students’ self-regulated learning.

However, orphan students didn’t show any significant difference in applying cognitive strategies after instruction of learning strategies and this result doesn’t support that of Ebrahimi Ghavamabadi (1998) and Tolou Takmili (2004). Applying metacognitive strategies also didn’t change significantly for orphan students and this result doesn’t
support Theide, Therriault and Anderson’s work on the effect of accuracy of metacognitive monitoring on learning the texts and also that of Ebrahimih Ghavamabadi (1998). This result is in accordance with Tolou Takmili’s (2004) research data.

Research shows that orphan students have low level of educational achievement and this could be due to their low level of motivation in learning and studying. One very obvious obstacle which caused their cognitive and metacognitive application not to improve through the process was bad living condition including crowded rooms, not having special place to study, not having a supportive person to observe their learning process and not having enough time and appropriate place to instruct the strategies. Therefore in addition to lack of motivation, which is a key problem for orphan students, bad living and studying conditions prevents them to apply learning strategies in order to improve their learning.

Orphan children are highly preoccupied with their dreams and ambitions. Although discussing their objectives didn’t increase their educational motivation, they practiced objective selecting in different aspects (mostly personal) including educational ones. Moreover, they were constantly encouraged and reminded of their learning potentials and this increased their self-efficacy.

So we can conclude that according to Yukselturk and Bulut (2007), among motivational beliefs including higher levels of intrinsic and external objective value, self-efficacy, control beliefs and task value, just the first two increased because they were more related to themselves that studying.

Accordingly a good strategy to improve orphan students’ learning is to hold some sessions to improve their level of motivation and then work on their learning potentials to make them self-regulated learners.

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