Effect of Combined Mastery- cooperative Learning on Emotional Intelligence, Self-esteem and Academic Achievement in Grade Skipping

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Abstract

In this study, 25 students of middle school who were eligible to take grade skipping test were randomly selected. Then they filled out questionnaires of emotional intelligence and self esteem, and participate in the teaching program. The questionnaires were re-administered, after the educational program and one year later. To examine academic achievement, the grade point average (GPA) of the first year of the middle school, the GPA of the grade skipping exam, and the GPA of the third grade of the middle school were taken into account. Results show a significant increase in emotional intelligence and self-esteem.

Keywords: cooperative learning, mastery learning, emotional intelligence, self-esteem, academic achievement.

1. Introduction

In recent decades, cooperative learning has been widely used as a substitute for the traditional instruction (Mills & Durden, 1992; Slavin, 1991). Conducted researches reveal that cooperative learning is superior to traditional methods of educating students (Cohen, 1994; Shachar & Sharan, 1994; Sharan, 1980,1990; Sharan & Sharan, 1992; Slavin, 1983; Johnson & Johnson, 2002 ). Cooperative method of education has several advantages over traditional method (i.e., lecture-based teaching, assessments of the individuals and competitive rankings), including more academic achievement, particularly in mathematics and science, completion of education, advanced skills of critical thinking and reasoning, in-depth knowledge of the learned materials, less harmful activities in class, focus on the homework, less anxiety and stress, stronger motivation for learning and achievement, enhanced ability to see situations from other people’s perspectives, positive and supportive communications with the peers, more positive attitudes to the courses and higher self-esteem. It is due to its emphasis on conceptual homework, problem solving, decision making and creative responses (Erdem, 2009; Foley & O’Donnell, 2002; Nichols & Miller, 1994; Sherman, 1994; Yager & Tamir, 1993).

Mastery learning is considered as another useful and effective educational method. This method is potentially useful for all students with various talents in general and weak students who have failed exams and are less motivated to study in particular (Ironsmith & Eppler, 2007). As learning method in educational systems is based on group education, some students learn lessons better than the others. The teacher may not interact properly with the
whole members of a group. This is because learning capacity of some students is less than average due to their personal characteristics (such as inherent and family characteristics). Mastery learning is responsive to the needs of these students who need more time, attention and resources to learn (Bloom, 1976). Unlike other educational methods, modified method of mastery learning provides weak students with extra time to do their homework (Mevarech, 2001).

According to the available reports there is a negative relation between academic achievement of the students and quitting school. Taking into account the high importance attached to school, we would not be astonished to see huge amounts of surveys conducted on factors that affect the educational success in school. One of the factors that is recently believed to affect academic achievement is emotional intelligence (Yazici, Seyis & Altun, 2011).

Emotional intelligence that was initially considered as one of the subcategories of social intelligence was further referred to as a wide spectrum of intelligence embracing social intelligence (Salovey & Mayer, 1990). It was then introduced as the way every individual assesses his as well as other people’s emotional precision to express proper emotions and process emotional data including regulation of emotions to have a better life (Salovey & Mayer, 1990), organization and management of emotions, self-action, and ability to understand other people’s emotions, and direct communications (Goleman, 2010). In fact, emotional intelligence is a psychological skill that not only needs emotion, but also requires an understanding of its meaning (Espstein, 1998). Emotional intelligence is teachable and could be developed properly (Mayer & Salovey, 2004). It appears that those educational instructions that pay attention to emotional intelligence in addition to cognitive intelligence make positive changes in academic achievement and quality of the lives of the students (Yazici, Seyis & Altun, 2011).

Self-esteem is regarded as one of the multiple indices that ensures life success and psychological health of the people. Self-esteem is defined as a form of self-acceptance, self-appreciation and self-respect (Brase & Guy, 2004). Studies have found that one half to one thirds of the people experience low self-esteem in early adolescence (Harter, 1990; Hirsch & Dubios, 1991; Pope, 1989). Low self-esteem is related to some social repercussions including drug abuse, violation of rules, discontent, depression, eating disorders, slow recovery (Hoyle, 1999; Leary & McDonald, 2001; cited in Pruessner et al., 2005 ), internet addiction (Armestrong, Phillips & Saling, 2000), educational failure and anxiety (Tokinan, & Bilen, 2010; Orth, Trzasniewski & Robins, 2010). However, high self-esteem is related to academic achievement and career success (Tokinan, & Bilen, 2010; Orth, Trzasniewski & Robins, 2010), initiative, strong coping skills, dealing with challenges, content, logical thinking and problem solving skill as well as longevity (Baumeister et al.,2003; Mutlu, Balbag & Cemerk, 2010).

The current study aims to assess and identify effective effects of combining two methods of cooperative learning and mastery learning in a special educational context (grade skipping). The research attempts to assess the effects of these two methods on psychological variables of emotional intelligence and self-esteem in addition to academic achievement due to their important roles in the mental health and educational success of the students.

2. Material

2.1. Participants

The population of the study is comprised of first grade female students of a volunteer middle school in Tehran. In a quasi-experimental study with repeated measure design (three times) on one group, 25 students who according to the bylaw of Ministry of Education are eligible to take grade skipping test (least GPA18 and least score 15) were randomly selected.

2.2. Procedure

The students were asked to fill out emotional intelligence questionnaires of Bar-On (1997) and self-esteem questionnaires of Coopersmith (1967), and participate in a 45-day teaching program for 11 hours a day. The same both questionnaires given prior to the educational program were re-administered, after the students had completed the educational program and then taken the grade skipping test. These same both questionnaires were then administered for a third time, one year later. To examine the academic achievement variable, in the pre-test, the grade point average (GPA) of the first year of the middle school, in the post-test the GPA of the grade skipping exam and in the follow-up phase the GPA of the third grade of the middle school was taken into account. Data were analyzed by statistical test of one-way analysis of variance (ANOVA) with repeated measures at the level of significance of P< 0.01.
2.3. Measures

2.3.1. Emotional intelligence questionnaires of Bar-On (1997)

This questionnaire was initially drawn up by Bar-On (1997) and includes 15 subscales, i.e. emotional self-awareness, assertiveness, self-respect, self-actualization, independence, empathy, interpersonal interactions, social accountability, problem solving, reality testing, flexibility, stress tolerance, impulse control, happiness and optimism. The lowest Cronbach's $\alpha$ (0.69) and the highest Cronbach's $\alpha$ (0.86) go to the subscale of social accountability and self-respect respectively, with an overall average of internal consistency coefficient of 0.76. On the basis of the responses of the examinees as well as the experts' views, Bar-on (1997) concluded that this questionnaire enjoys high face and content validity.

2.3.2. Self-esteem questionnaires of Coopersmith (1967)

This scale has 58 questions out of which 8 questions are lie detectors. Overall, 50 questions have been divided among 4 subscales of general self-esteem, social self-esteem (peers), family self-esteem (parents) and educational self-esteem (school). It needs to be mentioned that in the current test just general self-esteem is assessed. The scores range from 0 to 50. If the respondent scores above 4 by answering 8 questions of the lie detector, the test has a low validity and the examinee is pretentious. A research conducted on 230 students in 1991 showed the average of 25.4. Scores higher and lower than average indicate high and low self-esteem respectively. The test’s validity measured by correlation between the test’s score with the students’ last year GPA of is 0.96 for boys and 0.71 for girls. Meanwhile, the test-retest reliability is 0.90 for boys and 0.92 for girls. The reliability coefficient of Cronbach's alpha is 0.52 that is acceptable from the psychometric point of view. Validity coefficient obtained through correlating the test scores with scores of social support questionnaires is 0.39 at the level of significance of $P<0.01$.

3. Intervention

The intervention consisted of a 45-day (continued) combined mastery and cooperative learning Instruction in summer led by the corresponding author of this study. The students met with the trainer 11 hours per day. They were grouped to 5 cooperative groups with 5 people in. The program focused on techniques of cooperative learning for groups and mastery learning for persons. The Aim of this program was aided to students for skipping from First year of middle school to third year of it.

4. Data analysis

The results obtained are expressed as mean ± SEM (standard error of mean). Analysis of one way ANOVA with repeated measure design was used to test the efficacy of the combined mastery-cooperative learning. Specifically, post treatment scores and follow up scores for each dependent measure were examined, statistically controlling for pretreatment score. $P$-values less than 0.05 were considered statistically significant.

5. Result

5.1. Descriptive statistics

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>Follow up</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>Sd</td>
<td>M</td>
</tr>
<tr>
<td>Emotional Intelligence</td>
<td>57.68</td>
<td>15.28</td>
<td>72.76</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>38.04</td>
<td>6.62</td>
<td>44.60</td>
</tr>
<tr>
<td>Academic achievement</td>
<td>19.12</td>
<td>0.70</td>
<td>19.00</td>
</tr>
</tbody>
</table>

$N=25$, $M=$ mean, $Sd=$ standard deviation

As it is observed in the table 1, the means of emotional intelligence and self-esteem have increased in post-test and follow-up phases.
4.2. Inferential statistics

Table 2. One way ANOVA analysis with repeated measure design

<table>
<thead>
<tr>
<th>Variables</th>
<th>Value</th>
<th>F(2,23)</th>
<th>P&lt;</th>
<th>size of effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Intelligence</td>
<td>0.459</td>
<td>13.56</td>
<td>0.001</td>
<td>0.541</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>0.432</td>
<td>15.12</td>
<td>0.001</td>
<td>0.568</td>
</tr>
<tr>
<td>Academic achievement</td>
<td>0.793</td>
<td>4.73</td>
<td>0.070</td>
<td>0.207</td>
</tr>
</tbody>
</table>

Note: F ratios are obtained from Wilk’s lambda statistics

As it is observed in table 2, comparison of emotional intelligence and self-esteem through one-way analysis of variance with repeated measures shows the significant differences in time 1 (before the intervention), time 2 (after the intervention) and time 3 (one year later) in the mentioned variables (P < 0.05). The means show an increase in the variables. Time did not have a significant effect on academic achievement. Emotional intelligence and self-esteem effect sizes are 0.541 and 0.568 respectively. Using Cohen’s instructions (1988) that introduce small effect size of 0.01, medium effect size of 0.06 and large effect size of 0.14, the mentioned effect sizes are too big and indicate significant impact of time on variables.

Table 3. Comparison of means in different phases of the study

<table>
<thead>
<tr>
<th>Variables</th>
<th>Md (1,2)</th>
<th>P&lt;</th>
<th>Md (2,3)</th>
<th>P&lt;</th>
<th>Md (1,3)</th>
<th>P&lt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Intelligence</td>
<td>15.10</td>
<td>0.001</td>
<td>0.160</td>
<td>0.637</td>
<td>15.24</td>
<td>0.001</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>9.52</td>
<td>0.001</td>
<td>0.16</td>
<td>1.00</td>
<td>6.68</td>
<td>0.001</td>
</tr>
<tr>
<td>Academic achievement</td>
<td>0.36</td>
<td>0.317</td>
<td>0.04</td>
<td>1.00</td>
<td>0.18</td>
<td>0.153</td>
</tr>
</tbody>
</table>

Md= Differential mean, 1= pre-test, 2= post-test, 3= follow up.

As it is seen in table 3, differential means of pre-test and post-test are significant in the variables of emotional intelligence and self-esteem. Table 1 shows that this level of significance is in line with an increase in the scores of the post-tests. Differential means of post-test and follow-up are not significant in any of the variables of the research. This shows stability of the results after one year.

6. Discussion

The findings of the study show that while combined mastery-cooperative learning for grade skipping has resulted in a significant increase in emotional intelligence and self-esteem, no significant change is observed in academic achievement. These results are consistent with researches relevant to positive effects of cooperative learning and mastery learning on academic achievement and psychological variables, i.e. Cohen (194); Shachar & Sharan (1994); Sharan (1980, 1990); Sharan & Sharan (1992); Slavin (1983); Johnson & Johnson (2002); Foley & O’Donnell (2002); Nichols & Miller (1994); Sherman (1994); Yager & Tamir (1993); Tokinan, & Bilen (2010); Orth, Trzasniewski & Robins (2010); Yazici, Seyis & Altun (2011).

The results of the current research reveal that the importance of this educational method is not just restricted to educational success; rather it ensures mental health of the people through creating a positive dependence, cooperation and unity among members of the group and develops healthier personalities. The method paves the way for skipping over one or more grade levels with the aim of reducing the duration of education as well as psychological and economic problems.

In related to emotional intelligence, this educational method has improved level of recognition and awareness of the students of their own capabilities. It has also empowered them to understand their own needs, demands and emotions as well as those of other people. The method encourages a sense of responsibility in students and helps them to be accountable for their objectives and actions. The method is based on offering help and support and aims to promote one’s and other people’s level of learning. In addition this educational method lays the groundwork for boosting the student’s self-esteem in the whole process of learning through enforcement of discipline and order, administration of justice in the class, respect for the rights of every individual student, fair behavior, allocation of individual and group responsibilities, attention to the students’ positive characteristics, abilities and success, encouragement and approval of their actions, provision of proper feedback, consideration of their competence and skills and assessment of each student on the basis of her own abilities rather than comparing them with others.
In this research academic achievement showed no significant change over time. This has happened because of the academic failure caused by changing the grade level and does not indicate that the method has had no impacts on the variable. Skipping over one year is usually accompanied by educational failure due to more difficult subjects and anxiety created by change. However, not only skipping one grade level had no negative impacts on the performance and scores of the examinees of this survey, but also optimum and desirable educational level had been maintained prior to the start of the course. This indicates the method’s success in achieving the expected educational outcomes and ensures academic success of the students.

In Conclusion, it could be stated that combined cooperative-mastery learning is considered as an excellent and effective method in promoting grade levels of the students. In order to achieve the high objectives of education, health and the economy, it is suggested to implement this method as a proper approach in the educational system. It is also proposed to implement the findings of this study in elementary and middle schools by means of random sampling, larger sample sizes and control group.

References


