Effect of art education in developing critical thinking of the students

Mostafa Jowdat *
Department of Educational Sciences, college of Educational Sciences, Urmia Branch, Islamic Azad University, Urmia, Iran

Maryam Delkhoon
Department of Educational Sciences, college of Educational Sciences, Urmia Branch, Islamic Azad University, Urmia, Iran

Abstract

This research aimed at identifying effects of art education on the developing critical thinking skill in primary school students. Statistical population of research are all male high school students from grade three to five of Shahed school in district 2 of Uremia during academic year 2013-2014 who were 540 students. 30 students were selected in two groups 15 controls and 15 tests with simple random sampling. In data acquisition, critical thinking measurement test of Robert Ennis was used and validity and reliability was calculated. Descriptive data was used for classification of data and data analysis was conducted by using Levene and Box test and Wilkes’ Lambda test in %5 significance level. This study is based on the assumption of the effect of increasing hour of art education on the critical thinking of male primary school students. Posttest with control group was used for hypothesis testing. Ten session class was held twice a week and community of inquiry class education method by Sharp Lipmann and intellectual stories of Philip Cam and Robert Fisher were used. Results of research showed that increasing art education hour in curriculum is effective in improving critical thinking skill of students.

Keywords: art education, increasing curriculum hour, critical thinking, community of inquiry.
Introduction

Regarding the importance of thinking, today, thinking education in most developed countries, especially critical and high level thinking, is considered as the final goal of education and the main product of education system of society. Due to needs of society for reasonable and scientific principles and since these skills can be thought, education system should seek comprehensive growth of these skills in the students. In fact, critical thinking is an integral part of decision making. Critical thinking, as a learning tool, trains leaners with the art of reason and increases their readiness for dynamic success out of classroom. One of the suggested methods for developing such characteristics in the students is educating them with an active and problem-based method. Among supposed educational strategies, one strategy by which learners can guided toward goals is art education. This research, by assuming the effect of art education on the improving critical thinking, seeks to determine empirically the amount of this relation and effect. Interest in developing intellectual competences is not the phenomenon considered only in recent ear. Such interests are rooted in the education history (Shabani, 2003, p.17). Practices that are conducted for thinking skills need some slight changes in the quality and quantity of teacher-student and student-teacher dialogues in the classroom, but these changes are difficult to develop (Tricky & Topping, 2007). Unfortunately, modern schools have focused their attention on transferring information and scientific facts and became far away from developing thoughtful and creative human. This question includes a suspected look at the status quo and a sublime look at the opportunities beyond current condition. Therefore, these questions can be helpful for most policy makers of social movements and education system. Society can renew and revise itself based on these questions of children, become equipped with critical thinking, invents and become creative, solve the problems and discover new ideas. In advanced and dynamic education system, an individual is important who questions and is creative, sees the defect and with sublime look and open thinking develop transformations. Therefore, they are important and valid in these atmospheres. Among criticism of current education system, we can refer to non-inquiry, passivity, lack of critical thinking and individualism which is enhanced by the school. Non-inquiry is shown with lack of motivation and exciting stimulant and passivity is shown by the tendency of students for indisputable following of teacher instructions and alienation with class, teacher and textbook. In lack of critical thinking, students do not learn how to criticize and correct themselves and others. Unfortunately, despite emphasis and attention to thinking in the goals of education and claims of practitioners and education authorities, in practice, there is no will and enough motivation for encouraging students for thinking and especially, critical thinking. Teachers, instead of statements that indicates they have accepted this assumption that critical thinking paves the way for higher and better education, are always provide the ground for memorizing the lessons by formatted methods and elimination of realities and creating disciplinary environment and have forgotten that accumulating information in the mind of students, whether related or unrelated to the real life, wastes the costs, facilities and capabilities of individuals. In order to have dynamic generation, we should learn the judgment methods about society and thinking about our life and life of others (Maleki, 2007, cited by Tabatabee, 2008, p.2-3).

In modern schools, the relationship between teacher and student is unidirectional and student is mostly relied on the teacher to know that what is valuable for learning, who s/he should learn and what criteria should be used in order to discern true and false. In such an educational system, leaners become a passive creature who is not able to understand the
nature of his experience and in other words, he is self-alienated. Individualism caused by this system, only increases the competition between students and instead of obtaining social skills and correcting individual and social behavior by interaction with others in the small groups in the classroom, individual tendencies increase. Therefore, in order to challenge traditional paradigm of education with new teaching methods, some visions should be developed for fundamental changes in the education curriculum based on this idea that education in order to empower individuals to play role as a critic in the society who can evaluate and solve the problem is superior to dominance in skills like memorizing which has the lowest value in learning. In other words, bank education, in which an individual keeps information and knowledge, prevents creativity of students and make them obedient and therefore, it is better to replace it with an education which asks for unauthorized social and creative relations and supports dialogue (ibid). Although skill activities belong to the children and adolescents, evidences show that current educational programs were not successful in promoting correct thinking, asking and criticizing skills of students. If children do not learn thinking and collective work during education, how can they continue learning and enter in the society (Smith & Wolsfish, 1992). On the other hand, one goal of education in 21st century is that educational and social systems should organize planning basics and principles based on the questions of addresses. They should provide this possibility for children to raise their questions and needs in order that planners can prepare educational content. Inquiry ability will be possible by practicing in the classroom. We should create inquiry class in which questions of students are valued and school should be a laboratory for training inquiry and learning critical thinking such that children, by involving in the real experiences of the class, can obtain required social skills to play role in the society (Tabatabae, 2008: 4). Today, education method has moved from traditional and memory-based approach to thinking-based education. This method is known as “learning philosophical thinking to children” in which art and its mediatory role in teaching thinking to children shows its important in two ways by considering education theoretical basics and thought-based education: first, how art mediates, solutions and suggestions; second, current condition of mediatory role of art in learning thinking by children (Sodagar, 2011, p26). Pioneers of thought-based education have introduced arts in line with the goal of program and as a research method (Naji et.al, 2008: 51). In this regard, art, as a research method, looks from different angle to thinking and in the method and content of relationship with children, by raising “mediation of art in teaching thinking” considers itself as a medium for receiving wisdom and thinking. Art, in a step forward, considers itself as thinking and consolidates its relation with thinking through aesthetics. An important point used by the art in the thinking teaching and its importance as a content and method demand, is childhood. Mind of child accompanies internal content and methods of art in an emotional relation. If wisdom is the result of contact between mind and art in children, or art and playing of children is considered as their thinking, everything accompanied with are can reach to desired target (Sodagar, 2013, p.28). This research studies the effect of art education on the improving critical thinking skill and reasoning in the male students in Hazarat Qasem primary school in Uremia during academic year 2013-2014. In data acquisition, two tests skill and reasoning measurement are used. This research is based on the assumption of effect of art education on improving critical thinking and reasoning skill of male students that uses pretest and posttest with control group in order to test the hypothesis. Ten-session workshop (twice a week) was held and new student-based class method was used.
Research background

Research of Abbasi (1991; Hajihosseini 1999; Tajik 2000, Hussein 2003) that has referred to low education hour for art education and research of Yusefi (2009) that directly introduces the limitation of education hour as a barrier in art education in critical and creative thinking and Mehrmohammadai (2003) that has compared art class with other developed countries and emphasized on the time limitation and Canda and Daniel (2005) have conducted a study by focusing on analysis of role of visual arts in improving critical and creative thinking of secondary school students. These researchers concluded that educating visual arts has positive effect on improving creativity and critical thinking of students. This research refers that visual arts increase the creativity of students by involving them in work with materials and tangible things and increasing learning motivation, cooperation of students in learning and increasing time for focusing on the activity. York Winey (2007) in PH.D dissertation studied the effect of art education on the academic achievement, creativity and self-conception of students. This research has compared students from grade five to grade two that their distinction between artistic activities. Torens creativity test and self-concept creativity test is used for measuring it. This study showed that individuals with widespread education and artistic activities have higher achievement in mathematics and reading than other students. In addition, creativity and self-concept of first group was higher and better than second group which is consistent with first hypothesis of this research about effects of art education hour on individuals. Parker (2008) studied the effect of educating visual arts on the creative thinking of high school students. This research had three groups: a group has studied introduction to visual arts and the other group has studied preliminaries of music during one academic year and thirds group, as control group, had no education about visual arts. Researcher combined two art classes with each other and selected randomly three groups for test. Pretest and posttest by using Torrance test was done to measure creativity of students. Results of this research showed that two groups that have received art educations, has higher creativity than control group. A group with visual arts course has better performance in creativity test than music group. Finally, Heather and Moorefield-Long (2008) studied the relationship between art and academic motivation, self-efficacy and creativity of students in secondary schools. In this research done with qualitative approach, observation and interview methods were used. Results of this research showed that art education for students is accompanied with joy, patience and hope in the school. Promoting creativity and group work skill was consequence of art education.

Research purpose and hypothesis

Purpose of this research is studying effect of increasing art education hour on the critical thinking of students. This research is based on the hypothesis that increase in the education hour will affect critical thinking of male primary school students. We can say that this is the first research that studies critical thinking skill in students.

Statistical population and sample

Statistical population of this research was all male primary school students and statistical sample was students in grade three to five of Hazrat Qasem School in district 2 in Uremia. Sampling was done with simple random sampling and 30 students were selected and determined as control and test groups as systematic classes.
Research methodology

Research method is empirical posttest method with control group.

Data gathering tool

Critical thinking measurement test was designed by Robert Ennis, one of the founders of critical thinking in North America for determining amount of critical thinking skill with 12 dimensions of this skill and presented related question to each dimension which helps the critical analysis of student idea. These twelve dimensions with concepts like “relevant”, “accurate”, “precise”, “justified”, “well defined”, “distinguish”, “evidence”, “interpretation”, “point of view” and “conclusion” will able us to think more accurately about our thinking (Fisher, 2007: 124). In this research, due to short sessions, scores of students were measured in eight dimensions of critical thinking dimensions. These dimensions are: 1) identifying ambiguity in reasoning; 2) understanding meaning of a phrase; 3) logical conclusion and understanding harmony; 4) justified conclusion; 5) following a principle or rule; 6) accuracy; 7) accepted resources; 8) comparative conclusion, accuracy and validity. This test has 12 questions that each question has four or five items and sum of these items measures the score of student and shows his critical thinking dimension. After this session, posttest of critical learning was tested and measured for both groups.

Reliability of research tool

In this research, critical thinking variable was measured by using questionnaire and test method. Reliability coefficient of test is Cronbach alpha 87.84 which is acceptable for critical thinking.

Implementation process and research plan

After selecting given classes, test was planned. Test group was a group which enjoys long term increase in the art class hour but control group lack this factor and education method was conventional. Class was held for test group with 15 male students in ten sessions for 60 minutes (twice a week) as community of inquiry. In this class, intellectual stories like :two painters", Gabriel", "freedom (William Tell), "justice" by Robert Fisher translated by Shaheri Langaroodi (2007) and "Linda and Clara", "knife", "nest of bird" "intellectual stories" by Philip Cam translated by Shahrtash and Rashti were used. After education course for 5 weeks, Robert Ennis critical test was conducted for students. Table 1 shows summary of research test.

<table>
<thead>
<tr>
<th>Table 1: groups and intervention with posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test group</td>
</tr>
<tr>
<td>Increase in art course hour</td>
</tr>
<tr>
<td>Control group</td>
</tr>
</tbody>
</table>

As table 1 indicates by comparing groups with each other, we can judge about the effect of increasing education hour on the improvement of critical thinking in the students. For example, comparison of both groups indicates the effect of art education hour on the improvement of critical learning skill of students.
Research findings

In this section, descriptive findings of research were analyzed which include difference between critical thinking components in both control and test groups that their results as following. Before using multivariate variance analysis test for observing hypothesis, Box and Levene tests were used. Based on the Box test which was not significant for variables, homogeneity condition for variance-covariance matrices is observed (p=0.261) and based on the Levene test and non-significance of it for all variables, equal variances between groups is observed.

Table: difference between critical learning components in control and test groups

<table>
<thead>
<tr>
<th></th>
<th>Box's M</th>
<th>F</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>79.360</td>
<td>1.514</td>
<td>36</td>
<td>2638.045</td>
<td>0.261</td>
</tr>
</tbody>
</table>

Levene’s Test of Equality of Error Variances (a)

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significance</td>
<td>1.500</td>
<td>1</td>
<td>28</td>
<td>.231</td>
</tr>
<tr>
<td>Ambiguity</td>
<td>4.860</td>
<td>1</td>
<td>28</td>
<td>.361</td>
</tr>
<tr>
<td>Coordination</td>
<td>17.350</td>
<td>1</td>
<td>28</td>
<td>.561</td>
</tr>
<tr>
<td>Conclusion</td>
<td>1.735</td>
<td>1</td>
<td>28</td>
<td>.198</td>
</tr>
<tr>
<td>Principle &amp; rule</td>
<td>1.248</td>
<td>1</td>
<td>28</td>
<td>.273</td>
</tr>
<tr>
<td>Accuracy</td>
<td>4.997</td>
<td>1</td>
<td>28</td>
<td>.341</td>
</tr>
<tr>
<td>Acceptance</td>
<td>13.284</td>
<td>1</td>
<td>28</td>
<td>.921</td>
</tr>
<tr>
<td>Validity</td>
<td>6.900</td>
<td>1</td>
<td>28</td>
<td>.114</td>
</tr>
</tbody>
</table>

Regarding results of Lambda Wilkes test that size of effect (0.853) and f=15.203 is larger than 0.147 and value lower than 0.05 indicates significant difference between effect of group on critical thinking components, therefore, it has significant difference.

Multivariate Tests (b)

<table>
<thead>
<tr>
<th>Effect</th>
<th>Value</th>
<th>F</th>
<th>Hypothesis df</th>
<th>Error df</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>group</td>
<td>Wilks' Lambda</td>
<td>.147</td>
<td>15.203(a)</td>
<td>8.000</td>
<td>21.000</td>
<td>.000</td>
</tr>
</tbody>
</table>

Tests of Between-Subjects Effects

<table>
<thead>
<tr>
<th>Source</th>
<th>Dependent Variable</th>
<th>Type III Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significance</td>
<td></td>
<td>38.533</td>
<td>1</td>
<td>38.533</td>
<td>55.807</td>
<td>.000</td>
<td>.666</td>
</tr>
<tr>
<td>Coordination</td>
<td></td>
<td>13.333</td>
<td>1</td>
<td>13.333</td>
<td>7.447</td>
<td>.011</td>
<td>.210</td>
</tr>
</tbody>
</table>
In analyzing each dependent variable, by using Befroni alpha (0.017), we can claim that only conclusion item has no difference between groups and other items are less than 0.017; therefore, there is significant difference between control and test group; so, we can claim with 0.95 confidence that effect of increasing art course hour on improving critical thinking of students is positive and significant.

**Discussion and conclusion**

Importance of education, as a body that can develop thinkers, critics and researchers, after family, is clear for all. Starting point of education and acquiring social skills is school and class that education has not yet been successful in this issue; since according to traditional model, children are required to study and memorize predetermined materials and this excessive focus of education system policy makers on memorization and lack of fundamental and effective movement for changing this condition and solving problems of education system is the ground for this study and has necessitated it. This research tries to study the effect of art education on improvement of critical thinking of primary school students which is main item of research. This is an important goal of education in 21th century and solution for education system to escape traditional model. Critical thinking is a concept which is mistaken by intermeddling and conflict. Findings and results of this research indicates that critical thinking skill has grown in community of inquiry and this class has positive effect in test group students. Among these effects, we can refer to:

- increasing fluency and statement and reaching to this conclusion that accepting something as indisputable is wrong;
- creating criticism spirit; student were able to refer to each other intellectual mistakes;
- reasoning power including presentation of reason, conflict and clarifying ambiguous terms and text; they distinguished ambiguity in reasoning and help to correct it with practicing correct judgement;
- students identified non-harmony in the discussion and by identifying harmony between two sentences, they give logical conclusion;
- judging, criticizng and evaluating self and others, taking decisions or better selections along with portraying an image for self-criticism and self-correction;
- increase in accuracy and attention to opinions of others and confessing mistakes;
- identifying that resource of a claim should be accepted and the claim should be real;

Observations showed that interest and motivation of children in community of inquiry has significant difference with school classes. In the beginning, the decision was that students declare the end of class and due to eagerness; classes last to 1 hour and 45 minutes and students were willing to continue the class. According to the researcher, increasing curiosity and questions of students, their tendency to revising and identifying themselves, self-respect, flexibility, without force by the teacher and creating sense of empowerment and self-confidence of students was seen. Regarding these conditions, it seems that art education for children and adolescents, by creating intellectual community of inquiry, is for slight
transformations and a start point for education system for comprehensive transformation that needs higher attempts of researchers. Regarding results of the research and positive effects of art program for children and adolescences on the critical thinking, it seems that this program can have positive effects on the correction of education system that its purpose is developing critical and thinker individuals with criticism power. Teacher cannot achieve this alone and all schools' authority should pay attention to this and by using results of important research in this field, growth of thee skills facilitate in the students. In other words, it is better that school become a community of inquiry such that students can learn thinking and criticism skills and reasoning and provide conditions that they practice these skills in the community of inquiry and prepared for their role in the society.
References


