

## The Community of Inquiry and Approach toward Enhancing Creative Thinking

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### ABSTRACT

This paper is aimed at study the effect of P4C program on developing creativity in first grade students in a high school from Tehran Zone 14 by means of Community of Inquiry Method. The current research was carried out by quasi- experimental technique and through benefitting from introductory and final testing research plan administered on control group and without adoption of random selection. The statistical population included all high school male first graders in Tehran Zone 14 during academic year 2011-12. Among them, 60 participants were chosen as sample group to conduct multi- stage cluster sampling method (30 in control group and 30 in experimental group). Abedi's test of Creativity was adopted to collect data after holding the given teaching course and in order to analyze data, students' t-test was utilized for the dependent groups. Overall, findings from this study confirmed validity and reliability of Philosophy for Children (P4C) and its main components i.e. fluency, elaboration, originality, and flexibility.

**KEYWORDS:** Creativity, Philosophy for Children (P4C), Community of Inquiry ,Creative Thinking

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### INTRODUCTION

Today world is increasingly changed so that the quantity of knowledge has been doubled within five recent years and it is assumed that by 2020, human's knowledge to become doubled every seventy three days; at the same time, today world is going to move beyond the industrial form and it will be transformed into world of learning in the future [1]. Accordingly, it has been very difficult to predict the real knowledge which could meet life requirements for the people in the future so this situation necessitates that educational system to be focused on teaching of necessary skills to receive, organize, and use information [2].

If we intend to make children ready to confront challenges in the future, we should train them special skills according which they are able to dominate over their own life and learning. They need to knowledge, but most importantly, they are required acquiring of modern knowledge. They need to a type of knowledge which has been produced or reproduced by them. From the early years of their life, the foundation of thinking skill should be laid in children. They should look at their own future with an open-minded attitude; it is because of this fact that open-mindedness causes someone not to be biased and or prejudiced [3].

For this reason during recent years, this tendency has become dramatically prevalent toward enhancement of thinking skills and improving learning and literacy levels in educational system throughout the world that was followed by several educational movements in 1970s, including teaching of creative thinking, teaching of critical thinking, reflective curriculum, and teaching of problem- solving skills etc. and Philosophy for Children (P4C) has been developed [1, 4, 5].

Philosophy for Children (P4C) is one of the most successful efforts which have been made to create a solid curriculum for teaching of thinking by Matthew Lipman et al. [6, 7, 8] in Montclair State College, USA. This curriculum has been codified to provide an educational program for children in the field of philosophical inquiry from kindergarten to university and it is currently been implemented in many countries of the world [9].

Lipman [8] argues that P4C is an educational effort that is made for enhancement of thinking in children and he adopts philosophy as a method to enhance critical thinking and creative thinking in this regard. Lipman et al. [6, 7, 8] assume that teaching of P4C to children is intended to learn philosophical thinking method through philosophical dialogues which are often of Socratic Method; thus, considering philosophy as a concept that is followed by adherents of P4C may serve as an research approach toward education and teaching [10].

P4C is a type of applied philosophy. But of course it does not mean that it serves as a plan in which some comments from different philosophers to be adopted in order to clarify and solve non- philosophical issues; instead, it is intended to compel pupils to philosophize and personalize philosophical practice. It is because of this fact that there are no philosophical names and histories and terminologies in this curriculum to make children free to think about the philosophy and philosophical activity that is related to their own ideas and interests. It is aimed to assist students move from ordinary to reflective state of mind, from indifference to contemplation and from ordinary thinking toward critical and creative thinking [9].

Since Socrates' age, reasoning has been known as dialogue and exchange of thoughts. Philosophy begins with surprise and inquisitiveness for finding the most essential questions about human's life through dialogue [2]. Lipman took on this tradition as a way for foundation of philosophy in schools curricula. Following to Vygotsky, he argues that language might provide the needed tool for thinking and children might think at higher level by participation and cooperation. The general objective of P4C, which has been developed by Lipman et al, is to create the philosophical discussion through generating inquisitive communities at level of classroom.

In P4C, teaching of philosophy (a group of philosophical theories) is not aimed at using it as subject of textbook for children, but it is intended to train the given philosophical technique to children via classroom dialogues; namely, a reasonable methodology and logical analysis that is often called Socratic Method [11].

P4C methods, which have been purposed by Matthew et al, emphasize on teacher- student close relationship and creating of motive for starting discussion and dialogue through a story, poetic passage or telling an event and the like. In this method, some opportunity is given to students for thinking and then they may enter into grouping dialogues. Such dialogues may lead to thinking and reflection and it may form philosophical inquisition groups in different issues and convert the school into a place for research and reflection. Students will be converted into skillful and adult researchers in this curriculum. Inquisitiveness is the main concept of this paradigm and it is intended to become active searcher and inquisitive asker and to possess permanent consciousness for observation of relations and differences and to be ready permanently for contrast, comparison, theory analysis and presentation, experience, observation, measurement and examination [12].

### **Community of Inquiry Method or Inquisition Link**

P4C is carried out by means of philosophical searching and Community of Inquiry. The basis of philosophical inquiry was originated from Socrates. Knowledge path begins with recognizing of one's ignorance to Socrates' method and teacher may play the role of a midwife, who reveals the reality by asking question and contributes to bear the ideas and thoughts [8]. As it expressed by Lipman, the notion of "Participation through Community of Inquiry", was adopted for the first time by "Charles Pierce", an American pragmatist philosopher. He argues that we are partners in creation of knowledge not onlookers. He emphasizes that there is no definite framework for knowledge, but it has an expressive agenda. Similarly, John Dewey assumed participatory intelligence application as well as learning as the solution to this problem and he considered schools as communities of participation where the adults might be trained as citizens [13].

Lipman deems this term in another way. He serves classroom as a laboratory and he considers research as the paramount activity for learners. In his opinion, classroom may achieve its real objectives when it is submerged into the research and where all persons and everything to be invited for conducting research and study. Under such circumstances, community of inquiry will form and thoughts to be enhanced and creativity will be promoted and ethical principals will be objectified including tolerance and adaption, generosity, and acknowledgement [6].

In order to serve research and inquiry as the pivot for education, Lipman suggests that the classroom to be turned into some links or communities in which friendship and cooperation relationships to be welcomed for positive participation in educational climate. Such a positive participatory climate will be substituted with competitive and semi- antagonist atmosphere that are prevalent in many traditional classrooms. Special dispositions of inquiry links include non- hostile reflection and inquisitiveness, common identifications, creation and improvement of literacy, philosophical culture and imagination, enhancement of studying potential and contemplation of texts based on dialogue and enjoying them [8]. At the same time, there is a type of self-adjustment characteristic in such a link. That is, all members of this link may scrutinize issues and votes of the others and try to present the alternative assumptions as the possible solution to resolve the given problem. Inquisitiveness Link (community of inquiry) may encompass questioning, very extensive search for reality and the larger inquisition for concept in terms of its inquisitive characteristic. Some of other attributes of community of inquiry are as follows:

1- Universality; 2- Participation; 3- Common sense; 4- Search for concept; 5- Reflection and contemplation; 6- Objectivity or impartiality; 7- Impartial challenge method; 8- Rationality (reasoning); and 9- Self- regulation/ care [8].

### **P4C Goals:**

There are some clear cognitive objectives in philosophy for children (P4C) curriculum. This is done through challenges, fundamental thinking, and structural interaction. At the same time, this plan has also social goal that is teaching of democratic decision- making process. From Lipman's view, this plan is mainly intended to contribute to children to learn how to think for themselves [13].

As a concept for Socratic discussion and dialogue (asking and examining of ideas), philosophy is one of the tools for achievement of creative thinking, critical thinking, and problem solving. In addition to these skills, P4C seeks for enhancement of some ethical temperaments like empathy, cooperation, mutual respect, and accountability. Similarly, enhancement of potential for accurately observation, and asking questions and

presentation of clear and transparent explanations to students are some of other important objectives for this plan [14].

### **Some skills and talents that are enhanced in community of inquiry**

Sharp and Lipman argue that the following skills may be enhanced in community of inquiry:

Reasoning skills, conceptualization skills, research and inquisitiveness skills, dialogue and comments exchange skills, social skills, talent for discovery of assumptions, capability for search and perception of different views, critical capacity for analysis of deductions and scales, ability to present novel examples, questioning about what are apparently assumed as absolute objects, tendency to listen to the opposite views against one's attitudes, and attaching importance for them and ability to organize personal behaviors by means of some ideals like beauty, goodness, reality, and concept [15]. Also Fischer believes in that P4C may lead to enhancing of the following skills:

- Information (data) processing skills (Identifying and collection of the given data, classification, categorization, sorting, contrast and comparison, examining of the relationships between parts and the whole);
- Reasoning skills (Inference and deduction- Judgment and decision making);
- Questioning skills (Purposing of problem- definition- examining of performance- prediction- testing of thoughts);
- Creative thinking skills (Elaboration of thoughts- purposing of hypothesis- search etc.);
- Evaluation skills (Judgment- criterion- confidence) [12].

The results came from execution of P4C in different countries of the world as well as Iran suggest that this curriculum may remarkably effect on intellectual and behavioral skills of children within a short period of time. For instance, an investigation done by Fischer [2] on Eco Global Project showed that P4C has had some positive effects on children:

- 1- Improving achievements or success among students in school exams;
- 2- Respect and self- esteem as thoughtful and learning element;
- 3- Fluency and high quality of questions purposed by children;
- 4- Quality of creative thinking and verbal reasoning;
- 5- Ability to listening to others and involvement in classroom discussions

Another investigation has been conducted by Chan Yuk Kong et al [16] in Singapore. The findings derived from this study signify that those students, who have participated in P4C curriculum, indicated the better performance in critical and creative thinking- related skills.

### **Way of administration of P4C:**

Lipman argued that mental work should be shared with children through discussion and dialogue about story books. Accordingly, they have written several story books for children (including Harry Stottlemeier's Discovery and Lisa by Lipman). P4C includes a unified teaching plan for children in which students begin the classroom with reading story aloud at different levels. Then, they ask some questions about it and afterwards they will deal with discussion and dialogue to each other [17].

Haynes [18] has classified execution of P4C in 9 steps as follows:

1. To express rules for interaction;
2. Reading of story book by children;
3. A break for thinking;
4. Asking questions;
5. To create relations between questions;
6. To select a question to continue thinking and discussion;
7. To answer to questions by students;
8. To write the answers and topics on blackboard;
9. Review, discussion, and conclusion [19].

### **Creativity:**

Today, the experts deem creativity as an essential knowledge for any change and innovation. According to Ryhammer and Borlin [20], creation of novel idea and innovative products are considered as human's cognitive characteristics. Aided by such an attitude, creativity has been interpreted as an important factor in acceleration of scientific and technological innovations of humans. The existing studies also indicate that center of gravity for modern moves in the future is the creativity and rate of exploitation from minds and creative characters in different scientific, research, technological, and healthcare fields [21].

Several theories have been purposed to interpret nature of creativity where each of them, in turn, have presented clarifying explanation for effective factors of creativity. Hennessey & Amabile [22] maintains that creativity is a social phenomenon and it is stemmed from community's requirements and familial conditions. Some other researchers like Herrington and Torrance claim that creativity is a personal effect; namely, it depends on some factors like attitude, emotion, feelings, personal experiences, and learning. The other experts such as Guilford [23] argue that creativity has a metacognitive dimension and it is also related to mental higher processes like thought, intelligences, imagination, and information processing. Another group like Sternberg [24] claimed that creativity is a multivariate phenomenon. That is several factors including community, family, personality, cognitive capabilities may affect on it simultaneously [21].

Since Torrance's view is considered about creativity in the present study so we deal with Torrance's attitude by a brief explanation. By defining of creativity, Torrance argues that creativity is the process of feeling of problems, issues, gap within information, lost elements, disharmonious things, and purposing of guesses and formulation of hypotheses about defects, and evaluation and testing of these conjectures and assumptions and revision and possible retesting of them and eventually declaration of results [24]. Explaining about the above definition, he says that when we feel a shortage or defect we are stressed. We feel unpleasantly and we like to do anything to remove the stress. As a result, we make efforts and manipulate something and purpose some guesses and assumptions and we will never be calm down until these guesses and assumptions not to be retested and revised; even such a stress might remain after doing this task so we will be relaxed when we could tell other people what we have discovered or produced [25]. Thus, no extreme difference is observed among solution of Dewey's problem and Torrance's creative thinking. Torrance considers creativity process four stages as follows:

- 1- Process of feeling of problems or gap in information;
- 2- Purposing of guesses and assumptions about such defects;
- 3- Evaluation and testing of these hypotheses; and
- 4- Declaration of results [26].

Similarly, he deems creativity with four main constituents and these elements are as follows:

- 1- *Fluency*: Talent for producing of many ideas;
- 2- *Originality*: Ability to produce novel ideas;
- 3- *Elaboration*: Capacity for paying attention to details; and
- 4- *Flexibility*: Ability to produce many various ideas and or techniques [27].

With respect to importance of creativity in individual and social life, at present this question is raised that whether individuals' creativity might be enhanced by teaching. The conducted studies in the field of teaching creativity have mainly come to the result that creativity might be enhanced and trained. Torrance and Torrance [25] suggest that they have observed several evidences during fifteen years' experience in the field of study and teaching of creative thinking which showed that creativity might be taught. Feldhusen et al. [28] stated that the answer which given to this question, is positive that whether creative might be taught [27]. Review of those studies that have carried out on teaching creativity also signifies that creativity and its four elements (fluency, elaboration, originality, and flexibility) have been increased under the influence of teaching (after Ryhammer and Borlin [20]).

Based on belief of many researchers, the traditional education techniques not only do not contribute to growing of creativity in children, but they may hinder them from moving in this course [22, 25]. Therefore, if teachers create an appropriate and secured climate as possible in classroom and utilize active and collective research- oriented educational methods in classrooms then they have assisted the students toward exploitation from their creative potential. Torrance [25] believes in that all persons could be creative more or less and at the same time teaching of skills and mental capacities is the cornerstone for creativity. De bono also found that in order to be creative, the techniques of properly thinking should be taught to individuals thereby all individuals will acquire this ability to reflect their creativity [29].

### **Objective and Research Hypotheses:**

This study is aimed at examining the effect of Philosophy for Children (P4C) on community of inquiry method for enhancing creativity in male high school first graders from Tehran Zone 14. To review this goal, the following hypotheses were formulated:

*Hypothesis I:* Implementation of P4C may enhance creativity in male high school first graders in Creativity Test (TTCT).

*Hypothesis II:* Implementation of P4C may improve score of mental fluency in male high school first graders in Creativity Test (TTCT).

*Hypothesis III:* Implementation of P4C may improve score of mental originality in male high school first graders in Creativity Test (TTCT).

*Hypothesis IV:* Implementation of P4C may improve score of mental elaboration in male high school first graders in Creativity Test (TTCT).

*Hypothesis V:* Implementation of P4C may improve score of mental flexibility in male high school first graders in Creativity Test (TTCT).

## **MATERIAL AND METHODS**

### **Methodology**

In this survey, the statistical population comprises of high school first graders from Tehran Zone 14, who have studied in academic year 2011-12. To select sample in this study, multi- stage cluster sampling technique was utilized [30]. Accordingly, first a sample high school (Molla Sadra High School) was selected randomly among the boy high schools in Tehran Zone 14. At the second step, again two classrooms were

chosen randomly among all first grade classes (all students) for this purpose. Next, one of these two classrooms was taken on as control group while the other one was selected as experimental group (sample). According to mean size of three similar researches, sample size of this survey includes 60 participants (30 in each group) [31]. The methodology, which has been adopted in this study, is of Quasi- Experimental type in which the introductory and final tests were utilized with presence of control group and experimental group with non-randomized control pretest- posttest design. To conduct the current study, one class was held as a workshop during 20 subsequent sessions and in this workshop Sharp- Lipman’s community of inquiry method and classroom holding techniques as well as Phillip Cam and Lipman’s edited stories were used. Reflective stories written by Philip Cam and the their teaching manual (translated by Farzaneh Shahrtash) as well as Lisa book (by Matthew Lipman) were used as educational content for community of inquiry.

**Data Collection Technique**

To gather information in this investigation, Abedi’s Creativity Test (CT) was utilized. This testing inventory, which was prepared by Jamal Abedi, has been drawn up and formulated to measure rate of creativity based on Torrance Tests of Creative Thinking (TTCT) (Runco, MA: Personal Communication). It was used because period of its administration is shorter and its scoring is easier and at the same it could be executed collectively [32]. The aforesaid inventory includes 60 questions where they are scored based on Likert three score scale (low creativity: 1; average creativity: 2; and high creativity: 3). Sum of scores in four components forms total score of creativity in tastes. The maximum and minimum scores for any participant in this test are 180 and 60 respectively. This test measures four variables of creativity; namely, fluency (22 articles), originality (16 articles), flexibility (11 articles), and elaboration (11 articles). Abedi [27] has examined reliability of this test by means of statistical technique of Cronbach alpha coefficient as well as its validity by factor analysis method and the reported results signify the appropriate reliability and validity for this questionnaire. Researchers have also examined the validity and reliability of this test and according to their report the coefficients derived from this tool show its reliability and validity at high level. Since no change has occurred in content of measurement tools for creativity so this test entirely administered and there is no need to calculate validity and reliability again here [33].

**RESULTS**

**Research Findings**

In this section, some descriptive findings, including mean, standard deviation values of the studied variable(s) in this survey have been examined and their results are given in Table 1.

The findings in Table 1 indicate that mean scores of creativity (four first components) in experimental group at final test have been noticeably increased than in introductory test phase while these values have not been changed in control group.

**Table 1.** Mean, standard Deviation (SD), maximum and minimum scores of creativity for testes in experimental group and control group in introductory and final tests

Phase	Groups	Variable	Mean	Standard Deviation	Minimum	Maximum	Quantity
Introductory Test	Control	Fluency	51.86	5.17	42	63	30
		Elaboration	23.80	3.23	16	29	30
		Originality	38.13	5.38	28	48	30
		Flexibility	27.56	3.02	21	31	30
		Creativity Total Score	141.366	13.84	112	167	30
	Experimental	Fluency	51.10	4.85	42	60	30
		Elaboration	23.76	3.54	16	30	30
		Originality	35.36	3.53	29	43	30
		Flexibility	26.46	2.27	18	29	30
		Creativity Total Score	136.7	10.70	116	158	30
Final Test	Control	Fluency	51.46	6.40	35	65	30
		Elaboration	22.70	4.46	14	33	30
		Originality	36.63	5.39	24	47	30
		Flexibility	26.86	3.45	16	32	30
		Creativity Total Score	137.67	16.45	89	174	30
	Experimental	Fluency	55.20	4.29	44	63	30
		Elaboration	25.80	3.71	16	32	30
		Originality	38.40	5.17	28	47	30
		Flexibility	28.60	3.47	24	39	30
		Creativity Total Score	148.20	12.65	119	172	30

### Inferential Findings

To test hypotheses in this study and in order to determine significant difference among scores in experimental group and control group in dependent variable i.e. creativity and its four components, students' t-test was utilized for two dependent groups<sup>1</sup>. It requires noting that in order to examine difference or lack difference between variances of experimental group and control group in dependent variable, Levene's test was initially conducted in introductory phase of testing so its results are observed in Table 2.

**Table 2.** Test results for equality of variances in pretest scores

Variables	Tastes	No.	Mean	Standard deviation	Variance Equality Test		Means Equality Test		
					F- statistic	P- significance level	t- statistic	Degree of Freedom	P- significance level
Fluency	Control Group	30	51.8667	5.17776	0.299	0.587	0.59	58	0.556
	Experimental Group	30	51.1000	4.85195					
Elaboration	Control Group	30	23.8000	3.23131	0.920	0.341	0.03	58	0.970
	Experimental Group	30	23.7667	3.54949					
Originality	Control Group	30	38.1333	5.38.25	1.807	0.117	2.35	58	0.022
	Experimental Group	30	35.3667	3.53781					
Flexibility	Control Group	30	27.5667	3.02499	2.871	0.96	1.59	58	0.117
	Experimental Group	30	26.4667	2.27025					
Total Score	Control Group	30	141.36	13.84	0.852	0.360	1.46	58	0.150
	Experimental Group	30	136.7	10.70					

As it observed in Table 2, the given values for F- statistic of Levene's test are not significant at error level (0.05); therefore, it is inferred that there is no significant difference between control and experimental groups; in other words, variance of scores is homogeneous. In this part, inferential findings, which have been derived by means of inferential statistics, are shown with respect to research hypotheses.

**Research Hypothesis 1:** Implementation of P4C may enhance creativity in male high school first graders in Creativity Test (TTCT).

To analyze the above hypothesis, mean scores of creativity for control and experimental groups were compared by means of dependent t-test so their results are shown Table 3.

**Table 3.** The results derived from dependent t-test to compare mean scores of creativity in both experimental and control groups

Statistical Index	Quantity	Mean	Standard Deviation	Means Difference	Mean Standard Deviation	T	Degree of Freedom df	Significance Level
Control Group	30	3.32	11.93	14.73	3.42	4.29	29	0.010
Experimental Group	30	-11.5	11.22					

The results shown in Table 3 indicate that there is a significant difference between tastes in experimental and control groups in terms of creativity variable at level ( $p < 0.01$ ). Thus, research first hypothesis has been verified. In other words, execution of philosophy for children (P4C) may enhance creativity in students.

**Research Hypothesis 2:** Implementation of P4C may improve score of mental fluency in male high school first graders in Creativity Test (TTCT).

<sup>1</sup> - Both experimental and control groups in this study were selected from a single statistical population and they are not different from each other in terms of the studied attributes before application of independent variable. For reason, replacement of members in both groups may not encounter any problem before intervention or effect of the studied variable so specific type of t- test should be adopted for dependent groups [33].

**Table 4.** Results derived from dependent t- test for comparison between mean scores of fluency variable in both experimental and control groups

Statistical Index Groups	Quantity	Mean	Standard Deviation	Means Difference	Mean Standard Deviation	T	Degree of Freedom df	Significance Level
Control Group	30	0.4	4.86					
Experimental Group	30	-3.56	5.06	3.96	1.44	2.75	29	0.010

The results of Table 4 show that there is a significant difference between experimental and control groups in terms of fluency variable at level ( $p < 0.01$ ). Thus, the second hypothesis of this study has been approved. In other words, implementation of P4C has led to fostering mental fluency in students.

**Research Hypothesis 3:** Implementation of P4C may improve score of mental elaboration in male high school first graders in Creativity Test (TTCT).

**Table – 5:** Results derived from dependent t- test for comparison between mean scores of elaboration variable in both experimental and control groups

Statistical Index Groups	Quantity	Mean	Standard Deviation	Means Difference	Mean Standard Deviation	T	Degree of Freedom df	Significance Level
Control Group	30	1.16	3.45					
Experimental Group	30	-2.23	4.55	3.4	1.1	3.09	29	0.004

The results came from Table 5 showed that there are a significant difference between testees in both experimental and control groups in terms of elaboration variable at level ( $p < 0.05$ ). Therefore, third hypothesis of this survey is verified. Namely, execution of P3C has been followed by enhancing mental elaboration in students.

**Research Hypothesis 4:** Implementation of P4C may improve score of mental originality in male high school first graders in Creativity Test (TTCT).

**Table 6:** Results derived from dependent t- test for comparison between mean scores of originality variable in both experimental and control groups

Statistical Index Groups	Quantity	Mean	Standard Deviation	Means Difference	Mean Standard Deviation	T	Degree of Freedom df	Significance Level
Control Group	30	1.5	5.3					
Experimental Group	30	-3.03	4.97	4.53	1.48	3.05	29	0.005

The results given in Table 6 show that there is a significant difference between testees in both experimental and control groups in terms of originality variable at level ( $p < 0.01$ ). Therefore, fourth hypothesis of this study has been confirmed. In other words, execution of P4C may lead to improving mental originality in students.

**Research Hypothesis 5:** Implementation of P4C may improve score of mental flexibility in male high school first graders in Creativity Test (TTCT).

**Table 7:** Results derived from dependent t- test for comparison between mean scores of flexibility variable in both experimental and control groups

Statistical Index Groups	Quantity	Mean	Standard Deviation	Means Difference	Mean Standard Deviation	T	Degree of Freedom df	Significance Level
Control Group	30	0.7	3.87					
Experimental Group	30	-2.13	3.79	2.83	0.84	3.35	29	0.002

The results in Table 7 indicate that there is a significant difference among testees in both experimental and control groups at level ( $p < 0.01$ ). Thus, research fifth hypothesis is verified. In other words, implementation of the P4C may lead to enhancing mental flexibility in the students.

## DISCUSSION AND CONCLUSION

As it characterized from the previous sections, one of the most challenging, complex, and attractive, and decisive and vital researching topics for educational system is the subject of teaching creativity within adults and fostering creative thinking among them. Many studies and researches and examinations are currently being carried out about creativity but what could be inferred so far from research and studies history in this domain is in that creativity might be trained and creativity could be enhanced among children and adults by means of appropriate techniques and contents; however, there is no consensus among experts with what content or by which method creativity could be taught. Guilford suggests teaching of creativity. De Bono refers to enhancing thinking style through lessons while Lipman argues that creativity could be fostered by means of reflective stories with philosophical themes in community of inquiry [34].

In addition to the aforesaid theoretical bases, there is no consensus among scholars and researchers over creativity productive and developing factors. Some of them refer to individual factors like mental skill, ability of intuitive insight, personal motive and inherent characteristics. On the opposite side, some other group believes in impersonal factors such as organizational culture, social philosophy and societal field. These are creativity generative factors and they may improve or reduce it.

In this study, some part of the suggested plan by Lipman was tested among Iranian adults. This curriculum was administered by some selected scenarios that were close to Iranian culture. Analysis on research data showed that execution of Philosophy for Children (P4C) has caused enhancing of creativity its four main components (fluency, elaboration, originality, and flexibility). Findings of the present research are in line with the results derived from studies done by Fischer [2], Lipman and Sharp [6], Jahani [16, 23], Sharifi Najafabadi [35] and Tricke and Topping [19] which are identified in these researches that teaching of thought via P4C may cause enhance cognitive skills including creative thinking, critical thinking and problem- solving among students.

Lipman as founder of philosophy for children (P4C) argues that his curriculum is the best way to foster creative potential in children. He deems goal of this curriculum as teaching of thinking to children and assisting them to select it consciously. In his opinion, this curriculum is tended to foster inquisitive children with critical and creative and research thinking so that they could learn self- knowledge, self- regulating and problem solving from childhood [35]. Lipman argues that the prevalent education system has faced with failure in previous years while it was guilty for such frustration alone since objectives of such an education are limited and it has ostracized methodologies for this purpose. In traditional education, subject matters and content of textbooks are separately and eventually put at students' disposal as packages of problem- solving and students are precluded from research on them. As a result, instead of thinking like scientists and coming to new results through adoption of their methods, the learners mainly use their products as raw materials and come to the same results [7].

In comparison among home and school, Lipman concluded that children are much more creative in home than in school for which the child is faced with an unorganized environment in home where he/ she could manipulate any phenomenon at any time and see the outcome of such results in these consequences. But upon entering into the school, child may confront to various organizational factors. Now, he/ she pass (s) through a fully mysterious world of childhood and enter into a climate that is filled with emphases on rules and regulations and organized behavior. Inertia or lack of creativity might be placed behind such an organization [16].

In P4C, Lipman considers lesson course as community of inquiry in which subject matters of lesson are presented as scenario and reflective stories with philosophical themes. Children hypothesize with following up such trends and sequences and they may purpose some hypotheses. Others criticize these hypotheses and finally such hypotheses are successfully tested in this trend namely via criticism and revision by other people in community of inquiry so they are validated and adopted as criteria for action. Lipman divides cognitive skills, for which this plan tends to enhance them, into four major varieties:

1- Inquiry skill; 2- Reasoning skill; 3- Information- organizing skill; and 4- Translation skill

From Lipman's viewpoint, inquiry skill is one of the paramount cognitive skills that are fostered in community of inquiry. Inquiry skills contribute human to achieve cause- and- effect relations and distinguishing different affairs by prediction of future events and assist them to predict their own behaviors and adjust them on expedient occasions. Regarding inquiry skills, Lipman claims that:

"Inquiry skills are those skills which are used to consider strategies and creation of hypotheses to present some tools for responsive and committed thinking and community of inquiry may serve as the appropriate platform to acquire such skills in children" [10].

Inquiry skills simply comprise of some partial skills like ability to find the solution for problem, hypothesis building, collection of information to test hypotheses and conclusion [36]. The point that should be taken into consideration here is that the above- mentioned skills are exactly the same as steps in creativity process from Torrance's view; therefore, it should be admitted that enhancement of such skills in platform of community of inquiry (P4C) will be led to fostering creativity in children and adults. Reading of reflective stories by children and their confrontation with ambiguous situations may cause them to find that there are several issues, for which the solutions should be found. They are learned to gather information and to predict and extract the appropriate hypotheses by organizing information and to test these hypotheses. Thus, it could be



implied that enhancing inquiry skills in platform of community of inquiry may prepare appropriate tools to foster creativity.

The point which should be considered here in that the existing three environmental characteristics<sup>2</sup> in community of inquiry has caused this link to act as an appropriate platform for enhancing creativity for children and adults. These three features are as follows:

I) *Leadership style in community of inquiry*: The existing leadership participatory or democratic style in community of inquiry along with mentor's support and enjoying freedom for children may create appropriate climate to enhance creativity.

II) *Structure of community of inquiry*: Community of inquiry has an organic structure versus traditional classes that possess mechanical structure. One may refer to some features of this structure including flexibility, inclusiveness and informal nature, low formality, influence of skill and expertise not arbitrariness, decentralized decision making system etc. the point on which experts focus is that organic structure is more suitable than mechanical structure for enhancing creativity [37].

III) *Climate of community of inquiry*: In the field of creativity, experts maintain that the appropriate organizational climate for enhancing creativity has 9 characteristics. With respect to the effective features of organizational climate on creativity which are expressed in the following, one could consider Lipman's community of inquiry as a suitable climate to enhance creativity.

1- Challenging; 2- Freedom; 3- Confidence; 4- Happiness and humor; 5- Time of ideas; 6- Conflict; 7- Supporting ideas; 8- Dialogue; and 9- Riskability [38].

Alternatively, children's participation in community of inquiry will improve their tolerance against ambiguity, riskability, challenging, self- confidence, self- awareness, independence in judgment and thinking, curiosity, high- sensitivity to the given field, and lack of worry that they vary from others, daring to express their ideas, straight forward expression, lack of prejudice to change their idea, interest in testing and acquire experiences, and ability to derive results and conclusion of issues, Of what was implied, it can be concluded that among those talents and skills which are enhanced in community of inquire, some of them directly and some others indirectly related to creativity skills. In other words, it could be stated that the skills and talents which are generated in P4C will affect on enhancing creativity among students.

In an essay under title of "Can P4C serve as foundation for adjustment of educational system structure?" Lipman [6] give positive answer to this question by focusing on this point that school should act as a laboratory for practicing of thought and learning critical and creative idea as well as involvement of person in experiences of real life [10]. Accordingly and with respect to the derived results from the current research and other conducted studies in the field of effectiveness of P4C that have verified the validity and reliability of this curriculum in enhancing cognitive and social skills, it is suggested that fundamental reforms in education system to cover this plan from informal teaching courses in kindergartens to higher education courses and some syllabi to be included in State formal curriculum under title of teaching philosophy or philosophical thinking therein.

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<sup>2</sup> - The experts in creativity field consider some effective factors in creativity including individual and environmental factor. Environmental factors on creativity comprise of group- related and organizational factors. Organizational factors include variables of leadership style, organizational climate, and organizational structure and the like.

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