Extra-analysis of the educational content methods, thinking and philosophy education, and family education in the development of critical thinking education in primary education in national studies

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Abstract: The present study was conducted to the educational content methods, thinking and philosophy education, and family education in the development of critical thinking education in primary education in national studies using systematic review of national studies. Therefore, 15 researches conducted nationally in the field of critical thinking education in primary education between the years 1978 to 1994 and recognized appropriate technically and methodologically were collected through searching in the databases, and to referring to universities and research centers, and then after being checked out and reviewed in terms of meta-analysis got used for data analysis. Using the databases, about 1470 cases were obtained. Based on the entry criteria, 45 cases were analyzed and only 15 found appropriate for analysis. The findings results of the study showed that the best estimate of the desired impact in the community among family education on critical thinking education was equal to 0.269, thinking and philosophy education on critical thinking development equal to 0.557, educational content on critical thinking development equal to 0.238 which in accordance with the size interpretation table of Kohn were assessed respectively medium, high, and medium. So, the extra-analysis data showed that each of these methods can increase the students' critical thinking in elementary program that educational content methods had much greater impact on increasing elementary students' thinking than other methods.

Key words: Educational content methods . Critical thinking education

INTRODUCTION

Nowadays, reliance on memory and mental records in the education system has been paled, and the students' ability to analyzing, evaluating, and interpreting the contents has come into consideration more and more so that vocabulary such as "critical education" and "critical literacy» have been encountered in the sphere of education and training (Myers, 1995). One skill that should be thought to the students in any educational system is thinking skill (Sultan Alqarai, 2008). In order for the man to be dominant on their fate as well as on their society, the basic condition is thinking (Motahari, 1995). Thinking is the kind of behavior that connects two or more ideas, not for the sake of reminding and repeating these ideas (Tyler, 2011). Thinking is the general process through which the sense related inputs was reviewed and manipulated in mind, and the necessary information for regular thinking, reasoning, and judging will be obtained (Shabani, 2007).

Thinking is any mental activity that helps in editing, resolving an issue or decision-making or understanding a subject. In fact, the mankind can signify the life through thinking (Fisher, 2006). The great intellectuals and experts of education have considered thinking as the main axis of the educational activities and deemed growth of thinking talent as the basic goal of educational institutions and centers (Hashemi-Moghaddam, 2002).

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Critical thinking has entered into educational issues as a new training strategy and method (Nasrabadi, 2005). Critical thinking has a historical background as old as that of the education, but the pattern for history of critical thinking turns back to ideas and works of John Ford in the early 20th century (Jahani 2002). Critical thinking is the continuous and reasonable growth of reasoning patterns (Stock, 1991).

Ennis (1985) believes thinking is critical when the thinker tries to analyze the topics carefully, seeks valuable evidence and judgment, and arrives at sound able results. The purpose of critical thinking education in his views is training individuals who are away from personal intentions and responsible for precision and accuracy (Shabani and Mehr Mohammadi, 2000). Moore and Parakr have defined critical thinking as the precise decision making and hesitation to accept, reject, or suspend judgment (Omidi Nia, 2013). Brookfield (1987) enumerating summary of critical thinking definitions showed that sense of this concept is very rich and finding specific meaning for that is very difficult: the logical reasoning abilities development (Raj row, 1975), the constructive judgment use (Kitcher, 1986), the hypothesis search (Askroun, 1976), creating, applying, and testing the concept (Halfysh and Smith, 1961), the reasoning and analysis ability (Ennis, 1985), the necessary traits and features for critical thinking (Di Angelo, 1971), the ability to discriminate bias from facts, and the reasons from comment and opinion (O'Neal, 1985), targeted and reasonable efforts for employing thinking in direction of movement toward a goal (f. Holt, 1984), liberating learning (Halpern, 1979), and dialectical thinking (Morgan, 1986) (Neyestani and Verdi, 2014, p. 19). The World Health Organization in 1996 has introduced the ten main skills as life skills and assigned them in five groups of self-consciousness- empathy, communication-interpersonal relationships, decision-making – problem solving, critical thinking-creative thinking, controlling emotions - stress management (Kardunghabi and Pashasharifi, 2005).

The critical thinking background dated back to the early twentieth century and Dewey's works. While in common education "the information-based pattern" was dominant, the education goal in Dewey's pattern was development of reasoning and judgment ability in children. In the early 1950s, the movement entitled "critical thinking movement" was formed. This movement began with two basic premises: first was that thinking is the right of every human being; second, the classroom is the lab of wisdom. Critical thinking movement in the early 1960s influenced by Ennis's ideas got double force. In the early 1980s, Lipman could provide thinking skills training practices through presenting a template. However, Lipman in the mid-1990s has reconsidered the basics of this template and

specially attended to moral dimension of critical thinking along with thinking skills (Jahani, 2002).

Lipman distinguished normal thinking from critical thinking. To his belief, normal thinking is simple but critical thinking is more complex and requires great mind and arbitration processes based on evidence; accordingly, specifying and articulating issues, collecting data, analyzing questions, viewing and judging about the source credibility, organizing the information and concluding, and reviewing the results all are activities that occur in critical thinking (Lipman, 1997).

Fostering thought is considered as one of the main objectives of education. Thinking about thinking in order to improve thinking, is at the heart of the critical thinking programming (Yousefi, 2011). Among the imposed criticism on the current educational system, unquestioning, the students passivity, lack of critical thinking and individualism that is strengthened by the school. Unquestioning is shown with lack of motivation and impressive stimulus, and passivity appear with students' willingness to obey the teachers' orders and their alienage with classroom space, teacher, and the textbook; lack of critical thinking in this situation leads the children not to learn how to criticize and modify themselves and others (Maleki and Habibi, 2007). According to Ristow viewpoint, the critical thinking can be increased through training and practice. (Athari Esfahani, 2007). If the curriculum basic goal is to teach learners thinking and intellectual skills, fundamental changes in this case also must be carried out in educational policy, management, the schools administrative and executive structure, and classrooms (Hashemi-Moghaddam, 2001).

The approach of thinking development once gets important that it will be considered as the pivot point for the convergent and interrelated curriculum and educational planning. A pivot point should be considered for convergent and interrelated curriculum and educational planning that all educational and curriculum materials, whether in the form of textbooks or other forms, circuit round that to become the common pivot for all the diverse topics of educational curricula and, thus, all of the course and training materials from that perspective get educational program-format that how and how much they help thinking (Mojahedi, 2001).

Halpern (1998) believes that the aim of education for democratic citizen is to foster critical thinking. The curriculums based on the cognition growth process approach foster critical thinking in learners, and facilitate active teaching-learning strategies deployment in schools and help the teachers and learners to achieve the basic goals and ideals of education and curriculum (Hashemi-Moghaddam, 2001). Content of the curriculum has special position in the meanwhile.

If it's important to be neglected in the education system, attention to other matters will not be very efficient and effective learners will not lead to the desired position (Maleki, 2002). The content of current curricula, nurturing of creative ideas to replace formalized and carefully replaced so that the speed, quantity replaces quality, and moving in to replace explore in depth. In this way, the philosophy for children is an effort to provide an opportunity for thinking (Shaw, 2010). And the content must be adjusted in such a way that they help to understand the fact that there are constantly new discoveries that alter previous convictions. So it is necessary for children meanwhile the evaluation, testing and acceptance or rejection of their beliefs, have Free and fair-minded way of thinking (Victor, 1993).

In another study by the World (2001) has been reviewed the philosophical foundations of education critical thinking Lipman. The most important finding of this study is to train critical thinking exclusively through research processes The most important finding of this study is to The most important finding of this study is to train critical thinking exclusively through research processes may be possible critical thinking exclusively through research processes. The findings Ghasemi, farmers and truth (2011) showed the philosophical thinking of students can increase by providing Iranian philosophical story. Moniri Far (2012) in research as the primary emphasis on thinking skills to read books of philosophy do shows Antqadpzyry skills in all base the lowest frequency in read book and conceptualization skills in the first, third, fourth and fifth basic and Reasoning skills on the second basis is allocated the highest frequency in read book.

Nasrabadi (2012) has researched as the role of education curriculum in development of life skills the 21st century from the perspective of the primary school teacher in Tehran. The results show that the content of the curriculum than-average from teachers' view influence on the development of life skills in primary. Some Ghasemian results (2009) shows: the curriculum, on average, at 86.34% of the components of critical thinking has been given. Among the elements, element content of textbooks has the least respect to the components of critical thinking. Fathi (2010), which analyzes the content of the third and fourth elementary school science, the basis of the amount of attention paid to the process of problem solving and thinking skills, states that the lowest level considered to why indexing that Top of thinking skills to be allocated. The findings Keyvani Hafashjany (2012) shows the impact of education on parenting attitudes.

There is a direct and positive relationship between parents' Educational performance and training students thinking. By enhancing the training performance of parents, 35% will be added to the cultivation of students' thinking. Although many scholars and experts education believe that the main purpose of education is training thinking, research results show that as it should be don`t attention worthy to importance of training thinking in the education system and more students are lacking thinking skills. Philosophers believe that early childhood education is the best time is to foster a philosophical and thinking skill. If during this period ignored the philosophical foster and nurture it to adulthood delayed, irreparable damages reaches children. So according to content expressed and according to since no study has been systematically within the country on ways to foster critical thinking in primary education, this study investigate fostering critical thinking methods in primary education, according to published studies in Iranian universities by using systematic and Structured study about researching to integrate them and provide practical solutions and suggestions.

RESEARCH METHOD

In this study, a systematic review of studies used. Systematic reviews will pay to collect and combine several early studies deals and the combined results and analysis of this evidence, provide practical answers to questions of the researchers. This method looking for establishment and composition of research and evidence that focused on specific questions. Meta-analysis and systematic review are among the best and updated approaches or scientific method that as distinct from traditional methods provide possibility of tabloid, integration, synthesis and interpretation of the data, evidence and results of quantitative and qualitative researches and even development of theories and conceptual models in many areas of research (Qazi Tabatabai & vadadhir,2010). Researcher uses keywords to search for articles and theses in all major domestic databases and if they have access, study their abstract. If access to the full text of articles received and evaluated. Thesis on relevant to subject have been identified in different universities of country and study more cases in person. After collecting the contents of all papers and theses related, to each of them was assigned the code and was analyzed statistical.

Totally by narrowing researches to educational science and scientific researches, 1470 theses and papers were found that many of these cases were repeated in different bases, if abstracts of theses and papers were available they were studied that in some abstracts essential information was not found so it was necessary to review full text of theses and papers to do a systematic review. After reviewing, 45 theses were selected. The text of papers downloaded or searched manually in libraries. To study the text of the theses, after getting from university researcher has gone to

universities of Mashhad, Tehran, Sari, Hamedan, Azadshahr, Marvdasht and Shiraz and despite of limitations in some universities, intended theses were studied and this lead to deleting some theses to enter systemic review. Ultimately, 15 case studies were available in final phase for meta-analysis.

Statistical population and sample

Statistical population of the study included all scientific researches about methods of training critical thinking in elementary schools of country which has been done between years 1978 to 2013. Considering applied method, in the present study sampling was not done and all founded scientific papers containing methods of inferential statistic and studied theses that investigated methods of fostering critical thinking in element schools which were about 15 cases were analyzed.

Method of analyzing information

In meta-analysis the main principle is scale of effect for separated studies and turning them into a common matrix and then combining them to achieve a medium effect (average). To estimate the size of effect Hunter and Schmidt method was used in this study. Hunter and Schmidt support a uniform method i.e., random sizes method. They believe that fixed-size models are not appropriate for actual data and somehow are related to researchers' fictitious vision (Abedi and Arizi, 2004). Hunter and Schmidt's method emphasize on isolating and correcting sources from drawbacks such as sampling from errors and confidence on variables. The main difference of this method is in using size of unchanged effect in calculating size of estimated effect.

Findings

Frequency of conducted studies on methods of fostering critical thinking is reported in Table 1.

Table 1: Determining frequency of ways of fostering critical thinking in elementary schools

row	Methods of fostering critical thinking	frequency	percentage
1	Educational content	7	46.6
2	Training thought and philosophy	5	33.4
3	Training family	3	20
total		15	100

Information of Table 1 shows that conducted studies on methods of fostering critical thinking have investigated methods of teaching and teachers' professional competence, educational content, training thought and philosophy and family training and most of studies are about teaching method and teachers' professional competence.

Results of investigation of effect of educational content on development of critical thinking of students are presented in Table 2.

Table 2: Average and standard deviation of size of effect of separated studies related to effect of educational content on fostering critical thinking

Statistical indexes of separated studies	Number of studies N	Size of calculated effect r	Standard deviation of size of effect $SD_{\bar{r}}$	Standard error of size SE_r	Z
Educational content	3	0.238	0.121	0.071	3.352

Table 2 indicates average and standard deviation of size of effect of separated studies related to effect of educational content on fostering critical thinking. Based on the above table the best estimate of intended effect in society is between educational content and fostering critical thinking which equals to 0.238 and according to Cohen's table of interpretation of size is evaluated as average.

Results of investigating effect of training thought and philosophy on fostering students' critical thinking are presented in Table 3.

Table 3: Average and standard deviation of size of effect of separated studies related to effect of training thought and philosophy on fostering critical thinking

Statistical indexes of separated studies	Number of studies N	Size of calculated effect r	Standard deviation of size of effect $SD_{\bar{r}}$	Standard error of size SE_r	Z
Training thought	6	0.557	0.273	0.111	5.048

Table 3 indicates average and standard deviation of size of intended effect related to effect of training thought and philosophy on fostering critical thinking. Based on the above table the best estimate of intended effect in society is between training thought and philosophy and fostering critical thinking which equals to 0.557 and according to Cohen's table of interpretation of size is evaluated as high.

Results of investigating effect of training family and philosophy on fostering students' critical thinking are presented in Table 4.

Table 4: Average and standard deviation of size of effect of separated studies related to effect of training family on fostering critical thinking

Statistical indexes of separated studies	Number of studies N	Size of calculated effect r	Standard deviation of size of effect $SD_{\bar{r}}$	Standard error of size SE_r	Z
Training family	3	0.269	0.292	0.172	1.564

Table 4 indicates average and standard deviation of size of intended effect related to effect of training family on fostering critical thinking. Based on the above table the best estimate of intended effect in society is between training family and fostering critical thinking which equals to 0.269 and according to Cohen's table of interpretation of size is evaluated as average.

CONCLUSION AND DISCUSSION

Mean and standard deviation of size of related effect indicates effect of educational content on fostering critical thinking. Based on the above table the best estimate of intended effect is observable between educational content and fostering critical thinking and equals to 0.238 and according to Cohen's table of interpretation of size is evaluated as average. Sadeghi's study (2006) shows that fourth grade science text books for students involve teaching and thought desirably. Ghasemian's study (2009) shows that in content of elementary school books has been paid less attention to critical thinking. Kazemi's (2013) study indicates that thought and research workbook of sixth grade elementary school has no significant effect on increase of characteristics of thought attitude, thought-based competences, strengthening philosophical thought and questioning spirit. Fathi (2010) in his study analyzed content of science books of third and fourth grade elementary school in terms of extent of attention to problem solving thinking skills, states that reason index which allocated to itself the highest part of thinking skill has been paid less attention. Moniri far (2012) in a study entitled amount of emphasis of reading books of element schools on philosophical thought skills indicates that in all grades criticism skill has the lowest frequency in reading book and in first, third, fourth and fifth grades conceptualization skill and in second grade reasoning skill have the highest frequency. Nasr Abadi (2012) in a study entitled investigating role of curriculum skills in training life skills in 21 century from elementary schools teachers' views in Tehran has showed that from teachers' view curriculum content has more influence than average on training life skills in elementary schools. Ghashghavi (2007) conducted a study entitled investigating amount of attention to training thought skills in Farsi book of fifth grade and teachers' view, results indicate that considerable and significant attention has been paid to observation, communication, and determination of causal relationships, strategic questions, realization, and assessment of evidence, inferring, elaboration, interpretation and extension. A little but significant attention has been paid to decision-making, making hierarchy, fluid thinking, systematic thinking, prioritizing, using tools, retention and flexible thinking skills and not significant attention has been paid to measuring, comparing, problem solving and researching skills. Obtained results indicate that best estimate of intended effect in society is between educational content and fostering critical thinking which equals to 0.238 and according to Cohen's table of interpretation of size is evaluated as average. Educational content is considered as an element of curriculum and considering being centralized education system plays an important role in students' education. Considering studied researches in a systematic review and obtained meta-analysis of obtained results according to Cohen's table, effect of educational content is average in this study.

Results also indicate mean and standard deviation size of related effect of training thought and philosophy on fostering critical thinking. The best estimate of intended effect in society is between training thought and philosophy and training critical thinking which equals to 0.557 and according to Cohen's table of interpretation of size is evaluated as high. Results indicate that training thought and philosophy directly or through tale increases critical thinking among

elementary schools students. Results of Ghasemi zare and Haghighghat (2011) study show that it is possible to increase philosophical thinking in students of first grade elementary schools by presenting Persian philosophical stories. Results of Gharib, Fathi Azar, Hashemi, Adib and Badri (2011) indicate that critical thinking can be increased through direct teaching of thinking in the classroom and engaging students in discussions and classroom activities as well as their involvement in the process of thinking. Results of Ramezani (2013) study indicate that amount of philosophical thinking skills of students who have been trained by telling the story is more than students who have been trained in a normal way and teaching philosophical stories increase students' philosophical thinking skills.

REFERENCES

1. Abedi A, Arizi H.R. 2004. Meta-analysis study of factors affecting the increase in the application of research findings and their application in education of Isfahan province

2. Athari Esfahani Z. 2007. The relationship between university entrance exam rank and critical thinking scores of students of Isfahan University and Isfahan University of Medical Sciences. MA Thesis, Isfahan University.

3. Bakhtiyar Nasr abadi H, Nowrouzi R, Habibi N. 2005. New ideas in Philosophy of Education. The first publication, Qom: Sama Ghalam.

4. Fathi M.R. Analysis of content of third and fourth grade elementary school science books in terms of attention to problem solving process and thinking skills. MA thesis of Marvdasht Azad University.

5. Fisher R. 2007. Teahing Thought to children. Translated by M Safani moghaddam, Anjariyan. Ahvaz: Resh. 437 pages.

6. Gharibi H, Fathi Azar A, Adib Y, Hashemi T, Badri Gargari R. 2013. Effectiveness of strategic teaching of thought on students' critical thinking. New psychological research journal, Vol. VIII, No. 29, spring 2013, p. 197 -218.

7. Ghasemi F, Zare Z, Haghighat Sh. 2011. Comparison of effect of Iranian and non- iranian philosophical story and ordinary stories on growth of critical thinking among first grade students of elementary schools. Scientific quarterly of new approach in educational management of Marvdasht Azad University, 2(4), p. 133-152.

8. Ghasemian J. 2009. Investigating status of critical thinking in elementary school curriculum. MA thesis. Islamic Azad University of Marvdasht.

9. Ghashghavi Z. 2007. Amount of attention to training thought skills in Farsi book of fifth grade and teachers' view in Tehran. MA thesis of Islamic Azad University of Tehran.

10. Ghazi Tabatabayee M, Vadadhper A. 2010. Meta-analysis of social and behavioral researches. Tehran: sociologists. 296 Pages.

11. Hashemi Moghadam S SH. 2001. development of the cognitive process: effective approach in the curriculum in order to foster thinking. Conference on curriculum and fostering.

12. Jahani J. 2002. Critical Review of philosophical foundations of Matthew Lipman's educational model of critical thinking. Humanities Scientific quarterly of Azahra University, year XII, Issue 42: Summer 2002:35- 55.

13. Kazemi S.Z. 2013. Investigating effect of thinking and research workbook of sixth grade elementary schools on students' spirit of inquiry in Abhar city. MA thesis Payam Noor University of Tehran.

14. Keyvani Hafashjani A. 2012. Ways of fostering thought and spirit of inquiry in students of fourth grade of elementary school in Tehran in district 11. MA thesis of Tehran Payam Noor University.

15. Kord Noghabi R, Pasha sharifi H. 2005. Preparing life skills curriculum for students. Educational Innovations quarterly, No. 12, the fourth year, summer of 2005.

16. Lipman M. 1997. Thinking in Education. Combridge mass Cambridge university press. thought, Tarbiat Moallem University of Tehran, January 9, p. 131 – 168.

17. Maleki H, Habibi poor M. 2007. Fostering critical thinking-the main purpose of education. educational innovation Journal, the sixth year, No. 19.

18. Mayerz Ch. 2007. Teaching critical thinking. Translated by Khabili. Sixth publication, Tehran: reading and editing Social Sciences books organization publication (SAMT). 137 Pages.

19. Mojahedi M.M. 2001. Analysis of the theoretical principles of fostering thought approach in curriculum planning. Conference on curriculum planning and fostering thought. Tarbiat Moallem University of Tehran, 9 February, p. 83 - 104.

20. Moniri far M. 2013. Amount of emphasis of reading books of element schools on philosophical thought skills. MA thesis of Boo ali SIna University of Hamedan.

21. Motahhari, M. 1995. Education in Islam. The twenty-sixth publication, Tehran, Sadra. 448 Pages.

22. Nasr Abadi M. 2012. Investigating role of curriculum skills in training life skills in 21 century from elementary schools teachers' views in Tehran in educational year 2012-2013, MA thesis of Islamic Azad University of Tehran.

23. Omidiniya M, Maktabifar L, Momeni A. 2013. Investigating critical thinking skills in selected Persian novels of young adult in 2000s based on Piter Fisboone list. Thought and Child, institute of

Humanities and Cultural Studies, Issue One, spring and summer 2013. Pages 1 to 26.

24. Ramezani M. 2013. Investigating Effect of philosophical stories on philosophical thinking skills of students of fifth grade elementary school in the first district of Hamedan city in educational year 2012-2013, MA thesis of Hamedan Boo Ali Sina University.

25. Sadeghi A. 2006. Investigating critical thinking in content of fourth grade elementary school science book. MA thesis Marvdasht University.

26. Shabani H, Mehr Mohammadi M. 2000. Fostering Critical thinking using problem-based teaching method. Modares journal, Volume 4, Issue 1, p. 115 - 125.

27. Shabani H. 2007. Advanced teaching methods (learning skills and thinking strategies). Second publication. Tehran: Samt. 243 pages.

28. Shav R. 2010. Philosophy in classroom: fostering thinking skills of students and motivating them to learn. Translated by M Yari dehnavi, R Heidari. Tehran: Avaye Noor. 96 pages.

29. Soltan AL Gharabi KH, Soleyman nezhad A. 2008. Critical thinking and necessity of teaching it in the classroom. Two Islamic training quarterly, Vol. 3, No. 6. Spring and summer 2008: p. 181-195.

30. Stahal. 1991. Critical thinking across the curriculum;building the analytical classroom. Long university comminuty college.

31. Tayler R. 2011. Basic Principles of Curriculum and Instructive Planning. Translated by A Taghi poor zahir. Eighth Publication. Tehran: Agah. 155 pages.

32. Victor A. 1993. Teaching science in elementary schools (first publication). Translated by S A Seyedi Nooghabi, M Q Lotf Abadi, Reshalforooshan M, Modir shane Ch. Third publication. Mashhad: Astan Quds Razavi. 652 Pages.

33. Yoosefi A, Gordan shekan M. 2011. Critical thinking. Iranian Journal of Education in Medical sciences, special issue on Education and Promotion of Health, Vol. 11, No. 9, 2011, p. 1120 - 1128.