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THE USE OF CRITICAL THINKING IN SOCIAL SCIENCE TEXTBOOKS OF HIGH SCHOOL: A FIELD STUDY OF FARS PROVINCE IN IRAN

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This study aims at investigating the use of critical thinking in high school social science textbooks based on Fars Province teachers' attitudes in order to present a model for textbook development. To achieve this goal, the use of the following skills in the social science textbooks was analyzed: reasoning, questioning, assessment of examples and statements, group work, interpretation, true judgment about issues, analysis and evaluation, logicality, and explicitness. It is a field study which was conducted in several high schools of Fars Province in Iran. The population of this study included 568 social science teachers. The sample was selected based on the stratified random sampling procedure so that 153 teachers participated in this study. The data were collected using a forty-four-item questionnaire based on Likert-scale, which was developed and validated by the researcher himself and some experts. The reliability coefficient was also estimated as 0.86. The data were analyzed through descriptive statistics (frequency, percentage, standard deviation, and coefficient of variations) and inferential statistics (Chi-square and Kruskal-Wallis Non-parametric tests). The result showed that the teachers of the Social Studies Textbook evaluated assessment of examples and statements, and analysis and evaluation skills as not satisfactory respectively. They evaluated the other skills as fairly satisfactory. Teachers of Sociology Textbook 1 evaluated explicitness, assessment of examples and statements, analysis and evaluation, and interpretation skills as not satisfactory respectively. They also evaluated other skills as fairly satisfactory. Teachers of Sociology Textbook 2 evaluated explicitness as not satisfactory, logicality as satisfactory, and other skills as fairly satisfactory. Therefore it is possible to rank order the social science textbooks of high school as satisfactory and not satisfactory with regard to the use of critical thinking. In other words, Sociology Textbook 2, Social Studies Textbook, and Sociology Textbook 1 were ordered on a continuum of satisfaction from satisfactory to unsatisfactory, respectively.

Key Words: critical thinking, social science textbooks, Persian educational system

INTRODUCTION

Education is the most important and preliminary foundation of growth and development and its result is the change of educational systems to learning organizations. All experts accept the role of educational systems in the development of countries. Thinking and learning new information, contemplation style, and learning are prominent characteristics of human beings. So thinking is the most dominant factor in any education system. The development of educational systems is one of the most important criteria in modern societies. This issue has become a vital problem in different countries, and in recent decades it has become a very important problem in developing countries. On the other hand, attention to thinking in teaching and learning process is the most dominant feature of new approaches. Thinking has been defined differently by different authors. What is common in all approaches is the fact that thinking provides the foundation for inventions and finally it leads to human growth and development. In this article, the researcher has studied the critical feature of thinking in details.

Critical thinking movement was strengthened under the effect of Robert Ennis's thoughts in the early 1960s. Ennis, the Cornel University professor, spoke about the learning and evaluation of critical thinking by designing the X and Y tests. He claims that the concept of critical thinking was not discussed in a comprehensive scope and His efforts aim at compensating the shortages of critical thinking studying (R. Ennis, 1962). The Lipmans works open the ways to critical thinking. In the early 1980s, Lip man could instruct the techniques of critical thinking by introducing a pattern.

Lipman emphasizes that teaching reading, writing, and calculating is the basis of education and reasoning is the main axis of all these activities (Lipman, 1984). The main purpose of education is producing thoughtful people and the final result of education must be the contemplative mind. Critical thinking is a controllable and purposeful judgment which pays logical attention to proofs, fields, concepts, methods and criteria (Harkreder, 2000). The final product of the educational systems which don't pay attention to this issue is a non-creative person, and it is considered to be a serious problem in the material and spiritual development of the country. The researcher who has been involved in education field has seen the fact that instead of training critical and thoughtful people, Iranian education system has always attempted to overload the students' minds with materials and information, so that the students have become similar to computers whose duty is just storing and retrieving the information.

Critical thinking is a necessary skill in promoting the students' thoughts. The final goal of education is generalization which is achieved through critical

thinking and social interactions, out of classrooms (Johnson, 1995). This form of thinking helps a person to think deeply about the issues and criticize education system through true comprehension of the current issues. The learners' discussion is based on thinking and the learners understand the subject by thinking, and analyze the problems presented to them through asking suitable questions (Girle, 1991).

In his new model, Lipman points out to high level thinking. In his point of view, high level thinking has critical and creative features. Critical thinking is created based on students and naturally it is cognitive. But creative thinking moves toward values and meaning (Lipman, 1991). It is also clear that critical thinking is not created in isolation and becomes apparent in relation to special activities or topics (F. Haynes, 1991). One of the effective factors in citizenship life is logicality and true judgment of its people. Those who have better true judgment ability select more effectively and decide more easily. The high level decision making power is a characteristic of a good citizen and it is performed through critical thinking.

The Iranian education emphasis on just transmitting information and limiting the learning to memorizing the materials is the result of the predetermined programs, contents of textbooks, and the method of codification and evaluation. In addition, this education system basically seems to be more product-oriented than be process-oriented. This is actually a big problem that is now facing the Iranian education system. Sometimes students learn the materials which are ambiguous to them, and this ambiguity should be removed through thinking. Training and creating doubts in people stimulates the curiosity, creativity, and critical thinking in them. Therefore, critical thinking is now considered as a factor which can cause individual, social, cultural, and scientific growth and development.

This study is concerned with critical thinking in social science textbooks of high schools which is one of the most important educational levels in Iran. It analyzes the views and ideas of teachers and experts in critical thinking area and attempts to present a model for preparing social science textbooks of high school based on this model. This model will be based on reasoning, questioning, assessment of examples and statements, group work, interpretation, true judgment about issues, analysis and evaluation, explicitness, and logicality skills, as suggested by Lipman. Since one of the purposes of education is building critical thinking in students, the education should foster the teachers' spirit of accepting criticism and it should also create the critical spirit and a suitable field of analysis and research in the students. In this study, the researcher studies the critical thinking in education in general and in social

science textbooks of high school in particular which is based on Lipman's approach. Finally, it will suggest a model and solution to increase the quality of social science textbooks of high school (Social studies Textbook, Sociology Textbook 1, and Sociology Textbook 2)

One of the main purposes of learning and training is the thinking reinforcement in the students and teachers should provide the opportunities to achieve the goal. The reasoning and judging opportunities should be given to the students in the schools. In other words, they should learn how to think and how to learn. Critical thinking is a process of thinking with the purpose of examining the logic that we use. (E.B. Johnson, 2002). So it is the rebuilding and the exact study of thinking process. In this kind of thinking, the value of all thoughts is studied. The main and Important feature of critical thinking is the study of all hypothesizes and criticisms and there is no prejudice about a specific Result (N.S.Blair *et. al*, 2000). And finally, its results are the all positive and negative events that appear in human behavior in different forms (M.Lunny, 2003). So it helps people to act logically and behave properly in the society in order to make a desirable life.

Conceptual Framework

Critical thinking is one of the new models in education system. This model pays special attention to the development of individual and social features of people so that mental power and social responsibilities will be fostered among the learners. Dewey believes that schools should be based on people cooperation and its result should be training citizens (A. Haynes, 2002). In critical thinking strategy, the creation of thoughts, their expression and putting them to practice are emphasized as a fundamental characteristic of judgment. Critical thinking is important in both individual and social aspects. Since in critical thinking the human being is considered free, he is helped to decide about his way of life. In daily life, we need to have a high power of selectivity to face different situations in life. The success will be achieved only when people are able to make right selections in these situations.

Critical thinking is employed in training rational citizens and creating critical spirit. By creating this spirit in citizens, the critical thinking will be at the service of social system and critical spirit will be a guarantee for the application of laws and rules.

Therefore, paying attention to the necessity and importance of critical thinking, recommendation on its application in education, and feeling responsibility about it is inevitable. The societies which believe in democracy as a social philosophy which determines the behavior of their people provide an opportunity for

selection and logical decision making for them. The systems which also believe in educational democracy respect the decision making power of people for their citizenship life. Critical thinking is the way and model of people's looking at the importance and use of thought in their life (B. Duchscher, 1999). Overloading students' minds with materials and handwritten texts is not so important today, but rather the learning process and the learners' activities during the training period are fundamental in educational democracy. This feature is very evident in the thoughts of philosophers such as Socrates who respectfully looked at people and their ideas and then guided their thoughts.

It is sometimes seen that in order to defend their ideas, students become dogmatic and defend their ideas according to their bias without thinking about them. It is also possible that the students quit their ideas easily and accept the others' ideas without thinking. People in the normal society should defend their ideas with reason and logic and also accept the other people's ideas reasonably. In this way, everybody will have a mental tranquility and would not accept the materials passively, and this would not be achieved except through critical thinking and its development in societies. Following are some studies related to this subject which have been conducted in other countries.

Thomas in a study on critical thinking teaching situation in high schools in California, through interview and teaching method analysis of 40 teachers, concluded that most of the teachers were not aware of critical thinking standards, and finally has suggested that all teachers in pre and in-service training courses should take part in critical thinking (P.E. Thomas, 1999).

In another study done by Kwin, he has suggested a method for developing critical thinking skills in history textbooks. This study used two opposite texts to help students in the way of thinking. The results showed that the students had learned the thinking methods and had transferred these skills to other lessons and their lives (B. Sternberg et al, 1987).

Mcneely and Donna studied the capacities of nursing curriculum with regard to critical thinking in their textbooks, test questions, and interview with instructors. The results showed that in the curriculum for nurses, critical thinking was not paid enough attention and the instructors believed that wrong purposes of the curriculum, lack of supportive instructions, differences and individual problems were the causes of the lack of suitable teaching (G. Mcneely & E. Donna, 1992).

Glaser studied the teaching of critical thinking in English classrooms. The comparison of the students in the control and experiment groups showed that

the performance of experiment group was significantly better than control group performance (R.E. Glaser, 1984).

In a study by Shin the critical thinking ability and clinical decision making by undergraduate nursing students were studied and these questions were posed: 1- what is the difference between the two curricula for nursing students with regard to critical thinking? 2- What is the difference between the two curricula for nursing students with regard to clinical decision making? 3- What is the difference between critical thinking and nursing clinical decision making? The results showed that the B. S. students had higher scores than A. S. students. They were also higher with regard to their clinical decision making scores. Finally, it was concluded that critical thinking had a positive correlation with clinical decision making (R.K. Shin, 1997).

In a research which was conducted by Yeh about the selection method of teacher training students, 75 students were taught critical thinking by means of a computer program and the result showed the increase of critical thinking behaviors and skills in the students (Y. C. Yeh, 1997).

According to the author's survey, no study on the matters of critical thinking has been done in Iran.

Questions of the study

1- How do teachers evaluate the conditions of critical thinking skills based on their use in social science textbooks?
2- How the social science textbooks ranked is based on the use of critical thinking skills?

Is there any significant difference among social science textbooks with regard to the use of critical thinking skills?

METHOD

With regard to the nature of the research which studies the use of critical thinking in social science textbooks of high schools, a field study is used.

The population of this study is the whole social science textbook teachers (Social studies Textbook, Sociology Textbook 1, and Sociology Textbook 2) of Fars Province in 1387-1388 academic years and their number is 568.

The sample was chosen according to a random stratified sampling , so that after dividing the province into five sections of north, south, east, west, and center, two education offices were randomly chosen and all their teachers were appraised, and finally 153 teachers participated in this study.

Data collection and analysis

The main source of data collection is questionnaire. Based on Lipmann's critical thinking variables, 44 questions were prepared according to Likert scale.

The questionnaire's validity was obtained through consulting some experts in the field. Its reliability was also determined through a pilot study with 30 teachers in two phases in a two-week interval. The results are shown in table one.

Table 1: Reliability coefficient of critical thinking questionnaire

Critical thinking skill	Logicality	Explicitness	Analysis and evaluation	True judgment	Interpretation	Group work	Assessment of examples and statements	Questioning	Reasoning	Total
Reliability coefficient	0.72	0.88	0.78	0.83	0.78	0.82	0.87	0.73	0.87	0.86

The descriptive and inferential statistics were used to calculate the frequency, percentage, standard deviation and differences coefficient. The inferential statistics were used to do non-parametric tests of Kruskal-Wallis and Chi-Square in order to study the amount of significant difference among the teachers' ideas of Social studies Textbook, Sociology Textbook 1, and Sociology Textbook 2 teachers.[1]

Since the data were collected through Likert scale, (from 1 to 5), first of all the score for each question and each skill (with regard to the questions related to that skill) was calculated to determine the status of each skill in social science textbooks at the three levels of unsatisfactory, fairly satisfactory, and satisfactory. After that, the Likert scale was divided into three equal parts, unsatisfactory (1 to 2.33), fairly satisfactory (2.33 to 3.66), and satisfactory (3.66 to 5), and based on this division the status of each skill in social science textbooks was determined. Moreover, to determine the whole condition of each textbook with regard to the critical thinking skill use, the mean scores of the whole skills in each textbook were used.

FINDINGS

In table 2 the status of each skill according to its use in social science textbooks is shown and ranked. According to the obtained results about social studies

[1] These two tests are applied since the teachers of each book can be considered as an independent group.

textbook, the assessment of examples and statements, the analysis, and evaluation skills were ranked as Unsatisfactory. In sociology1 textbook, the explicitness, assessment of examples and statements, analysis, evaluation and interpretation skills were ranked as Unsatisfactory respectively, and the other skills were evaluated as being fairly satisfactory. In sociology2 textbook, the explicitness skill was evaluated as unsatisfactory, logicality skill as satisfactory, and the other skills as fairly satisfactory.

Table 2: The status of skills based on their use in social science textbooks

Textbook	*Rank*	*skill*	*Status*
Social studies	1	Logicality	Fairly satisfactory
	2	Questioning	
	3	Group work	
	4	True judgment about issues	
	5	Reasoning	
	6	Interpretation	
	7	Explicitness	
	8	Analysis and evaluation	Unsatisfactory
	9	Assessment of examples and statements	
Sociology (1)	1	Logicality	Fairly satisfactory
	2	Questioning	
	3	True judgment about issues	
	4	Reasoning	
	5	Group work	
	6	Interpretation	Unsatisfactory
	7	Analysis and evaluation	
	8	Assessment of examples and statements	
	9	Explicitness	
Sociology (2)	1	Logicality	satisfactory
	2	Questioning	Fairly satisfactory
	3	Analysis and evaluation	
	4	Reasoning	
	5	True judgment about issues	
	6	Interpretation	
	7	Assessment of examples and statements	
	8	Group work	
	9	Explicitness	Unsatisfactory

Table 3 shows the ranking order of social science textbooks based on their use of each skill. It is clear that in most of the skills (7 out of 9) the sociology2 textbook is in the first place and it shows that, in comparison with social studies and sociology1, in sociology2 most of the skills have a better status according to their use. On the other hand, it is clear that in most skills (6 out of 9) the sociology1 is in the third place which shows that this textbook is less

satisfactory in most skills comparable to Social Studies Textbook and Sociology Textbook 2.

Table 3: Rank of social science textbooks according to their use of each skill

Skills									*Rank*
Reasoning	*Questioning*	*Assessment of examples and statements*	*Group work*	*Interpretation*	*True judgment about issues*	*Analysis and evaluation*	*Explicitness*	*Logicality*	
Sociology2	*Sociology 2*	*Sociology 2*	*Social studies*	*Sociology 2*	*Sociology 2*	*Sociology 2*	*Social studies*	*Sociolog 2*	*1*
Sociology1	*Social studies*	*Social studies*	*Sociology 2*	*Social studies*	*Sociology 1*	*Social studies*	*Sociology 2*	*Sociolog 1*	*2*
Social studies	*Sociology 1*	*Sociology 1*	*Sociology 1*	*Sociology 1*	*Social studies*	*Sociology 1*	*Sociology 1*	*Social studies*	*3*

Since in most cases (7 out of 9) the social studies textbook is in the second and third place, and the number of skills in which this textbook is in the third place is smaller than sociology textbook 1, it could be concluded that there is a difference in these textbooks according to their critical thinking skills use, and they could be ranked from the best to the worst in this way: sociology textbook 2, social studies, and sociology textbook 1.

Table 4: s_d and coefficient of variation from means for each skill in social science textbooks

Skills (ranked based on coefficient of variation)	*coefficient of Variation*	*standard deviation*
True judgment about issues	0.005	0.015
Interpretation	0.014	0.043
Reasoning	0.016	0.050
Group work	0.023	0.072
Assessment of examples and statements	0.029	0.088
Explicitness	0.034	0.104
Logicality	0.040	0.143
Questioning	0.042	0.141
Analysis and evaluation	0.047	0.144

In table 4, the standard deviation and variation coefficient of means of different skills in all social science textbooks are shown and ranked from the lowest to the highest. Since the smaller the variation coefficient is the smaller would be the variance, this table can help us to find the skills the use of which is more varied in different books. It is seen that in comparison with other skills,

logicality, questioning, analyzing, and evaluating skills have higher and almost similar variation coefficient. Therefore, it is expected that the means of logicality, questioning, analyzing, evaluating and explicitness skills in social science textbooks will be different.

Table 5: The results of kruskal-wallis test

skills	*textbook*	*Mean*	*Degree of freedom*	*Test Statistic*	*P-Value*
Reasoning	Social studies	75.7	2	1.51	0.563
	Sociology1	79.9			
	Sociology2	81.5			
Questioning	Social studies	73.71	2	6.207	0.037
	Sociology1	70.0			
	Sociology2	87.29			
Assessment of examples and statements	Social studies	74.63	2	2.131	0.345
	Sociology1	73.63			
	Sociology2	82.69			
Group work	Social studies	81.83	2	1.896	0.388
	Sociology1	74.55			
	Sociology2	75.69			
Interpretation	Social studies	76.01	2	0.226	0.893
	Sociology1	76.23			
	Sociology2	80.15			
true judgment about issues	Social studies	76.00	2	0.071	0.965
	Sociology1	77.76			
	Sociology2	78.07			
Analysis and evaluation	Social studies	77.51	2	5.257	0.030
	Sociology1	81.22			
	Sociology2	92.16			
Explicitness	Social studies	82.96	2	5.411	0.067
	Sociology1	70.48			
	Sociology2	73.63			
Logicality	Social studies	70.95	2	7.452	0.011
	Sociology1	75.34			
	Sociology2	92.10			
All skills of critical thinking	Social studies	78.66	2	5.017	0.041
	Sociology1	70.53			
	Sociology2	89.21			

Table 5 shows the results of non-parametric Kruskal-Wallis test. According to the *P-value* obtained, it is understood that at the level of .05, the null hypothesis is retained. That is, the average of true judgment about issues, interpretation, reasoning, group work, assessment of examples and statements, and explicitness skills use in social studies, sociology textbook 1 and sociology textbook 2, is almost the same. Therefore, it can be concluded that at the level of .05 these three books have almost the same status. But the null hypothesis about the equality of the amount of use of logicality, analysis and evaluation and questioning skills is rejected at the .05 level, which indicates that the average use of these skills in the three textbooks is not the same. With regard to the last line of table1, it is understood that as a whole, the null hypothesis about the equality of the use of critical thinking skills in these three textbooks, is rejected at the .05 level.

Table 6: The results of chi-square test

Skills	*Degree of freedom*	*Test Statistic*	*P-Value*
Reasoning	8	13.673	0.091
Questioning	8	16.020	0.037
Assessment of examples and statements	8	8.909	0.350
Group work	8	12.481	0.074
Interpretation	8	4.761	0.783
True judgment about issues	8	9.483	0.303
Analysis and evaluation	8	15.539	0.044
Explicitness	8	14.036	0.074
Logicality	8	15.036	0.045
All skills of critical thinking	8	15.703	0.047

The results of Chi-Square test are shown in table 6. According to *p-value* obtained, at the level of 0.05, the null hypothesis is retained. That is, there is no difference in Social Studies Textbook, Sociology Textbook 1, and Sociology Textbook 2 in their use of interpretation, assessment of examples and statements, true judgment about issues, reasoning, group work and explicitness skills. Therefore, it could be concluded that at the level of .05, the mean use of these skills in these three books is the same. But the null hypothesis about the

equality of the use of questioning, analysis and evaluation, and logicality skills is rejected at the .05 level, which indicates that the mean use of these skills is not the same in these books.

Also, with regard to the last line of table 6, it is understood that, on the whole, the null hypothesis about the equality of the use of critical thinking skills in these three books is rejected at the .05, level.

According to tables 5 and 6, it is concluded that the result of non-parametric tests of Chi-Square and Kruskal-Wallis are to a great extent similar and they have given the same results at the 0.05 level which ensures us of the exactness of the obtained results.

DISCUSSION AND CONCLUSION

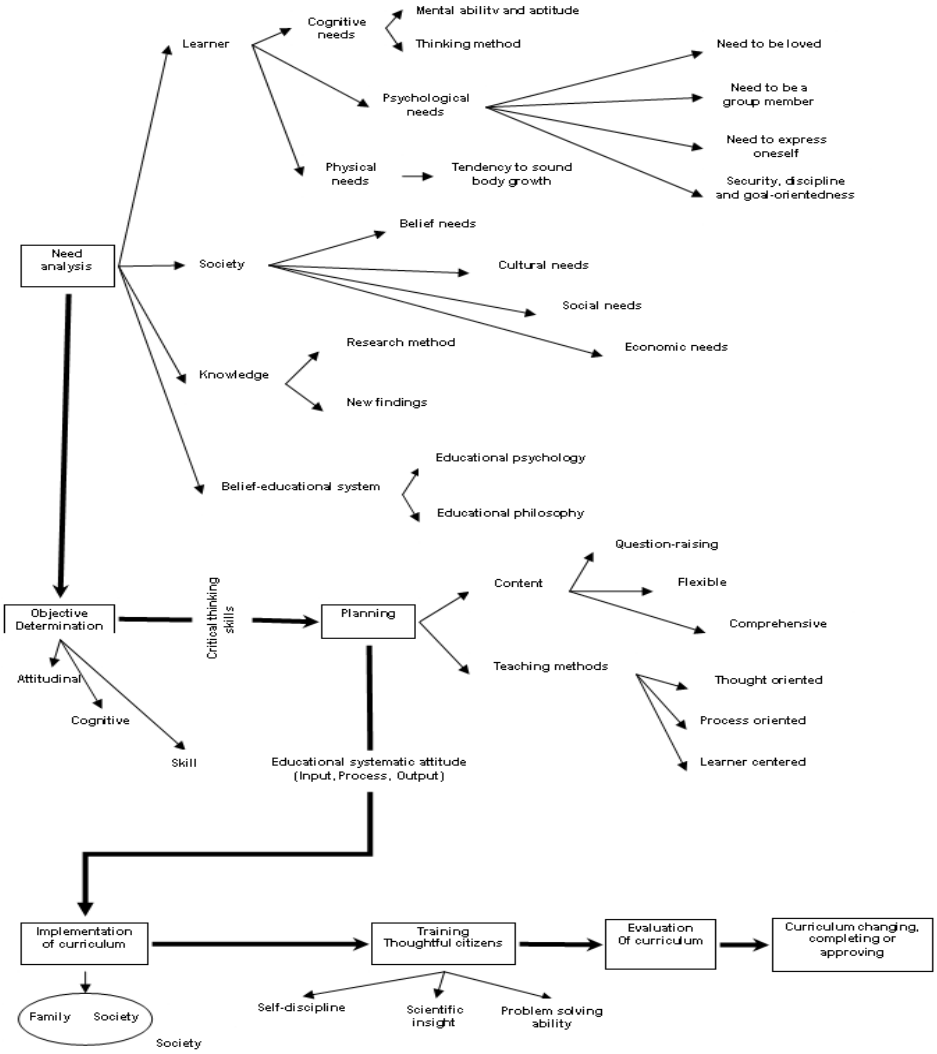
The bellow results have been obtained about the use of critical thinking in the Iran's high school social science textbooks.

According to the findings, teachers of Social Studies Textbook evaluated assessment of examples and statements, and analysis and evaluation skills as unsatisfactory and the other skills as fairly satisfactory. Teachers of Sociology Textbook1 evaluated explicitness, assessment of examples and statements, analysis and evaluation, and interpretation skills as unsatisfactory and the other skills as fairly satisfactory. Teachers of Sociology textbook 2 evaluated explicitness skill as unsatisfactory, logicality skill as satisfactory, and the other skills as fairly satisfactory. Therefore, it is possible to rank order the social science textbooks from satisfactory to unsatisfactory as sociology 2, social studies textbook, and sociology textbook 1, according to their use of critical thinking skills. Moreover, according to the obtained results from the inferential statistics, there is no significant difference among the social science textbooks according to their use of interpretation, assessment of examples and statements, true judgment about issues, reasoning, group work, and explicitness skills. In other words, the use of these skills is almost the same in these three books. But there is a significant difference among the use of questioning, analysis and evaluation, and logicality skills in these books.

Generally speaking, the result of this study is in agreement with the findings of other studies conducted by (P.E. Thomas, 1999), (G. Mcnelly & E. Donna, 1992), (Y. C. Yeh, 1997), Kwin quoted by (B. Sternberg et al., 1987), (R.E. Glaser 1984) and (R.K. Shin 1997).

Considering the findings of this study a model for the use of the critical thinking skills in curriculum development is presented in figure 1.

Figure 1: Suggested model for critical thinking use in curriculum development



Need analysis is essential for preparing any kind of curriculum. All experts, education specialists, and other people involved in education should understand the students and society needs and the structure of different disciplines in order to determine the cognitive, attitudinal and skill objectives in curriculum development. Off course, the belief system plays a major role in these objectives. Objective determination in the belief, cognitive, and skill domains

paves the way for designing that program. Nowadays in thinking process, attention to the objectives in attitudinal domain seems more important. If a student doesn't feel need and interest in a question, he will not follow that question in his thinking process.

Considering skills systems of the critical thinking, planning the content and teaching method with higher quality can make learners become thought-oriented.

Rational, logical, and comprehensive view about the education issues creates a fundamental attitude in input, process, and output domains, and the teacher who implements the curriculum with this view might train a thoughtful citizen who is able to solve his problems in a society. Off course, in order to increase the quality of any curriculum, and modify, remove or approve it, the program should be evaluated constantly.

With regard to this model, in order for the Iranian students to develop educationally, some changes in school curricula are necessary. The changes in society's structures should also be applied in school curriculum. The rate of science development will affect the quality of the textbooks. Different cultures and values have been created beside these developments which should be added, analyzed, criticized in the textbooks. Following are some suggestions to be applied in educational environments to achieve the above goals.

Recommendations for Further Research and Practice

(recommendation should be based of research questions/for each recommendations, the author needs to discuss it in the context of Persian school system)

1. More consideration should be given to issues of analysis and evaluation ,assessment of examples and statements in social studies textbooks.

2. More consideration should be given to the issues of interpretation, analysis and evaluation, assessment of examples and statements, and explicitness in sociology(1) textbooks.

3. More consideration should be given to the issue of explicitness in sociology(2) textbooks.

And generally, the following recommendations are given to be considered:

1- Development of class talks and discussion among the students
2- Use of active teaching methods in classrooms
3- Providing real situations in classrooms to transmit learning

4- Writing different textbooks based on critical thinking indicators
5- Teachers should be consultants instead of transmitters of information and lesson skills
6- Providing situations for the students in order to express their thoughts and ideas
7- Considering the ideas of the authorities in critical thinking, especially Lipman's ideas in writing school curricula.
8- Not overloading the students' minds
9- Considering students real needs in learning environments
10- Developing self-awareness and self-adjustment skills in the students
11- Developing critical thinking skills in students
12- Attention to the structure of knowledge instead of remembering and retrieving it
13- Planning and creating learning environments to develop thinking in learners
14- Pre and in-service training of teachers of all educational levels to get familiar with critical thinking method
15- Considering the other countries' experiences in critical thinking field in educational environments

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