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# Designing and Evaluating of Curriculum Pattern Based on Critical Thinking Fostering, an Innovative Approach in Secondary School Education: Perspectives of Teachers and Related Professionals

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### ABSTRACT

**Background:** The purpose of this study was to design and evaluate a model curriculum of Social Studies based on critical thinking in second high school students and evaluate it from the viewpoint of curriculum experts and related teachers. **Objective:** According to Morgan table and by use of sampling method, 240 teachers and 50 related experts were selected by using multi-stages sampling and random method. To collect data we use a questionnaire consist of 33 questions with 5 options on nine components (reasoning, questioning, evaluating evidence and comments, being together, interpretation, correct judgment on issues, analysis and evaluation, openness, reasonableness) of lipman critical thinking. The method of this research is field study. For data analysis, descriptive statistics and inferential statistics (chi-square) were used. **Results:** The results from the viewpoint of teachers and experts showed the goals of desired social studies curriculum based on the components of critical thinking of are: reasoning, questioning, evaluating evidence and comments, being together, interpretation, correct judgment on issues. Content of social study curriculum based on critical thinking components are: being logical and being clear (clear and transparent). **Conclusion:** Teaching and learning practices of social studies curriculum model based on critical thinking elements for students was being together and correct judgment about others. Appropriate evaluation methods in social study based on critical thinking components was analyzing and evaluating power, evaluating the evidence and testimony, the ability to interpret and being reasonable.

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## INTRODUCTION

Today, new approaches have been proposed in order to determine goals of education and training process. One of the most considerable approaches, consider the thinking. Experts believe that the purpose of education is to nurture thinker and probe mind people. Developing the students thinking skills have always been an important issue in education, so the educational experts extremely concerns about Students disability in critical thinking [8].

Organized thinking should be part of the content of the curriculum. Training requirements to prepare learners to become thinkers, Critical readers and writers for the new millennium, raises the necessity of a comprehensive dialogue based on critical thinking in educational institutions[2].

Critical thinking Education leading motivation to learn, problem solving skills, decision-making and creativity [11].

Critical thinking is a process by which ideas, information and resources that provides that information, evaluate it and ordering them in a coherence and logic way, relevant with other information and opinions, considering other sources and evaluate implicit intents [1].

Critical thinking means a thoughtful and logical thinking that is focused on believe or decision to do something. This term is now widely used [1,2].Critical thinking is not just criticism [15]. Critical thinking is a

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rational and logical thinking that intend to verify the beliefs, opinions, actions and decisions about them based on reason and evidence and logic and correct results that is the outcome of them [4].

Another definition has offered by American Psychological Association: Critical thinking should be a self-made and objectively judgment which results in interpretation, analysis, evaluation and Deduction, and in Addition, it should be relied on evidence, Conceptual, orderly and lawful explanation by contextual considerations that based on judgment.

Critical thinking is the intellectually disciplined activity and sophisticated conceptualization, application, analysis, synthesis and evaluation of information collection and its generalizations, That is, act by observation, experience, thought, logic or communication as a guide attitudes and behavior.

Critical thinking is a style of thinking about any subject, content, or cases; it is a thinking that proposes fundamental questions formulate them clearly and precisely, Collect and review the relevant information, interpret abstract ideas effectively to achieve logical solutions and consequences and communicate with others to solve complex problems effectively [7].

Teaching and nurturing critical thinking in various disciplines should be done in different ways and cannot provide a fixed instruction. In general we can say that critical thinking skills in discussion and exchange of ideas and problem solving should be best grown. So, create classroom environments that encourage discussion and reflection and asking, foster critical thinking [8]. Teachers should provide more opportunities to promote discussion and debate for students. Gaining Critical thinking need practice and training in analysis [13].

Unfortunately, despite the emphasis on thinking in objectives of education systems and managers, executives and officers claims, there isn't enough Motivation and intent to encourage students to think critically in practice. Teachers despite with comments relate to accept this hypothesis, shows that critical thinking makes the way more better for training, Always by stereotyped ways and deleting facts, non-flexible disciplinary environment, provide Grounds for maintaining the content and accumulating students mind from related and unrelated information to real-life that cause loss costs, opportunities and capabilities of individuals .

To become a dynamic generation, we must learn the judgment ways about society and thinking about our lives and others [8]. in current educational system, Preservation and transmission of information are the dominant form of education. accordingly, Content, teaching procedures and evaluations are formed and Fundamental problems in the field of education and critical thinking improvement can be seen.

School due to Science and Technology Progress, and according to some psychological approach, has turned their attention to convey information and facts and makes space of thoughtful and creative humans[8].

But today, the educational psychologists and other experts have criticized the strong emphasis of schools on knowledge transferring to students, and recommend the teachers to develop the skills of thinking in learners [9].

Despite these facts, there is unrealistic advertising and claims that the training will focus on critical thinking, while the critical thinking don't teach to students, whom are future teachers.

They have no understanding of the process and this is not something that requires for realistic critical thinking development, and It is unbelievable that critical thinking is in the distinction situation, till accepted the need of teaching critical thinking in the classroom, The fact is that in the current era, textbooks are obsolete before being published and more jobs are rapidly changing, so it is the time to change the circumstances of education and more attention to foster critical thinking in persons as one of the main goals of education.

In training process, in addition to strengthen the spirit of criticism in teachers, we should make the Investigation and research field in students. [10]. because the success of any community depends on the ability of individuals to analyze and make decisions thoughtfully and educational system of each country should not be ignorant of this importance [8].

Organized thinking should be part of the content of the curriculum. Training requirements to prepare learners to become thinkers, Critical readers and writers for the new millennium, raises the necessity of a comprehensive dialogue based on critical thinking in educational institutions. . Critical thinking Education leading motivation to learn, problem solving skills, decision-making and creativity [12].

Hashemian Nejad in his thesis titled by "presentation a theoretical framework in term of curriculum based on critical thinking in elementary school With emphasis on social studies curriculum, he review critical thinking[4].

His research was descriptive -applicable and provide a framework for designing curriculum based on critical thinking.

He has considered asking questions, analyzing, reasoning, mastery of relevant knowledge, use of critical words, evaluation, linkage and meta-cognition skills as an important axis of curriculum goals based on critical thinking. He comprehensively and theoretically examines the critical thinking, and accordingly provide an ordered framework for designing curriculum based on critical thinking.

Baba mohammadi and hajji Aghakhani (2001) in a study carried out in Semnan, assessed the impact of the two methods: classical learning and based on critical thinking strategies on stable learning of nursing students. They concluded that the use of critical thinking skills makes the learner more active and learning is deeper and more sustainable[3].

Pasiar and Esteghamat, investigate the rate of application of critical thinking components in science and mathematics textbooks for fifth grade primary school. Results of this study suggest that there is more attention to thinking in sciences textbook in comparison to mathematical and lack of using critical thinking Component by students is due to problems in textbooks and teaching methods[10].

Alipoor, in research entitled by "barriers of critical thinking in the curriculum of secondary education" (with an emphasis on the analysis, synthesis, evaluation and judgment skills), the results of quantitative research indicate that there are many barriers to foster critical thinking in high school that include[1]:

Lack of Attention to the analysis skills, synthesis skills, evaluation, judgment and adding up that is visible in High School elements of the curriculum (aims, content, teaching methods and evaluation).

Linda Adams( 2008) in his Master Thesis entitled by "critical thinking skills of undergraduate nursing" assess this issue that: Do they change critical thinking skills, from the first day of their 15 week's period or not[2]?

Results showed there is a significant differences in the domain of inductive reasoning and Illative reasoning. They also found that Clinical experience with instructor and factors which are relevant to their clinical experiences are an important factor that has contributed to their critical thinking improvement.

Nickel German (2008) in his doctoral thesis examines the rate of critical thinking skills in BA students of physical fitness. The study were carried on expert 78 person of Undergraduates students of four volunteer's accredited institution. The data gathering tool was a California's questionnaire of critical thinking skills. The results of this study didn't show significant difference between the level of university and students' critical thinking marks[5].

And also it didn't show significant difference between gender and the background of critical thinking education.

From the evidence, in this study we try to answer this question: what is designing and evaluating of curriculum pattern based on Critical thinking fostering from the viewpoint of teachers and related professionals?

#### *Research Questions:*

1. What are the desired goal of social studies curriculum model based on critical thinking elements for second high school students?
2. How is appropriate content of social studies curriculum model based on critical thinking elements for second high school students?
3. How is Appropriate teaching and learning practices of social studies curriculum model based on critical thinking elements for second high school students?
4. How is appropriate evaluation methods of social studies curriculum model based on critical thinking elements for second high school students?
5. How is the opinion of Curriculum specialists and teachers about evaluation of the pattern of social studies curriculum model based on critical thinking elements for second high school students?

Research method: The present study aims to examine the literature, texts and documentation in order to design and develop the social studies curriculum model to foster critical thinking and evaluate in viewpoint of relevant experts.so this study is applicable and evaluative and they have used underlying research methods. Because in this research, they studied a special topic deeply and extensively. So that its results provide a complete and organized picture of the topic [14].

The statistical population included two parts: All social studies teachers (male and female) of second high school in Kermanshah in 2014 and experts in the field of education (curricula, educational planning, educational technology, educational administration and philosophy of education) with a PhD and MA degree in 2014.

Sample volume: The volume of the study population was 650. According to Morgan table, 240 teacher and 50 relevant experts also has identified and multi-stage sampling method was used as follows: Kermanshah has divided into four region (North, South, East, West, and Central) according to the Classification of education department. After those two cities were selected randomly and from each of them, 10 high school and from each high school, 3 classroom and at the end, from each classroom, one teacher was selected as a sample.

Data analysis methods: For data analysis, descriptive statistics (Frequency, percentage, mean, charts) and inferential statistics (chi-square) were used. To collect data we use a questionnaire consist of 40 questions with 5 options on nine components (reasoning, questioning, evaluating evidence and comments, being together, interpretation, correct judgment on issues, analysis and evaluation, openness, reasonableness) of lipman critical thinking.

#### *Data Analysis:*

First question: What are the desired goal of social studies curriculum model based on critical thinking elements for second high school students?

The results of the chi-square test of the question items has shown in Table 1 and separately for teachers and professionals.

**Table 1:** Chi-square test: Desired goals of Social Studies Curriculum.

p	Degrees of freedom	Chi-square	Indicator variable	
0.001	4	118.8	teachers	Desired goal of social studies curriculum model
0.001	4	18	professional	

According to the information given in Table 1, Chi-square obtained for the teachers and professional at error probability level of 0.01 is larger than the table's Chi-square.

It can be stated that there is significance difference between observed frequencies and expected frequencies ( $p < 0.05$ ).

According to the research, it can be stated that Components such as powers of reasoning, the power of interpretation, questioning, analyzing and evaluating power, the appropriate judgments about issues and the evaluation of evidence and statements power are among the desired goal of social studies curriculum model based on critical thinking elements for second high school students.

Second question: How is appropriate content of social studies curriculum model based on critical thinking elements for second high school students?

The results of the chi-square test of the question items has shown in Table 2 and separately for teachers and professionals.

**Table 2:** Chi-square test: appropriate content of social studies curriculum.

p	Degrees of freedom	Chi-square	Indicator variable	
0.001	4	82.9	teachers	appropriate content of social studies curriculum
0.001	4	102.1	professional	

According to the information given in Table 2, Chi-square obtained for the teachers and professional at error probability level of 0.01 is larger than the table's Chi-square.

It can be stated that there is significance difference between observed frequencies and expected frequencies ( $p < 0.05$ ). According to the research, it can be stated that Components such as Being logical and being clear (clear and transparent) are among the appropriate content of social studies curriculum model based on critical thinking elements for second high school students.

Third question: How is appropriate teaching and learning practices of social studies curriculum model based on critical thinking elements for second high school students?

The results of the chi-square test of the question items has shown in Table 3 and separately for teachers and professionals.

**Table 3:** Chi-square test: appropriate teaching and learning practices of social studies curriculum.

p	Degrees of freedom	Chi-square	Indicator variable	
0.001	4	83.7	teachers	appropriate teaching and learning practices of social studies curriculum
0.001	4	50.8	professional	

According to the information given in Table 3, Chi-square obtained for the teachers and professional at error probability level of 0.01 is larger than the table's Chi-square.

It can be stated that there is significance difference between observed frequencies and expected frequencies ( $p < 0.05$ ). According to the research, it can be stated that Components such as being together and correct judgment about others are among the appropriate teaching and learning practices of social studies curriculum model based on critical thinking elements for second high school students.

Fourth question: How is appropriate evaluation methods of social studies curriculum model based on critical thinking elements for second high school students?

The results of the chi-square test of the question items has shown in Table 4 and separately for teachers and professionals.

**Table 4:** Chi-square test: appropriate evaluation methods of social studies curriculum.

p	Degrees of freedom	Chi-square	Indicator variable	
0.001	4	94.8	teachers	appropriate evaluation methods of social studies curriculum
0.001	4	112.4	professional	

According to the information given in Table 4, Chi-square obtained for the teachers and professional at error probability level of 0.01 is larger than the table's Chi-square.

It can be stated that there is significance difference between observed frequencies and expected frequencies ( $p < 0.05$ ). According to the research, it can be stated that Components such as analysis and assessment Power, evaluate the evidence and testimony, the ability to interpret and being logic are among the appropriate

evaluation of social studies curriculum model based on critical thinking elements for second high school students.

Fifth question: How is the opinion of Curriculum professional and teachers about evaluation of the pattern of social studies curriculum model based on critical thinking elements for second high school students?

To answer this question, the two variables chi-square test was used. It means, in order to compare the opinion of Curriculum professional and teachers about the discussed components in this research, the two variables and chi-square test was used. The result is shown in Table 5.

**Table 5:** Two variables Chi-square test: comparison of the opinion of Curriculum professional and teachers about evaluation of the pattern of social studies curriculum model.

result	p	Degrees of freedom	Two variables Chi-square	Variable
Differences in opinions	0.001	2	31.9	desired goal of curriculum model
Differences in opinions	0.005	2	5.95	appropriate content of curriculum
Differences in opinions	0.001	2	39.9	Appropriate teaching and learning curriculum
Similarity in opinion	0.26	2	2.64	appropriate evaluation methods curriculum

According to the information given by two variables Chi-square test in Table 5, It can be stated that there is a significance difference the opinion of Curriculum professional and teachers in discussed components include desired goal of curriculum model, appropriate content and appropriate teaching and learning of curriculum ( $p < 0.05$ ). However, in the component of appropriate evaluation methods curriculum there is no significant difference between the opinions of teachers professional and the opinions of both groups are similar ( $p > 0.05$ ).

#### *Discussion and conclusions:*

In today's complex world, great change in human life are happened and communities have a very tight competence to access the superior technology. Among these changes, revolution in the educational system is no exception, why twenty-first century students cannot be an involuntary element, even how to learn is abroad from his possession, and any manipulation of the what is being taught. Predetermined and decisive programs he are not responsive to matters student and teacher is not the only source of information. As technology improves, people living anywhere in the world can achieve large volume of information in less time through advanced information systems. With extensive and difference information on the subject of considerable importance, How to exploitation of this information is important, and it needs critical thinking.

Because critical thinking is based on analysis of information processing and their applications in various fields of science and even various situations of life.

Creating critical thinking can be one of the main objectives of the globally education system and is an integral component of each education system. But today's schools, largely because of advances in science and technology, and due to some psychological approaches, has been paid more attention to the transfer of information and facts and have been away from educating thoughtful and creative people.

While each educational system in order to be successful, need their individual's ability in Education and thoughtful decision. so one of the goal that educational system should pay attention to it, is nurturing critical thinking skills in students. To develop the each curriculum, need assessment is considered necessary.

In this study, based on the theory of cognitive demands theory of Lipmann, Physical needs, psychological needs, social needs, academic needs of students are considered. The goals include the reasoning the interpretation, questioning, analyzing and evaluating issues and evaluate the evidence and statements are correct judgment about the problem.

Feature's content in secondary school also is logical and clear. Collective activities and corrected judgment about others in the classroom also among the features of teaching and learning methods in the classroom. The analysis and evaluation of the evidence and the statements at the class, interpret the information, being reasonable in the evaluation are the component of the evaluation is based on the Lipmann theory.

Today's thought process, focusing on goals in the field of view is more important. If a student fails to desire or need it, he/she doesn't pursue her/his thinking about matter.

In addition to consider critical thinking skills system, content design and teaching methods with a better quality provide a comprehensive thinking –centered.

Rational, logical and comprehensive view in terms of the problems of education, create the basic approach in terms of input, process and output field.

A teacher that implement curriculum by this approach; his/her results in various areas of community may cause educating thoughtful citizen with the ability to solve the problems. In order to enhance the quality of each curriculum and apply corrective changes, elimination and approval, we should do critical evaluation regularly. Note that in this study, they review the critical thinking skills of reasoning, questioning, evaluate the evidence and testimony, being together, Interpretation, correct judgment on the issues, analysis and evaluation, Having clearance and being reasonable. Based on these skills and factors affecting the educational system provides how

to Use critical thinking in curriculum. According to the presented model, we should make changes in schools education in order to gain educating enhancement. One of the factors in any educational programs textbooks. Changes that occur in the community should also be included in textbooks. Speed up progress in science will affect the quality of books. Alongside these developments, various cultures and values have arisen that examine them require to criticize and making judgments about them.

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