

The Analysis of sixth grade science book based on the biological, physical, and technology areas proposed in the fundamental transformation document of the educational system

Ali asghar, Mashinchi,. Ali Akbar Ghasemi, Yoosef Razeghipour

Abstract

The purpose of this study is to analyze the sixth grade science book based on the biological, physical, and technology areas proposed in the fundamental transformation document of the educational system using William Romey method. As a kind of "content analysis" research, it examines the desired content in terms of specific and predetermined criteria or indicators and measures everything with specified criteria; it is in fact an evaluation study. However, during this study on the criteria or indicators, descriptive research has been used. The research statistical population was the sixth grade science book in ۲۰۱۷-۱۸. Findings revealed that the science books received less attention in the field of biological and physical areas but it has received more attention in the field of science and technology. Also the text involvement index in terms of biological and physical was very low, indicating that the text book has not been written in an active manner; on the other hand the involvement index of images showed that it has been written in an active manner. The involvement index in terms of question of and biological and physical was very high and according to William Romey question were provided in a desirable manner. William Romey according to the involvement index based on the science and technology showed that the text has been presented in an active manner, but the images and questions have not been presented in an active manner in terms of science and technology.

Keywords: Content analysis, biological and physical area, science and technology area, William Romey, sixth grade science book

Introduction

Education has been important to human life at all ages and generations. A certain kind of its concept has been considered at any time according to the intellectual, philosophical and social conditions. Because multiple factors have had an impact on this issue, significant transformations have been made in this regard over time. Philosophers and other thinkers defined education according to their accepted theories.

Someone who thinks more on the personal aspects of human existence introduces it as an attempt to enrich personal intentions and someone who thinks on the social aspect considers the education as the social skill of people. (Maleki, ۲۰۰۸, p ۹). In fact, both of them should be considered and if one does not received attention, education suffers from the same angle. Naderi and Saif Naraghi (۲۰۰۶) argue that education has characteristics or attributes of

Ali Asghar Mashinchi
Department Of
Education Lamerd
Branch Islamic Azad
University Lamerd Iran
Corresponding Author:
Mashinchi@iaulamerd.ac
.ir.
Ali Akbar Ghasemi
Assistant Professor of
Farhangian University of
Bushehr
Yoosef Razeghipour
Ph.D. Student of
Education of Lamerd
Islamic Azad University

human that are universal and are coordinated with the human nature and are acceptable with all people and all places regardless of temporary cultural and social circumstances. Finally, it should be acknowledged that the factors affecting the education "Strengthening the coordination and deployment of the universal traits of human nature" should be provided, strengthened and established through what is considered "special education content". In fact, the "education" is the main aim and appears through "teaching" or "training".

The realization of values and goals of the Islamic Revolution requires the efforts at cultural, scientific, social, economic and political areas. Field of education is one of the most important infrastructures of any country for promoting human capital in various fields and the revival of the great Islamic civilization, its active presence among nations and preparation for the establishment of justice and spirituality in the world depend on educating virtuous and noble people in the world. The realization of this goal requires mapping the way in which the necessary resources and facilities, the division of domestic labor and the requirements specified in this way are accurately planned. In the fundamental transformation of the educational system, the perspectives and goals of education are explained until ۱۴۰۴ Hijri. Fundamental transformation in the educational system are based on high ideals of the Islamic system and should be directed to ۱۴۰۴

vision drawing a developed Iran reaching the first rank in the economic, scientific and technological areas and an Islamic identity along with constructive and effective interaction in the international arena. Based on this perspective, school is a manifestation of fulfilling the life issues, the center of the field and opportunities for education, the leader of students to understand the situation of reform and development, on the basis of Islamic criteria in the framework of philosophy and the doctrine of the official educational system.

The desired macroeconomic objectives in the fundamental transformation document include:

- Nurture of faithful and religious human
- Improving the public educational system's role in the family's growth and excellence
- Developing and providing comprehensive training and educational justice
- The establishment of effective and efficient human resource management system based on Islamic criteria
- Increasing the effectiveness of public participation and the formal educational system, especially the families
- Improvement in the educational planning and curriculum
- Improving the effectiveness and increasing the efficiency of the educational system

Train school teachers to pay attention to different aspects of students. In the issues of a variety of topics related to the educational philosophy of the Islamic Republic of Iran, it is noted that the six areas can be examined based on different aspects of students which are: ١. Moral and religious training. ٢. Social and Political training. ٣. Biological and physical training. ٤. Aesthetic and artistic training. ٥. Economic and Professional training. ٦. Science and Technology training. Hence formal and public training and the six dimensions are explained and the issue of how the teachers discuss any area through the introduction of necessary qualifications. For this purpose, theoretical models related to the six dimensions of education are explained. Theoretical model is a conceptual schema composed of elements related to the education and the relations among those who provided logical responses for trainers in educational practice. Each theoretical model consists of three main components, "limits and jurisdiction", "approach" and "principles" (the fundamental transformation document of educational system, ٢٠٠٧, p ٢٩٨).

The goals of biological and physical area

- Understanding the phenomena and aim of nature events to achieve a general understanding of the world and his place on the basis of the Islamic criteria
- Decoding and encoding the hidden and obvious phenomena of nature /

existence and expressing it in the language of art

- Nurture of senses and imagination to recall his divine nature and receive the manifestations of the nature / existence on the basis of the Islamic criteria

The goals of science and technology area

- Understanding and taking advantage of the dense human experiences in science and technology (understanding of basic and applied sciences, obtaining Apprenticeship skills, insight and technological thinking to improve quality of life, employing a scientific and rational thinking and critical thinking in the face of life issues) on the basis of the Islamic criteria
- Utilization and evaluation of scientific discoveries and technological innovations that create new facts to discover or create new methods and tools for achieving the goals of higher on the basis of the Islamic criteria
- Planning and implementing the academic activities to achieve their desired future society based on Islamic criteria system
- Constructive engagement with nature through understanding and appreciating the nature of the target, capture, develop and learn from constructive

role in scientific activities at National and global level on the basis of the Islamic criteria

- Understanding and exploring the natural phenomena and events in order to decode and encode them as creatures of divine revelations in the light of the criteria (fundamental transformation document of the educational system, ۲۰۱۳, p ۲۹۴).

"On the other hand, with the increase of human knowledge from the sensitivity and importance of education and the emergence of complex social structures, educational system transformation from the traditional systems to the planned ones and meanwhile the lesson plans received realistic objectives. However, the curriculum as a field of practice was born in the early twentieth century and then issues of this area attracted the attention of experts and professional in the field of education so that currently the field of curriculum has a special place in the field of education as a discipline." (Fathi Vajargah, ۲۰۱۰, p ۱۳). Education in Iran since the spread of modern education was based on the textbook and the widespread growth is due to the mastery of the content of textbooks, but it must be stated since the present era is the information age. Can we still consider the aim of education as the control over the content of textbooks? One of the characteristics of the modern era is the increasing amount of

information and this intensity and speed can transform the old information in a few years so that some have estimated the survival of information for six years (Mahmoudi, ۲۰۰۲, pp. ۳۴-۳۵).

Among the numerous factors that are applied to the educational system of any country, textbooks are of particular importance. Textbooks are important due to their effect on the socialization process of students and the impact on shaping the thinking and perception of the individual abilities. Another issue that shows the importance of textbooks is that the textbooks have different messages to students. A set of these messages is clear and obvious and it can be said that it is taken from the curriculum planners and producers of educational content and the results of the impact of these messages are largely quantifiable and measurable. Another set of textbooks have obscure and hidden messages, the results of which have not been intended by curriculum planners and producers of educational content. However, students are exposed to these messages and these messages are effective on the evolution of behavior, thinking and person's perception from himself. (Izadi, ۱۹۹۵, p ۲۳). "Textbook is a learning tool and plays an important role in the structure and teaching activities in the classroom. For this reason, textbooks should follow the logic of learning and is a tool that can be used by teachers for awareness and understanding of a subject. Smart

and disciplined teachers use textbooks with different designs to be appropriate for different levels and types of students "(Fathi Vajargah, ۲۰۱۰, p ۳۱۲).

In compiling the content of textbooks, methods of active delivery of content should be given. In the method of active delivery of content, the learner has mental involvement with the presented content and starts innovating and shows his creativity in solving problems. In fact the active delivery of content has the greatest emphasis on building memory and the students do not have any intellectual activity in solving problems and only memorize the contents. But the active delivery of content in comparison with the passive method has some advantages including: ۱. The active delivery of content relies on the specific activities and experiences of students. ۲. The active delivery of content uses students' creativity and empowers them. ۳. The active delivery of content does not limit the freedom and independency of students but it will grow and strengthen them. ۴. What is taught in an active way is less prone to forgetfulness (Mahmoudi, ۲۰۰۲, p ۵۶). Shariatmadari (۱۹۹۸, p ۱۶) suggest that the content should stimulate the students' imagination and be hard enough to force students to think.

Curriculum content is important in terms of the role it plays in achieving the goals. Because the planning, drafting, updating textbooks is one of the requirements of educational system

and its analysis is very important, this analysis helps practitioners and authors of textbooks to be more careful during the compilation and selection of textbooks' content in order to facilitate learning and provide academic progress. Content analysis actually helps the concepts, principles, attitudes, beliefs and all components made in the course of the book, to be studied scientifically (Yarmohammadian, ۲۰۰۱, pp. ۱۵۰-۱۵۱). Content analysis, as the name suggests, seeks to clarify the actual content of a message, verbal or non-verbal, and also determines the extent of the message. Content analysis is considered as a methodology in the social sciences to examine the content of the communication. Babby (۲۰۱۰, p ۵۳۰) interprets it as a study of human communication, such as books, websites, paintings and laws. Lasswell (۱۹۴۸, pp. ۲۳۴) argues the central issue in content analysis: "Who says what, to whom he says, why he says, and how he says". Perhaps the most important feature that distinguishes content analysis from other methods is the qualitative analysis of the messages that is an attempt to link to the standards of the scientific method (Kimberly, ۲۰۰۲, p ۱۰). According to Krippendorff (۲۰۰۴, p ۴۱۳), six questions must be considered in any analysis of content:

۱. What data are analyzed?
۲. How are data defined?
۳. What is the population group or audience?

- ξ. How is the text associated with the data that are analyzed?
- ο. What are the boundaries of content analysis?
- ϛ. What is the purpose of deduction?

To make valid inferences from text, trustworthiness of classification method is important. Different people should have the same coding from a similar context. (Weber, 1990, p 12).

"Content analysis is inherently a study of the evaluation study, because the researcher investigates the content in terms of specified and pre-determined criteria. Thus, content analysis is "evaluation". (Naderi and Saif Naraghi , 2014, p 181).

In reviewing a few studies that analyze the content of books about primary school and the fundamental transformation document of educational system the following issues are obtained. The results of study by Hajyar et al (2007) suggest that the content of elementary school science books is less than the expected amount and finally there is a huge gap to achieve the desired status of textbooks. Farbehi (2014) in his study entitled "content analysis of the fourth grade science book with William Romey method" states that the content and images of book have not been provided in an active manner and does not enhance learners' curiosity and their active learning but the questions and activities are provided actively and improve the students' learning.

The results of study by Sheikh (2014) in a discussion of fundamental transformation document suggest that the teachers of primary school in Gorgan city are familiar with the fundamental transformation document and there is not any significant difference between teachers' familiarity to the fundamental transformation document in educational system based on gender, marital status, field of study and teaching experience but there is a significant difference between teachers' familiarity and the fundamental transformation document.

In this paper it is discussed that to what extent the proposed areas (biological, physical, science and technology) in fundamental transformation document of education system has been considered in the content of the sixth grade science book. Then by using William Romey method, the active and passive content about the proposed areas are distinguished and identified. In this method of analysis, the book content will be divided into three parts of text, images, and questions and then are evaluated in terms of the proposed areas.

Research questions

1. How much is active method utilized in developing the concepts related to the biological and physical areas of the sixth grade science book?
2. How much is active method utilized in developing the concepts related to the science and technology

areas of the sixth grade science book?

Method

The researcher should think on a selecting the method after determining the research topic. Selecting the research method means determining the needed method for investigating a particular subject. A prominent psychologist named Miller says, "Unfortunately, the issue considered by the researcher and the readers in scientific research is a topic that has been attained, but often the method used for

achieving it is ignored." Selecting the research method depends on the research objectives and the nature of its topic and also the administrative facilities and the researcher chooses the best method based on the above issues. (Naderi, Seif Naraghi, ۲۰۱۴, pp. ۳۵-۳۶).

As the researcher in this kind of research investigates the desired content with specific and predetermined criteria it is originally an evaluation study. However, during this study on the criteria or indicators, descriptive research has been used.

The research statistical population was the sixth grade science book in ۲۰۱۷-۱۸.

Table ۱. Properties of sixth grade science book

Number of questions	Number of images	Number of sentences	Number of pages	Number of chapters	Syllabus	Row
۱۳۷	۱۴۳	۲۶۷	۹۵	۱۴	science	۱

In this study, in order to get accurate and reliable results about the book and also the limitation of book on text, images, and questions are thoroughly checked and in fact the research sample is consistent with the research population.

This study uses content analysis checklist to analyze the intended book in terms of attention to biological, physical, science and technology of the fundamental transformation document that has six main components. To determine and explain the validity of the content analysis, content validity and experts comments are used. For the content analysis of the book by William Romey

method, each of the components of the intended book including text, images and questions, data recording tables and studies notes are used. With the use of the proposed techniques by William Romey, the active and passive content on the aspects mentioned in the books are differentiated. In this method, the content of the book will be divided into the three parts of text, image and questions and then are evaluated in terms of the proposed areas.

Given that, in this study the existing conditions are examined, descriptive statistics are used and then the involvement index of students in content is calculated

through calculating the frequency, averages, charting and percentage.

William Romey method

The main steps of content analysis include: goal setting, sampling, encoding and classifying the categories, objective assessment of categories.

The goal of William Romey method is to investigate whether the book or the content involves actively the students in learning or not? In other words, the aim is to assess whether the book has been developed actively or not?

About sampling like other research methods, if the population is broad sampling can be carried out and if the population is not broad the entire population can be used as sample.

In the third stage, the content is encoded and classified and William Romey divided the content into three parts: text, images, questions for content analysis of textbook and then defined categories for each section. About the first part, the book content, ten categories are defined. In connection with the second part, images, and four categories and for the third part, questions, four categories are encoded. The most important principle in classification is that the researcher should clearly define the dealt variables and on the other hand should define the indicators on which the content information is based. In other words, the categories should reflect the research objectives.

Evaluation of book contents

Analysis unit: the smallest part of the content of the book or chapter is analysis unit and in this study sentence is the analysis unit.

١. Ten or more pages of the various parts of a book are selected and marked randomly.
٢. In each of the selected pages, ٢٠ sentences are studied and each of them is placed in one of the categories below. These statements include titles, descriptions of the figures, preface or chapters' introduction.
 - a. Truth: the truth is the simple statement of assumptions and observations that have been carried out by someone other than the student.
 - b. The results or general principles (generalizations): the results or the general principles are the comments offered by authors of book about the relationship between different subjects and hypotheses.
 - c. Definitions: sentence(s) that are is given to describe and explain a word or phrase.
 - d. The questions raised in the book that are answered immediately by the authors.
 - e. The questions that should be analyzed and answered by students.

- f. The students have been asked to explain the achieved results.
 - g. The students have been asked to do an experiment and analyze its results to analyze or solve a problem.
 - h. The questions that have been raised to draw students' attention and are not answered immediately by the author of the book.
 - i. The students have been asked to consider images or the steps of doing an experiment and in general the sentences that are not placed in any of the above categories fall in this category.
 - j. Rhetorical questions
١. Ten images are selected randomly.
 ٢. Each of these images is analyzed and assigned to one of the following categories:
 - a. An image that has been only used to describe a specific topic.
 - b. An image that wants the student to perform a activity or experiment using the given topics.
 - c. An image that has been given to describe the method of collecting an experiment devices.
 - d. An image that is not in any of the above categories.

Among the above ten categories, the categories a, b, c and d are considered as passive categories and categories of e, f, g and h are considered as the active categories.

The last two categories, namely i and j are neutral components that do not have an important role in evaluating books and therefore can be ignored in evaluating and analyzing. In order to calculate the student's involvement index with the text or to assess the level of inclusive activities, all the active categories can be divided into passive categories:

Student's involvement index with the text; all the active categories divided into passive categories.

Evaluation of images and figures

Among the above four categories, category a is passive and b is active and c and d are neutral categories. To calculate the involvement index, the active categories are divided into the passive ones. Student's involvement index with the image; all the active categories divided into passive categories.

Evaluation of questions

١. Ten questions are randomly selected from ten chapters.
٢. Each selected question is placed in one of the categories below.
 - a. The question that is directly answered in the book.
 - b. The question that is answered in definitions.
 - c. The question that must be answered by the students' knowledge for new issues in the new lesson.

d. Questions in which students are asked to solve a particular problem.

Among the above classification, categories a and b are passive and categories c and d are active categories divided into the passive categories.

Student's involvement index with the questions; all the active categories divided into passive categories.

(Naderi Ezzatollah and Sedaghat Saeed, ۱۹۹۸, pp. ۵-۷)

Table ۲. Frequency distribution and percentage of biological, physical, science and technology areas of the science book

Total		Question		Image		Text		Analysis unit index
Perce nt	Frequen cy							
۱۲/۷	۹۲	۱۴/۵۹	۲۰	۲۶/۰۸	۳۶	۸/۰۷	۳۶	biologica l, physical science and technology
۸۷/۳	۶۲۹	۸۵/۴۱	۱۱۷	۷۴/۹۲	۱۰۲	۹۱/۹۳	۴۱۰	
۱۰۰	۷۲۱	۱۰۰	۱۳۷	۱۰۰	۱۳۸	۱۰۰	۴۴۶	Total

The results showed that based on text analysis of the science book has allocated ۸/۰۷% of biological and physical area and ۹۱/۹۳% of science and technology. The highest frequency was related to science and technology area and the analysis of images showed ۲۶/۰۸% of images related to biological and physical area and

Research findings

The purpose of this study is to analyze the sixth grade science book based on the biological, physical, and technology areas proposed in the fundamental transformation document of the educational system using William Romey method. In order to analyze, the content of book was divided into questions, text and images and then was evaluated in terms of the proposed areas.

۷۴/۹۲% of science and technology. In analyzing questions ۱۴/۵۹% was related to biological and physical area and ۸۵/۴۱% was related to science and technology and the most questions were related to the field of science and technology. In general, the highest frequency was related to the field of science and technology.

Table ۳. Determining the amount of using active method in the sixth grade science book in terms of biological and physical area according to the text

Involvement index	percent	frequency	statistics method
/۲۰	۲۰	۲	active
	۸۰	۸	passive

Involvement index	Percent	frequency	statistics method
1/5	60	6	active
	40	4	passive
	100	10	total

The above table shows that the students' involvement index in terms of biological and physical area according to the image is high.

Table 9. Determining the amount of using active method in the sixth grade science book in terms of biological and physical area according to the question

Involvement index	Percent	frequency	statistics method
9	90	9	active
	10	1	passive
	100	10	total

The above table shows that the students' involvement index in terms of biological and physical area according to the question is very high.

Table 10. Determining the amount of using active method in the sixth grade science book in terms of science and technology area according to the text

Involvement index	Percent	frequency	statistics method
/97	49/2	20.2	active
	51/8	20.8	passive
	100	41.0	total

The above table shows that the students' involvement index in terms of science and technology area according to the text is moderate.

Table 11. Determining the amount of using active method in the sixth grade science book in terms of science and technology area according to the image

Involvement index	Percent	frequency	statistics method
9	90	9	active
	10	1	passive
	100	10	total

The above table shows that the students' involvement index in

terms of science and technology area according to the image is very high.

Table 1. Determining the amount of using active method in the sixth grade science book in terms of science and technology area according to the question

Involvement index	Percent	frequency	Statistics method
A	88	16	Active
	12	2	Passive
	100	18	Total

The above table shows that the students' involvement index in terms of science and technology area according to the question is very high.

Discussion and Conclusion

The purpose of this study is to analyze the sixth grade science book based on the biological, physical, and technology areas proposed in the fundamental transformation document of the educational system using William Romey method. In order to analyze, the content of book was divided into questions, text and images and then was evaluated in terms of the proposed areas.

The results showed that based on text analysis of the science book has allocated 80.7% of biological and physical area and 91.93% of science and technology. The highest frequency was related to science and technology area and the analysis of images showed 26.08% of images related to biological and physical area and 44.92% of science and technology. In analyzing questions 14.09% was related to biological and physical area and 80.41% was related to science and technology and the most questions were related to the field of science and

technology. In general, the highest frequency was related to the field of science and technology.

According to the Percentage distribution of educational areas in the science book we can say that the area of science and technology has received much attention depending on the text, image and question but the area of biological and physical has received less attention. Based on the book images, we can say that the biological and health area has received a relative attention.

First question: How much is the utilization of active method in developing the concepts related to the biological and physical areas of the sixth grade science book?

According to Table 1, the involvement index of text has been determined as 70 in terms of biological and physical area. Based on the interpretation of the results of William Romey algorithm it can be concluded that the texts of sixth grade science book deals only with providing the information on biological and physical area and asks the learners to memorize the contents. Such books are among non-research books in terms of biological and physical area where students do not have any active

role in learning. By analyzing the sixth grade science book we found that one of the reasons for the low involvement index of the text in terms of biological and physical area is that a lot of facts and concepts are presented in the text using the direct transfer procedure. We also found that the passive categories of the text are increased and the involvement index is decreased. So in order to increase the involvement index of text, it is necessary to reduce the volume of facts and concepts using the active methods.

According to Table 4, the involvement index of image has been determined as 1/0 in terms of biological and physical area. Based on the interpretation of the results of William Romey algorithm it can be concluded that the sixth grade science book asks the students to engage in activities and to do some analysis. Such books provide assumptions and enough scientific data to the students to do some activities. According to William Romey this book is designed actively in terms of biological and physical area and according to image.

According to Table 5, the involvement index of question has been determined as 9. Based on the interpretation of the results of William Romey algorithm it can be concluded that the sixth grade science book asks the students to engage in activities and to do some analysis. Such books do not provide assumptions and enough scientific data to the students to do some activities. According to William Romey this book is

designed passively in terms of biological and physical area and according to question. Therefore, authors are required to put questions in the book in order to engage students in learning however, such books at first put the assumptions and enough scientific data to the learners.

Second question: How much is active method utilized in developing the concepts related to the science and technology areas of the sixth grade science book?

According to Table 6, the involvement index of text has been determined between 1/4 and 1/0 in terms of science and technology area. Based on the interpretation of the results of William Romey algorithm it can be concluded that the texts of sixth grade science books engage the students in learning and the content of this book is written actively but the involvement index is not high. The higher is the involvement index and closer to 1/0, the students' involvement will be more with the books and the intended content will be more active.

According to Table 7, the involvement index of image has been determined as 9. Based on the interpretation of the results of William Romey algorithm it can be concluded that the sixth grade science book asks the students to engage in activities and to do some analysis. Such books do not provide assumptions and enough scientific data to the students to do some activities. According to William Romey these books are provided passively in terms of

science and technology area and according to image. Thus, the authors are required not to use images for transferring the information and put images that involve the students in learning. However, such books at first put the assumptions and enough scientific data to the learners.

According to Table 4, the involvement index of question has been determined as 4. Based on the interpretation of the results of William Romey algorithm it can be concluded that the sixth grade science book asks the students to engage in activities and to do some analysis. Such books do not provide assumptions and enough scientific data to the students to do some activities. According to William Romey these books are provided passively in terms of science and technology area and according to question. Therefore, authors are required to put questions in the book in order to engage students in learning however, such books at first put the assumptions and enough scientific data to the learners.

Suggestions

The following suggestions are given in order to improve and modify the content of curriculum:

1. In presenting the text, images and questions in the sixth grade science book the realm of biological and physical has received less attention as one of areas proposed in the fundamental transformation document of the

educational system and the book needs to be revised.

2. Presenting the sixth grade science book is passive in terms of biological and physical area and should be revised and also the questions should be revised since they are at a higher level of conceptual understanding of learners and the questions consistent with the mental growth of children should be used.
3. Presenting the sixth grade science book is active in terms of science and technology area. The images and questions should be revised since they have a higher involvement index according to William Romey.

Therefore, in order to present actively the book contents according to the theory of William Romey and move towards the new scientific education, the following suggestions are offered:

- A. Issues should be integrated into the text lessons that engage students about their thoughts and comments. Textbooks can raise some individual and social conditions of the present era and encourage the learners to solve the problems leading to the new intellectual movement.
- B. Providing indirect questions can force the learners to focus on the key elements and are be

presented in such a way that attract attention and motivate people.

- C. In Presenting images and questions in books, the involvement index is very high so it is suggested to provide firstly the scientific and enough assumptions and information to the learners and learning situations should also be considered.

References

- Babby, E. (۲۰۱۰). The practice of social research. (۱st ed). Wadsworth: Cengage Learning. p ۳۰/Wikipedia
- Fathi Vajargah, K. (۲۰۱۰). Principles of curriculum concepts. Tehran: Baal publication (in Persian)
- Fakouri, H. and Colleagues (۲۰۰۸). Investigate content-based elementary school science books fundamentals of thinking. BOJNURD University of Educational Research
- Izadi, A. (۱۹۹۵). Evaluate and analyze psychological concepts in images of books third grade elementary. M.Sc. Thesis Tehran, Allameh Tabatabai University (in Persian)
- Kimberly, A. Neuendorf. (۲۰۰۲). The content analysis guide book. Sage publication, Inc /books.google.com
- Krippendorff, K. (۲۰۰۴). Content analysis: an introduction to its methodology (۲nd ed) ca: sage, p ۱۳/Wikipedia
- Mahmoudi, R. (۲۰۰۲). Analyzing the content of school textbooks Persian literature. MS Thesis, Tehran University of Teacher Education (in Persian)
- Mahmoudi, R. (۲۰۰۲). Analyzing the content of school textbooks Persian literature. MS Thesis, Tehran University of Teacher Education (in Persian)
- Maleki, H. (۲۰۰۸). Preparatory curriculum. Tehran: Samt (in Persian)
- Naderi E, and Saif Naraghi, M. (۲۰۱۴). Methods in humanities research, how to evaluate it. Sixth Edition, Tehran: Arasbaran Publication (in Persian)
- Naderi E, and Saif Naraghi, M. (۲۰۱۱). Provide a practical guide to research design Tehran: Ravan Publication (in Persian)
- Naderi E, Saif Naraghi M. (۲۰۰۶). Foundations of analytical tools to assess and measure in Psychology and Educational Sciences. Tehran: Arasbaran (in Persian)
- Shariatmadari, A. (۱۹۹۷). Several major topics in the curriculum. Tehran: Samt (in Persian)
- Salehi, E. and Abedini, M. (۲۰۰۲). Analysis component of health information content in textbooks. Tehran: Management Health Information. Issue ۴, Volume ۸
- Sedaghat, S. and Naderi, E. (۱۹۹۷). Evaluation presented basic science first and second books content using Roman William. Tehran: Institute of Education Planning and Curriculum (in Persian)
- Weber, R. Ph. (۱۹۹۰). Basic Content Analysis (Quantitative Applications in the Social Sciences) ۲nd Edition SAGE Publications.

Yarmohammadian, M. H. (۲۰۱۰).
Principles of curriculum planning.

Tehran: Yadvare Ketab
Publications (in Persian)