

## **Analytical Study of the Fourth Grade Textbook through the Dimensions of Scientific Culture**

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### **Abstract**

States progress and develop by growing scientific culture, whether in an individual or collective way of science with its many branches, the scientific culture consists of five parts (History and Nature of Science, Science & Technology & Society, Morals of science, Science and relationship to personal and community life, Scientific thinking and exploration) One of the necessities of scientific culture is to take knowledge of the history of knowledge reached by ideas or human thought in its different fields, which passed through experiments and observations. The current research aims to analyze the content of science textbook for the fourth grade of primary through the dimensions of scientific culture. To achieve this goal, the researcher used the descriptive analytical approach following the following steps

1. The researcher took the views of teachers about the problem research through a questionnaire consisting of three questions to ascertain the mystery that includes the book of science.
2. To achieve the objective of the research, the research has prepared a list of dimensions of scientific culture based on the sources and previous studies and research, which includes dimensions of scientific culture, in addition to the above, take the views of teachers and he did sure from their face validity.
3. The researcher asked the specialists in science such as chemistry, physics, biology, curricula and methods of teaching science to propose percentages to the dimensions of

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scientific culture that are supposed to be included in the content of science curriculum for the primary stage, for the purpose of knowing whether the book includes the dimensions of scientific culture or not.

4. The researcher analyzed the science textbook for the fourth grade of primary and depend on the analysis of the idea as a unit of analysis, and frequency as a unit of the census has been confirmed analysis and stability through external analysts and the researcher with himself.

### **Research Problem**

After looking at the content of the science textbook for the fourth grade of primary found that the book does not include all dimensions of scientific culture, and also after reviewing previous studies that showed the lack of observance of science in the primary stage of the dimensions of scientific culture such as the study (Haidari, 2012), and study (Budiri, 2013), The results showed that the biology books in the middle stage are not interested in the dimensions of scientific culture. the researcher felt the need to analyze the content of the book of science in terms of including the dimensions of scientific culture or not, To ensure this, the researcher submitted a questionnaire consisting of three questions to specialists in science, and their answers were to confirm that ambiguity, They answered them (yes weakly) to include the book dimensions of scientific culture? (62, 79%), and Some of them answered (Yes) to include the book for all activities and experiences that help to develop scientific culture? Their response rate was (41.86%), And some of them answered the different units of the book including the dimensions of scientific culture? (65.11%).

**Keyword:** Analytical, Dimensions of Scientific Culture

### **Research Question:**

Does the book include the dimensions of scientific culture or not?

### **Research Importance:**

Scientific culture is meant to prepare a person who is able to continue to evolve, which means that he possesses a degree of full knowledge from different sources, and possesses many skills that enable him to make decisions. (Ali, 2003) Scientific culture share in providing students with the knowledge that enables them to clarify natural phenomena, and providing them with scientific directions and developing them and applying them in their daily experiences. The facets extend at different levels of thought and process and put it all in attractive templates and interesting frames (Al-Hudhaifi, 2010). Scientific culture is a necessity for everyone living in this world, which is filled

with the achievements of large scientific progress, as each person needs to use scientific information. (Al-Tinawi, 2008)

### **Research Objectives:**

The present research aims to:

Knowledge of the Include the dimensions of scientific culture in science textbook for the fourth grade of primary

### **Research Limits:**

The limits of the present research are as follow: Science book for the fourth grade of the eighth edition. (2015)

### **Definition of the Terms**

#### ▪ **Content Analysis**

(Mohammed & Al azem, 2012) defines it as "A method used in describing teaching materials, and evaluating curricula for their development, based on defining the objectives of the analysis and the unit of analysis to arrive at the knowledge of the duration of the apparent prevalence, concept or idea, and the adoption of the results and indicators that determine the direction of development. (Mohammed & Abdel Azim, 2012 )

#### ▪ **Procedural definition**

One of the methods of analyzing the textbook in the analysis of the ideas contained in the scientific material that he wants to analyze to reach to determine the dimensions of scientific culture and defined within the research objectives.

#### ▪ **Dimensions of Scientific Culture:**

(Farrag, 1996) defined it: "It is the basic knowledge, scientific trends, understanding of the history of science, and function of scientists the perception. The relationship between science and technology and society, and consciousness of environmental, food, health and population problems, And biology issues that related to ethics and the ability to practice investigative and scientific thinking skills and take decisions with reference to reliable previous information. (Farrag, 1996)

### **Methodology and Procedures:**

The analyses of the science textbook for the fourth grade will be depend on the qualitative analysis descriptive.

### **Research community:**

The research community consisted of the science textbook for the fourth grade of the primary stage in Iraq for the academic year 2015/2016. The number of pages analyzed in the book (32) from

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the total number (152) pages, and after interviewing a number of education specialists from teachers supervisors Appendix (1) the researcher excluded the main titles, introductions of the book, and questions at the end of each chapter, and pages of contents, And what I learned.

## **Research Tool:**

The researcher designed a tool to analyze the fourth grade textbook of the primary stage (the list of analysis), after reviewing the educational literature and a number of previous studies that deal with the dimensions of scientific culture, which consisted of five main dimensions: (the history and nature of science, science and technology and society, ethics of science, Science and its relationship to personal and social life, scientific thinking and exploration.

## **The Purpose of the Search Tool:**

The tool aim to determine the dimensions of scientific culture and its indicators in the science textbook for the fourth grade of primary.

## **Search tool Validation:**

For ensure the apparent validity of the content of the research tool, the researcher presented the dimensions of scientific Culture of to a group of experts and specialists in science, teaching methods, education, and psychology to ensure their validity, suitability, and design it . It is got a high percentage (89%).

	Dimensions of scientific culture	%
1	History of Science	88.63
2	Science, Technology and Society	86.36
3	Ethics of science	88.63
4	Science and relationship with personal and community life	93.18
5	Scientific thinking and exploration	90
SUM		448.8
X		89.76

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## **Percentage of expert approval for Research Tool (1)**

### **Analysis procedures:**

The researcher dependent on the explicit and implicit idea in the book and used iterations to know the idea in any dimension of scientific culture after reading the book and identifying ideas and classifying them within the dimensions to which they belong and then unloading the results in the analysis table by giving one repetition for each idea carrying a concept.

### **Validity Tool:**

This means that the results shown by the tool are stable in the sense that it refers to the same results when applied again to another sample similar to them, and when the results do not change when you reapply the tool does not differ, it means that the tool is stable. (Attia, 2010)

### **Statistical means :**

The researcher used it (Holste equation) to find the constant of the analysis of the book between the researcher and other analysts, and (percentage).

	Dimensions of scientific culture	sign	repetitions	%	sequence
1	History of Science	A	505	62.89	first
2	Science, Technology and Society	B	43	5.35	forth
3	Ethics of science	C	8	1	fifth
4	Science and relationship with personal and community life	D	88	6.84	third
5	Scientific thinking and exploration	E	192	23.91	second
SUM			803	100	

### **Results and Analysis:**

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The researcher got (803) ideas from the content of science book for the fourth-grade primary, and table (2) shows the results.

### **Repetitions and percentage of the dimensions of scientific culture in the Science textbook for the fourth grade (2)**

Through Table (2), the researcher found that dimension (A) history of science got (505) repetitions from the all total ideas (803) and got a percentage of (62.89%), the researcher found that dimension (B) Science, Technology and Society got (48) repetitions from the all total ideas (803) and got a percentage of (5.35%) , the researcher found that dimension (C) Ethics of science got (8) repetitions from the all total ideas (803) and got a percentage of (1%) , the researcher found that dimension (D) Science and relationship with personal and community life got (88) repetitions from the all total ideas (803) and got a percentage of (6.84%) , the researcher found that dimension (E) Science and relationship with personal and community life Scientific thinking and exploration got (192) repetitions from the all total ideas (803) and got a percentage of (23.91%) .

### **Conclusions**

The researcher found through the search results to

1. The science textbook for the fourth grade of primary school is interested in the dimension (history of science) more than other dimensions
2. Unbalance the dimensions of scientific culture
3. The book does not include the dimension of the ethics of science in the content of the textbook fourth-grade primary.

### **Recommendations:**

1. The analyst sees it is should include other dimensions of scientific culture, which was included a weak such as (science, technology, and society), (ethics of science), and (science and relationship to personal and community life) must be included in the future in the book.
2. The interaction between science, technology, and society must be emphasized and included in the fourth-grade science textbook because of the importance of pupils in their lives.

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