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Universidad del Zulia  
Facultad Experimental de Ciencias  
Departamento de Ciencias Humanas  
Maracaibo - Venezuela

## **Evaluation Of Science Text Book For Third Primary Grade In The Light Of Criteria Of The International Content**

**1-Ins. Iman Majeed Aziz      Institute of Fine Arts diyala**

**2-Asst Ins.Muna Abdullah Ismail      Basic Education College Diyala  
University**

### **Abstract**

The present research aims to evaluate the science textbook for the third grade of primary in the light of the international standards for the content of science books. The research sample and community consisted of the science textbook for the third grade of the fourth edition of 2017. The analysis form adopted a tool to achieve the research objective. The validity and reliability of the tool has been verified. The results of the research showed that the field of (scientific inquiry) ranked first in the inclusion of field standards in the content of the book compared with the criteria of other fields as the top ten indicators of the field of (scientific inquiry) with its two criteria (questioning and inquiry skills) obtained high rates in the light of the criteria set by the research. In the light of the process of content analysis, while the indicators of other field obtained rates lower than the first and field different proportions of the criteria included in it. The current research recommended that the training programs of science teachers should include the international criteria content for science books to help them teach science in the primary stage by including the content to be included in the criteria and in balanced proportions.

**Keywords:** evaluation , criteria of international content, science text book, third primary grade.

## **Evaluación Del Libro De Texto De Ciencias Para El Tercer Grado De Primaria A La Luz De Los Criterios Del Contenido Internacional.**

### **Resumen**

La presente investigación tiene como objetivo evaluar el libro de texto de ciencias para el tercer grado de primaria a la luz de los estándares internacionales para el contenido de los libros de ciencias. La muestra de investigación y la comunidad consistieron en el libro de texto de ciencias para el tercer grado de la cuarta edición de 2017. El formulario de análisis adoptó una herramienta para lograr el objetivo de la investigación. Se ha verificado la validez y fiabilidad de la herramienta. Los resultados de la investigación mostraron que el campo de (investigación científica) ocupó el primer lugar en la inclusión de estándares de campo en el contenido del libro en comparación con los criterios de otros campos como los diez principales indicadores del campo de (investigación científica) con su dos criterios (habilidades de preguntas y preguntas) obtuvieron altas tasas a la luz de los criterios establecidos por la investigación. A la luz del proceso de análisis de contenido, mientras que los indicadores de otro campo obtuvieron tasas más bajas que las del primer campo y proporciones diferentes de los criterios incluidos en él. La investigación actual recomendó que los programas de capacitación de docentes de ciencias incluyan el contenido de criterios internacionales para libros de ciencias para ayudarlos a enseñar ciencias en la etapa primaria al incluir el contenido que se incluirá en los criterios y en proporciones equilibradas.

Palabras clave: evaluación, criterios de contenido internacional, libro de texto de ciencias, tercer grado de primaria.

Chapter 1: Research Problem: Science textbooks are a fundamental pillar in achieving the objectives of the science curriculum at the primary stage. Knowledge content is an essential element in designing the curriculum whereby science teachers strive to teach science and provide them with detailed knowledge of the subjects they teach. The need for subjecting science books to review and evaluation to identify weaknesses and their observance of the international standards for the content of science books, which became an educational demand to improve the scientific level of learners and to keep pace with developments in the world in the fields of

science and technology. By examining the results of studies and research related to evaluating and evaluating the content of science textbooks (Haddad, 2004 and Nasser, 2010), it is noted that the content components are unbalanced in light of the international standards of scientific education content and that there are difficulties impeding their implementation. Due to the absence of a scientific study aimed at evaluating the science textbook for the third grade of primary education in the Republic of Iraq, according to the researcher's knowledge, the researcher considered the current research to evaluate the content of the book in the light of the international standards to be included in the content of science books. The results showed a number of difficulties and problems in the education of science curriculum third primary, especially in the content of the book of science, not to mention that the results of the current research may contribute to the development of science books and the balance between the content of international standards for the content of science books and what is required to include Effective level of educational attainment among learners.

The importance of research: The textbook is one of the most important sources of learning that depends on teaching, especially in countries that rely on educational systems based on the curriculum In addition, the textbook is the cornerstone of the curriculum in the developed world countries such as Japan, where he received a keen interest in what is worth Since school curricula have great importance then the textbooks that contribute to building a generation capable of keeping up with modern developments that require a curriculum capable of meeting the requirements of the times. The book calendar process The school, including the units and chapters of an important process to judge the level of learning and the growth of learners in the light of the desired educational objectives as well as to identify the impact of the book in the transfer of knowledge and social employment (Abu Sarhan, 2000, 194-204), therefore, emphasize the importance of the educational process During the amendment of the course of achieving the educational goals to identify the shortcomings of both the teacher and the learner It is also a starting point for the process of improvement and development in one of the components of the educational process or all Add to the contribution of the evaluation results in the development of behavioral inputs for learners that the learning process did not achieve its objectives Reem, 2003,189) Science curricula in many countries of the world have received unremitting developmental efforts to promote them and achieve the goals of scientific education as they adopted several reform projects to promote the reality of science education and improve the curriculum and

increase the scientific culture of learners through the provision of important scientific concepts and the use of content to solve problems. In addition to the coordination of standards to be included to teach science from kindergarten to high school.

Search Questions:

1. What are the criteria against which to evaluate the content of the science textbook for the third grade?
- 2 - What is the availability of these standards in the content of science textbook for third grade primary?

Research Objectives:

1. Prepare a list of criteria against which the science curriculum for the third primary grade can be evaluated.
2. Evaluate the content of the science curriculum for the third grade in the light of the list of standards that have been prepared.

search limits:

1- Time Limits: The current research was carried out during the first and second semesters of the academic year 2018-2019.

2 - Scientific limits: Evaluating the content of the science textbook for the third grade of primary (explore, explore more, read and learn, think and answer, activity, read the picture) in the light of the international standards for the content of science books adopted by the researcher.

Define terms:

Calendar: Known (Melhem, 2001) as giving value to something according to levels developed or updated in advance. (Melhem, 2001, 428)

He defined (Wakil and Mufti, 2007) as the process by the individual or group to know the extent of success or failure in achieving the goals and weaknesses and strength contained in the curriculum to achieve the desired goals and the best possible. (Wakil and Mufti, 2007, 162)

The researcher defined the calendar procedurally: the process of analyzing the content of science textbook for the third grade of primary in the light of the criteria adopted by the researcher for the content of the textbook of science for the third grade of primary in order to identify the extent to include these criteria within the textbook.

Science book: The researcher defined procedurally as: The book taught by the students of the third grade primary, which includes (5) units distributed over (10) chapters.

Third grade: one of the three basic stages of general education. The ages of pupils in this grade ranges between (8-9) years. (Ministry of Education, 1977)

Science textbook content standards: A set of benchmarks that define what a learner should know and understand and be able to do during science. (El-Baz, 2005, 116)

The international standards for the content of science books: The researcher defined them procedurally as: the criteria according to which determines what learners should learn and know in the third grade of primary in their study of science books in the first and second semesters, which is (13) criteria and (63) indicators distributed on (6) fields.

Chapter Two: First Axis: Theoretical Background:

Components of standards:

1- Areas: The main subjects covered by science education include: life sciences, earth and space sciences, physical sciences, science and technology, science from a personal perspective, research and investigation, history of science, science and faith.

2 - Standards: A set of axes should be available in education to qualify learners and provide them with the knowledge, skills and experience during the study. (Ghabbour, 2009: 255)

Indicators

Importance:

Global standards for science textbook content: The United States of America is one of the first countries that paid great attention to the movement of developing and building standards in education when it felt the seriousness of the education situation in it, which necessitated the evaluation of the educational process and search for the best levels of educational content and performance of learners and the importance of providing them with concepts, laws and processes Science and methods of research and investigation Science and linking knowledge to practical applications. (Agent, 2005,303)

Axis II: Previous Studies:

Study (Haddad, 2004) The study aimed to identify the extent to which science books for grades five, six, seventh and eighth basic in Jordan include the international standards for the content of science books. The sample consisted of (15%) of the pages of each unit in each book, and prepared a form to analyze the physical sciences, biology, earth science and space and another form for the rest of the criteria. Frequencies and percentages were used as statistical methods. The results showed that there are statistically significant differences between the degrees of inclusion of each book on each field of criteria, and the ratios were as follows: the integration of

concepts and processes of science (52.26%), science as a survey (39.7%), and the history and nature of science (4.16%), and science from a personal perspective Social (1.97%) and science and technology (1.9%). The rates of inclusion of academic scientific subjects were: physical sciences (46.47%), biology (39%), and earth and space science (14.53%).

2. Study (Nasser, 2010) This study aimed to analyze the written physics of grades one and twelfth scientific in Palestine to design a unit of study and demonstrate the impact of teaching on the achievement and scientific culture of secondary school students according to the content standards contained in the international standards of scientific education. As statistical means. The results show the presence of standards in the two books as follows: Physical Sciences (35.59%), Science as Investigation (26.19%), Unified Concepts and Processes of Science (21.86%), Science and Technology (6.35%), History and Nature of Science (6.11%), Science From a personal and social perspective (3.86%), the study recommended physics curriculum designers to observe global content standards in a balanced manner that takes into account the standards of science and technology, science from a personal and social perspective, and the history and nature of science.

3. Study (Amarin, 2010) The study aimed to identify the content of biology books in the last three grades of basic education in the field of sex education. The study sample consisted of biology books for grades (7th, 8th and 9th). Two criteria were adopted for the analysis, one for determining concepts and the other for determining the intensity of concepts. Their validity and reliability were verified. The results of the study showed interest in the concepts of sex education contained in the criterion Pnsih (54.64%) as well as varying interest in concepts of sex education from one grade to another was the ninth grade book more interested in sexual concepts, while the seventh and eighth grades were less interested. (Amarin, 2010, 105-106)

4. The study (Abdul, 2016) The study aimed to evaluate the science textbook for the primary stage in the light of the standards of preventive education through the analysis and evaluation of the science textbook for the fourth grade of primary education according to a specific standard. The preventive education included (5) main areas namely) healthy nutrition - prevention of Diseases - environmental protection - human body protection - safety and security (distributed over (21) sub-paragraphs) verified the validity of the criterion and validity. Statistics were used (Cooper equation, repetitions, percentages). It was not at the required level compared



to the spoken one 10%, where the field of human body ranked first with the highest percentage of the paragraphs achieved in the book of science, followed in the order of environmental protection, safety and health, nutrition and health, while the prevention of diseases in the last rank society. (Abdul, 2016: 304)

Budget of previous studies:

1. A study (Haddad, 2004) aimed to identify the extent to which science textbooks for grades five, six, seven and eight basic in Jordan include the international standards for the content of science books. The study (Nasser, 2010) aimed to analyze the books of physics for the grades of the eleventh and twelfth scientific to design a unit of study and demonstrate the impact of teaching on the achievement and scientific education of secondary school students in accordance with the content standards contained in the international standards of scientific education. The study (Amarin, 2010) aimed to identify the content of biology books in the last three grades of basic education in the field of sex education. The study (Abdul, 2016) aimed to evaluate the science textbook for the primary stage in the light of the standards of preventive education, while the current study aimed to evaluate the textbook of science for the third grade primary.

2. A study sample (Haddad, 2004) consisted of (15%) of the pages of each unit in each book. The study sample (Nasser, 2010) consisted of two books of physics for the first and twelfth grades of science. The study sample (Amarin, 2010) consisted of biology books for grades (7th, 8th and 9th). The study sample (Abdul, 2016) consisted of the science textbook for the fourth grade. In the present study, the study sample was the science textbook for the third grade.

3 - Content analysis forms were used in the study (Haddad, 2004), (Nasser, 2010), (Amarin, 2010) and (Abdul, 2016). The analysis form and a list of criteria were also used in the present study.

4) Haddad, 2004, Nasser, and Ammarin, 2010, used iterations and percentages as statistical methods. In Abd (2016), Cooper's equation was used in addition to iterations and percentages. In the present study, iterations, percentage and Holste equation were used.

5- The results of Haddad, 2004 showed that there are statistically significant differences between the degrees of inclusion of each book on each of the criteria fields. The results of the study (Nasser, 2010) showed the varying proportions of the existence of standards in the two books. The results of the study (Amarin, 2010) showed interest in the concepts of sex education and varied from one grade to another. The results of the current



study will be presented in the fourth chapter of the current research.

### Chapter Three: Research Procedures

**Research Methodology:** Adopted the descriptive analytical method, it is best suited to answer the two research questions and aims to make judgments on the extent to which the inclusion of international standards for the content of science books in the science textbook for the third grade primary.

**Research sample:** The research community was represented in the content of the science textbook for the third grade of the fourth edition of 2017 to be taught by the Ministry of Education, while its sample was to analyze the content of the units and chapters of the book that included the titles (Explore, Explore more, Read and Learn, Think and Answer, Activity, read the picture) for the academic year 2018-2019 as shown in Table (1):

Table (1) Content of units and chapters of science textbook for the third grade primary

Subject	Lesson	Chapter	Unity
The plant makes its food	the first	the first Nutrition in plants and fungi	First Feeding organisms
Fungi	The second		
Making food in the plant and storing it	Enrichments		
Animal feeding methods	the first	The second Animal feeding	
Feeding relationships in animals	The second		
Life Control	Enrichments		
Natural environment resources	the first	the third Environmental resources and their importance to humans	The second Environmental resources and problems
Plant and Animal Wealth	The second		
Pharmaceutical industry of plants	Enrichments		
Rationalization of consumption and reuse	the first	the fourth Conservation of environmental resources	
Conservation of biodiversity	The second		
Impact of cities on environmental resources	Enrichments		

Measure the height	the first	Fifth Measurement	Third Subject
Mass measurement	The second		
Types of scales	Enrichments		
Solid mixture with solid	the first	VI Heterogeneous mixtures	
Solid mixture with liquid	The second		
Make a model	Enrichments		
Light transmission	the first	Seventh the light	Fourth Light and heat
light reflection	The second		
Refraction of Light	third		
Mirrors applications	Enrichments		
Conducting heat transfer	Enrichments	VIII the heat	
Temperature measurement	the first		
How to measure heat transfer	Enrichments		
Rocks	the first	Ninth Rocks and soil	Fifth Materials of the Earth
the soil	The second		
How to measure soil permeability to water	Enrichments		
Qualities of metals	the first	The tenth Metals	
Uses of metals	The second		
Metal-related occupations	Enrichments		

Research tool: To answer the two research questions were prepared form analysis of the content of science textbook for the third grade of the fourth edition of 2017 in the light of a set of international standards for the content

of science books selected on the back of the review of educational literature after adapted to the Iraqi environment and age group has included (6) key areas B (13) criteria and (63) indicators attached (1). The paragraph was adopted as the unit of analysis as the smallest meaningful unit and all units of the chapters of the book were analyzed and titles (explore, explore more, read and learn, think and answer, activity, read the picture). In the light of the analysis form was prepared a list of criteria to be included in the content of science textbook for the third grade Primary

Sincerity: The tool was presented in its preliminary form to a number of specialists in measurement, evaluation and teaching methods. Appendix (2).

Stability: The stability of the tool has been verified in two ways:

A- Stability of Analysts: The units and chapters of the science textbook for the third grade of primary school were analyzed by two analysts, one researcher and the other science teacher in Palestine Mixed School. The results of the analysis showed that the stability coefficient using Holste equation (83%) is a high stability coefficient which indicates Stability tool.  
2. Repeat: The book was analyzed twice with an interval of (3) weeks. The results of the Holste equation for stability showed that the stability coefficient was (88%) which is a high stability coefficient

Statistical Methods: Iterations, percentage and Holste equation were used as statistical methods in interpreting and analyzing data.

Chapter Four: Presentation and Interpretation of Research Results

Results for the first question:

What are the criteria against which to evaluate the science curriculum for the third grade?

To answer the first research question and after reviewing the researcher on the educational literature related to the current research prepared a list of criteria to be included in the content of science textbook for the third grade in the light of the international standards for the content of science books prepared by the researcher in line with the nature of our curriculum and age group of learners and the possibility of the availability of implementation requirements Curriculum.

The criteria are organized in a form consisting of (6) areas (13) criteria and (63) indicators attached (1) agencies:

Field (A) scientific investigation: It includes the criterion 1 - question 2 - the skills of the survey

Field (B) Physics Science: It includes the standard 1 - Physical concepts  
2 - Heat 3 - Light 4 - Magnetism

Area (C) Life and Environmental Sciences: Criteria 1- Living Organisms  
2- Environmental Resources

Area (d) science and technology: It includes the criterion 1 - the relationship between science and technology

Field (E) Health and safety includes: 1 - the basics of individual and community health

Area (f) Fundamentals of the universe includes: 1 - Earth 2 - Heaven

Results related to the second question:

What is the availability of these standards in the content of science textbook for the third grade of primary?

To answer the second question, the frequency and percentages of all the criteria to be included in the third grade curriculum were calculated.

Table (2)

Frequencies and percentages of criteria to be included in the third grade curriculum

Table 3 Frequencies and percentages of criteria to be included in the third grade curriculum

percentage	Repetition	Standards	t
%20.932	193	Asks questions about things and phenomena and creatures	1
%9.327	86	Development of interpretation and conclusion	2
%9.219	85	Paving to answer the questions asked	3
%7.158	66	It uses simple tools to gather information	4
%5.639	52	Develop the skill of communication with others	5
%4.338	40	Extrapolates the results	6
%4.338	40	Develop the skill of prediction	7
%3.904	36	Compare things to find relationships	8
%3.796	35	Plan some simple surveys	9
%2.819	26	Designs simple experiments	10
%2.277	21	Metals and their uses	11
%1.843	17	Mixtures and methods separated	12
%1.518	14	Measures length and blocks of stuff	13
%1.518	14	Shows the soil components and types	14
%1.409	13	Basic requirements of living organisms	15
%1.409	13	Classification of organisms into groups	16

%1.409	13	Multiple environmental resources	17
%1.193	11	Reflection and refraction	18
%1.193	11	Organisms adapt to the environment	19
%1.084	10	Conservation of environmental resources	20
%1.084	10	Recognize the qualities of rocks	21
%0.976	9	Rock classification	22
%0.976	9	Measuring human temperature and various materials	23
%0.759	7	Environment and human resources	24
%0.759	7	Human health and pathogens	25
%0.759	7	Method of extraction of minerals	26
%0.759	7	Uses of rocks	27
%0.650	6	The sun is a source of light and heat	28
%0.650	6	Changes in the natural and human environment	29
%0.650	6	Provide some safety methods at home, school and community	30
%0.650	6	Different ways of feeding animals	31
%0.542	5	Lists heat transfer methods	32
%0.542	5	Conductive and insulating materials	33
%0.542	5	Methods of disease prevention	34
%0.433	4	Shows the risks of addiction to smoking, drugs and unhealthy habits	35
%0.433	4	Light travels in straight lines	36
%0.325	3	Transparent and opaque objects	37
%0.325	3	The plant is the main food source of organisms	38
%0.325	3	The earth is made up of rocks and soil	39

%0.216	2	Responsibility for safety by individuals and society	40
%0.216	2	Solar System	41
%0.216	2	Light is a form of energy	42
%0.108	1	The plant makes its own food	43
%0.108	1	Provides models for tailored technology expertise	44
%0.108	1	Promotes solutions to technological design problems	45
%0.108	1	Highlights the effects of integration between science, technology and society	46
%0.108	1	Health and security are the basic needs of the individual	47
%0.108	1	Planetary motion	48
%0.108	1	the four Seasons	49
%0.108	1	Biodiversity and its protection	50
%0	0	Shows the properties of the material	51
%0	0	Lists the states of matter	52
%0	0	Knows mm made up material	53
%0	0	Concepts of force and movement	54
%0	0	Movement of objects	55
%0	0	Recycle materials in nature	56
%0	0	Presents models for the advancement of science and technology	57
%0	0	Demonstrates the negative effects on the health of the individual and society by using modern technologies	58
%0	0	The occurrence of night and day	59

%0	0	Understands magnetism	60
%0	0	Uses magnetism in his daily life	61
%0	0	Understands electrical	62
%0	0	Uses electric in his daily life	63

From the table above the fields can be arranged from high to low Table (3) according to ratios achieved by any ratios include the criteria in the content and agencies:

From the table above, the fields can be arranged from high to low. Table (3) according to ratios achieved by the ratios of the inclusion of standards in the content of agencies:

Sort Fields by High to Low Ratios Table (3)

percentage	the field	Ranking
%2.819-2.932	A) Scientific investigation	the first
%0-2.277	And - the basics of the universe	The second
%0-1.843	B- Physics	the third
%0-1.409	Life sciences and environment	the fourth
%0-0.759	Health and safety	Fifth
%0-0.108	Science and technology	VI

From the table above it is clear that the field of (scientific investigation) ranked first in the inclusion of field standards in the content of science textbook for the third grade of primary compared with the standards of other fields as the top ten indicators of the field (scientific inquiry) with its two criteria (questioning and investigation skills) obtained high rates In light of the criteria set by the researcher in the light of which the process of content analysis, while the indicators of other areas received rates less than the first area, while the movements of reform and development of science curricula emphasize the need for balanced proportions of international standards for the content of science textbooks to include Here, starting from kindergarten to the end of secondary school also stressed that the educational literature relevant to these standards (Tnanwi, 2005), (Lulu, 2007)). It can be explained that the field of (scientific investigation)



get a high percentage because the science textbook for the third grade of primary is based on scientific investigation and skills (science skills) as mentioned in the introduction to the book because of the great importance of the survey to acquire learners scientific concepts and deepen their understanding of scientific knowledge and the nature of science They have the necessary skills and trends related to science.

#### **Chapter V :**

##### **First: Conclusions**

- 1- Not to balance the ratios of standards to be included in the content of the science textbook for the third grade of primary.
- 2 - The content of science textbook for the third grade of primary more interested in the field (scientific investigation) than other areas.
- 3 - the rest of the areas received less attention than the field of scientific investigation and to varying degrees.

##### **Proposals:**

Conducting a similar study to evaluate science books for other elementary grades.

2. Conducting a comparative study between the science curriculum for the third grade in Iraq and other countries.
- 3 - Conducting a similar study to evaluate the textbook of science for the third grade of primary in the light of other parameters and variables such as creative thinking and mental skills and life skills.

##### **Recommendations:**

- 1 - Include training programs for science teachers international standards of content for science books to help them in the teaching of science in the primary stage and achieve the desired goals.
- 2 - the need to balance the proportion of the inclusion of the content of science books in general and science textbooks for the third grade of primary standards to be included in the content so that learners receive science more than being just facts, concepts and method of inquiry to being a way of scientific thinking and the application of scientific knowledge of the individual and society functionally.
- 3 - Utilizing the results of the current research when re-evaluating and revising the science curriculum for the third grade of primary, including the inclusion of some of the criteria that have not been achieved in the current curriculum.
- 4 - Integrate the standards contained in the current research areas in the training programs of science teachers to help them in the teaching of science and more effectively.

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