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## Evaluation of the biology book for the fourth year of middle school from a teacher's point of view An exploratory study of the opinions of a sample of Missan education teachers

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### Abstract

teachers who taught it. A total of 51 teachers participated in the research, providing feedback on various aspects of the book, including its appearance, introduction, content, activities, and assessment tools. The findings indicate that the overall evaluation of the textbook is positive, with a high average score of 71.2%. Specific components such as the book's appearance (75.8%), instructional activities (74.5%), and assessment methods (76.1%) received particularly favorable ratings. The study highlights the importance of incorporating teachers' insights in textbook evaluation to enhance educational quality.

**Keywords:** Textbook Evaluation, Biology Textbook, Fourth Year of Middle School, Teachers' Perspectives, Curriculum Development, Education in Iraq.

### \* The introduction

### \*Article problem

Through continuous interaction with a considerable number of educators specialized in the field of education, and by gathering their insights and experiences, the researcher evaluated a selection of textbooks, with particular emphasis on the opinions of teachers who have instructed advanced courses. More than two years have passed since the Biology textbook for the fourth grade of middle school in Iraq

was revised by the General Directorate of Curricula and subsequently implemented in Iraqi schools. Consequently, it has become imperative to conduct a comprehensive external evaluation of this textbook.

The researcher has undertaken this evaluation with the objective of enhancing the textbook to meet an acceptable educational standard that aligns with the aspirations of both students and teachers, thereby contributing to the improvement of the teaching and learning process.

Evaluating textbooks used in Iraqi schools is considered a crucial step towards the development of educational curricula, especially from the perspective of the teachers who directly engage with these instructional materials. Such evaluation forms a fundamental pillar in shaping the future of education in Iraq.

Iraqi experts, dispersed across the country, have played a significant role in the advancement of society, particularly in the cultural and educational domains. It is now time to harness their expertise to further drive the cultural and educational progress of the nation.

#### **\* The importance of the article**

The textbook is regarded as one of the fundamental pillars of the

learning process, being developed by educational researchers and those responsible for curriculum design. It serves as a vital supplementary tool in determining the appropriate curriculum for learners, tailored to their age groups and academic levels (Abu Ali, 1989, p. 25). Despite the diversity and advancement of various educational activities and resources, textbooks remain among the most important tools and methods for achieving the objectives of the educational curriculum (Najmi & Morsi, 1977, p. 6).

The significance of textbooks is further highlighted by their role in assisting teachers to plan and conduct classroom lessons effectively, thereby facilitating the delivery of the school curriculum and the achievement of its goals (Voog, 1997, p. 194). Additionally, teachers can utilize textbooks for their own professional development, enhancing their reading and speaking skills, and fulfilling a wide range of curricular objectives (Schmid, 1982, p. 78; Abu Ali, 1989).

For students, the textbook serves as an essential reference that contributes to the expansion of their knowledge and experiences. Students frequently consult textbooks as printed resources, which profoundly influence various aspects of their

personal development. Moreover, textbooks have a broader societal impact, being considered fundamental pillars for progress and development in any community.

However, despite their importance, textbooks may sometimes contribute to student misconceptions regarding scientific concepts. For instance, some surveys of biology textbooks used in American high schools have revealed numerous errors in both the lessons and illustrations (Department of P.V. Danver, 199X, p. 18). Furthermore, certain university-level textbooks continue to contain misconceptions about the Earth's weight, with some inaccurately presenting this concept, which constitutes a serious error since the concept of weight is intrinsically linked to the Earth's gravitational force (Department of P.V. Danver, 1994, p. 120).

#### **\* Objective of the article**

The current study aims to evaluate biology books for the fourth grade of middle school from the teacher's point of view, according to the following areas: -

- 1- The general appearance of the book.
- 2- Introduction to the book.
- 3- Content of the book.
- 4- Activities, means and methods mentioned in the book.

5- Book questions and evaluation methods.

#### **\* The purpose of the article**

The current study aims to evaluate the biology books for the fourth preparatory grade from the teacher's point of view, according to the following areas: -

- 1- The overall appearance of the book
- 2- Introduction to the book
- 3- Content of the book
- 4- The activities, means and methods contained in the book.
- 5- Book questions and means of assessment.

#### **\* Article limits**

The current study is determined by: -

- 1- The main areas of study are included.
- 2- The biology book for the fourth preparatory grade scheduled for the academic year 2022 -2023.
- 3- Teachers who practice teaching writers in middle and high schools in Maysan Governorate.
- 4- The school year 2022-2023

#### **\* Determining the terms**

The researcher will present a set of key terms directly related to the research: -

#### **First: The calendar**

All organized processes deal with the evaluation of curricula or programs, determining their value, and analyzing their strengths and

weaknesses with the aim of developing them or helping to make important decisions about them. (Phbli, 2000 , :141). An ongoing process of research and investigation that deals with aspects of the educational process in a comprehensive manner, this process includes a careful assessment of the achievement of educational goals and the application of effective procedures to improve the educational process. This process also seeks to ensure compatibility between the tool used and the specific objectives. (My cat, 2000 , : 184)

Procedural definition of the calendar: -

According to the previous definitions, the evaluation process in this research can be defined as a process that identifies and detects the strengths and weaknesses in the biology of the fourth preparatory grade, using a questionnaire built by the researcher that is characterized by accuracy and stability. By analyzing and adopting proposals to achieve the required development.

### **Second: The textbook**

A textbook is a book that aims to address a specific subject of study according to a particular form or style, use it at a certain level of education and benefit from it. It is

used as a primary source of information. (Good , P: 65 , 1973).

A book with information on a particular topic and is arranged in a structured and orderly way to help people get to know it. (Alive, 1980,: 9).

The procedural definition of the biology book means the biology book, which teaches the fourth grades of middle and high schools in Iraq for the academic year 2022-2023.

The book of biology:-

It is the book that was approved by the Ministry of Education in the Republic of Iraq to teach it to fourth grade preparatory and secondary students in Iraq starting from the beginning of the academic year 2022-2023.

### **\* Previous studies**

#### **Second: Previous studies**

Many studies were conducted aimed at evaluating different textbooks, and the researcher reviewed the studies that included the evaluation of biology books at an early stage to obtain greater benefit in her classification study. The current study has been improved by researchers' review of many previous studies related to the evaluation of various textbooks, and enriching them with the results and recommendations derived from this study. The following is a presentation

of the most important of this research:-

1- Abu Al-Ragheb's study (1994): -

The aim of this study is to analyze the content and questions of the science book for the sixth grade and evaluate them from the point of view of Jordanian teachers.

The study consisted of a group of randomly selected teachers (182). The questionnaires were used as a tool to evaluate books from the perspective of the teacher.

The results of the analysis of the science book showed that most educational goals focused on the cognitive level rather than the emotional and psychomotor levels. The results of the analysis also showed that the number of activities included in the book is commensurate with the nature of the scientific field, meets the objectives of scientific education and helps students acquire the necessary skills and positive scientific trends.

2- Zuhair, Al-Rikabi Study (2018)

The current research aims to evaluate the biology book for the fourth grade from the point of view of teachers.

And the teachers determine the current research with the biology book for the fourth grade, the second edition of 2011

A sample of teachers in the city center of Babylon for the academic year 2012-2013. The research sample was chosen for the method of randomness and consisted of (50) teachers and schools distributed by (30) schools and (20) teachers. As for the research tool, the questionnaire of the continuous textbook evaluation was from previous studies in this field. The tool consisted of (64) paragraphs, which is the introduction of the book with (5) paragraphs, the objectives of the book with (13) paragraphs, the topics of the book with (12 paragraphs), questions and activity at the end of each chapter of the book with a rate of (17 paragraphs) pictures and illustrations (10 paragraphs and directing the book in a rate of (7 paragraphs).

I presented the questionnaire to a group of experts in psychology, teaching methods and science, and they got an agreement rate (85%), which is acceptable, that is, they got the virtual honesty. Then it was presented to a survey sample of (20) teachers and schools to know stability, and the stability was measured by the Pearson correlation factor (85%) and here the questionnaire was ready to be presented on the main research sample. The researcher used statistical means, which is the

Pearson correlation coefficient. The weighted medium of extracting paragraph sharpness, centimeter and standard deviation as statistical means of analyzing data. The results showed that the book is generally good and suitable for teaching. The researchers recommended many recommendations and proposals.

### 3- Saud study (2021): -

This study aimed to evaluate science books for the fourth grade developed according to variables such as the scientific qualification, teaching experience, and the number of training courses he attended, from the point of view of the teacher. To achieve this goal, the study was conducted on a sample of 85 teachers. Researchers have developed standards in the following areas: (general form and artistic direction, content, book language and presentation style, photography, graphics and calendar).

The results of this study showed that the level of teacher appreciation of scientific books was generally high, with an overall rating of books and an average value in various fields (4.06). In addition, the results showed that teachers averaged books in the areas of general formatting, artistic output (4.18), content (3.93), book language, presentation style (4.05), images,

graphics (3.95) and assessments (4.10).

The results of this study also showed that there was no significant difference in level ( $\alpha=0.05$ ) due to the level of teachers, experience and the number of courses taken. The study recommends assessing the need for science books developed for grade 4 students from the point of view of education managers.

### \* **Commenting on previous studies**

- 1- Sample selection method.
- 2- See how to build research tools in terms of building a search tool (resolution)
- 3- Taking advantage of the most important statistical means suitable for the current research procedures
- 4- Analyze and interpret current research results.
- 5- Identical capacity by getting to know many books, scientific journals and references that serve research

### \* **Search procedures**

Research community and research sample: -

The research community consists of all male and female teachers in schools affiliated with the Maysan Education Directorate who taught and taught the biology textbook for the fourth grade of middle school, and their number reached (110) male and female teachers. The research sample is a

random sample chosen from among members of the research community, and consists of (51) individuals.

#### **\* Search tool**

In addition to using references related to curriculum evaluation, the researcher used a questionnaire created by Ayoub (1999) and Basharat (2000). To create a survey, the researcher followed the following steps: -

First: It prepared an initial questionnaire that was compatible with the biology textbook for the fourth grade of middle school, using previous questionnaires, curriculum evaluation books, and the biology textbook.

Second: I submitted the first questionnaire to several teachers who taught me the book, and I made some comments on the questionnaire paragraphs, and based on these observations, I made some comments.

Third: The final form of the research tool consists of 40 items distributed over the various areas of research (under study).

Fourth: The researcher adopted a tripartite scale to determine the degree of evaluation of each item in the questionnaire, where the evaluations were as follows: agree to a large extent (3), agree to a moderate extent (2), agree to a slight extent (1).

#### **\* Stability of the search tool**

To calculate the reliability coefficient of the research tool and to ensure its suitability for the purposes of scientific research, the researchers used the internal consistency coefficient known as "Cronbach's alpha." The reliability coefficient for this tool reached a value of (0.93), and this is considered a good reliability coefficient that meets the requirements of this research.

#### **\* Search procedures**

To complete the study and obtain the necessary data, the researcher did the following: -

1- We obtained approval from the Directorate of Education in Maysan to conduct research and allow local teachers to apply questionnaires.

2- Questionnaires were distributed to selected samples, and 53 questionnaires were distributed through personal contact, sometimes with teachers, or at other times through school principals.

3- questionnaires were collected and these questionnaires were analyzed statistically.

The researcher used the Social Sciences Statistics Package program to analyze the data and answer the research questions.

#### **\* Management application**

After preparing the research tool and confirming its validity and

consistency, the researcher distributed the questionnaire to the survey sample and collected the questionnaire after the respondent answered that the paragraph data were analyzed using the Statistical Package for the Social Sciences program to obtain results related to the study questions:

How do biology teachers evaluate biology books for the fourth year of middle school?

(The general appearance of the book, the presentation of the book, the content of the book (science), the means and activities in the book, and the means of evaluation in the book are as before.) Table (8, 7, 6, 5, 4, 3) shows the results related to the research questions.

1- The general appearance of the book (form): -

Arithmetic means, standard deviations, and percentages were extracted to determine the degree of evaluation of the domain items by male and female teachers. The results are shown in Table (1) below: -

1- The general appearance of the book: -

**Table No. (1): Standard deviation and percentage of teachers' estimate of the general appearance of the book (shape)**

No.	First, the general appearance of the book	Arithmeticmean	Standard Deviation	Percentage	Rating
1	The outer cover of the book is striking and looking.	3.27	0.85	70,0	Average
2	There is a connection between the graphics on the outer cover and the material of the book	3.18	1.05	73,0	Average
3	The book (biology) is free from typographical errors	3.47	0.81	79,4	Average
4	Book cover is suitable for use (learners)	3.37	0.77	77,0	Average
5	The font size of the book is very convenient to read.	4.55	0.54	91,0	High
6	The quality of the papers is good and does not damage easily.	3.98	0.55	79,6	High
7	Drawings and illustrations in books (biology) help learners to understand topics related to them.	4.03	0.69	80,8	High
8	Highlight the information that the writer needs, such as the unit title and notes, so that you write in a clear and large font	4.47	0.79	89,4	High
Total marks		3.79		75,8	High

Table (1) shows that the total score of the general appearance of the book (Science) is higher, with the total score of this field (3.79), and the percentage (75.8%). Paragraphs numbers (4, 5, 6, 7, and 8) received high ratings, while paragraphs (1, 2, and 3) received average ratings.

2- Introduction of the book: -

The following table (2) illustrate that the arithmetic mean, standard deviation and percentage are extracted to determine the evaluation score of male and female teachers in the adjacent paragraphs, shows the results:



No.	Second, the element of introduction	Arithmetic mean	Standard Deviation	Percentage	Rating
1.	The introduction sets out the book's general objectives.	3.98	0.68	٧٩,٦	High
2.	At the beginning of each unit there is a special suitable introduction.	3.73	0.87	٧٤,٥	High
3.	The introduction includes student-specific instructions.	3.03	0.89	٦٠,٢	Average
4.	The introduction stimulates the learners' motivation to study the subject of the book.	3.22	0.81	٦٤,٣	Average
5.	The introduction presents general ideas related to the material of the book.	3.63	0.98	٧٢,٥	High
6.	The introduction asks scholars to contribute to evaluating of the book.	3.00	1.25	٦٠,٠	Average
<b>Total marks</b>		3.43		٦٨,٦	Average

Table (2) shows that the overall score of the introductory part of the book is at the average level with a total score of (3.43) and a percentage (68.6%). Teachers rated paragraphs (1, 2 and 5) highly, while paragraphs (3, 4 and 6) were average.

3- The content of the book: -

Extract of the arithmetic mean of standard deviations, percentages and determine the degree of evaluation of teachers for adjacent paragraphs are shown in the following table (3).

**Table No. (3): Arithmetic mean, standard deviation, and percentage of teacher's estimate of the book content element:**

No.	Third, Content element	Arithmetic mean	Standard Deviation	Percentage	Rating
1.	The scientific material of the book is modern in line with scientific development.	4.07	0.83	٨١,٢	High
2.	Content fit to achieve the goals of the book (biology)	3.90	0.91	٧٨,١	High
3.	The scientific material of the book is appropriate for the students' mental abilities	3.29	0.90	٦٥,٩	Average
4.	The scientific material of the book is related to the student's (learner's) daily life	3.71	0.92	٧٤,١٠	High
5.	The scientific book material is concerned with directing the student (learner) to choose a profession related to science	2.70	1.04	٥٤,١	Average
6.	The scientific book material takes into account the individual differences between students (learners)	2.82	0.95	٥٦,٥	Average
7.	At the end of each unit there is an appropriate summary to help increase students' understanding of the unit	3.65	1.28	٧٢,٥	High
8.	The examples in the book are sufficient to deepen the student's (learner's) understanding of the scientific material in the book	3.41	0.94	٦٨,٢	High
9.	The scientific material of the book is based on the previous information and experiences of the student that were mentioned in the previous grades.	3.63	0.82	٧٢,٥	High
10.	The book's scientific material includes the fields of multiple and different biology )Living organisms , anatomy , physiology(	4.43	0.64	٨٨,٦	High
<b>Total marks</b>		3.56		71.2	High

Table (3) displays the results of the evaluation on the content of the book, which indicates that it has a high overall score (3.56) and a percentage (71.2%). The content of the book has been divided into numbered paragraphs; paragraphs (1, 2, 4, 7, 8, 9 and 10) received high ratings while paragraphs (3, 5, and 6) received an average estimate.

4- The scopes of activities, means and methods mentioned in the book: -

The arithmetic mean and standard deviation and the percentage were extracted to determine the degree of evaluation of male and female teachers for paragraphs as shown in the following table (4) and among the results:

**Table No. (4): Arithmetic mean , standard deviation and percentage of teachers 'estimate of the scope of activities, means and methods in the book.**

No.	Fourth: The scope of activities, means and methods	Arithmetic mean	Standard Deviation	Percentage	Rating
1.	When teaching the scientific subject of the book, a variety of teaching methods can be followed	4.33	0.68	٨٦,٧	High
2.	The experiments and activities contained in the book are commensurate with the scientific content in it	4.04	0.72	٨٠,٨	High
3.	The activities presented are realistic and feasible	3.84	0.81	٧٦,٩	High
4.	The book's methods fit the topics in it	3.71	0.67	٧٤,١	High
5.	The instructions attached to the activities are sufficient for the possibility of doing them	3.80	0.85	٧٦,١	High
6.	The displayed activities allow the student to participate in its implementation	3.67	0.82	٧٣,٣	High
7.	The activities take into account the characteristics of the students who will perform them	3.24	0.79	٦٤,٧	Average
8.	Students can conduct experiments and activities by themselves	3.14	0.85	٦٢,٧	Average
9.	The activities and means achieve their scientific objectives	3.76	0.71	٧٥,٣	High
<b>Total marks</b>		3.73		74.5	High

Table (4) provides clear evidence in the scope of activities, means and methods, where the overall score increased by a total of (3.73), and a percentage (74.5%). The Paragraphs score (1, 2, 3, 4, 5, 6 and 9) was high, demonstrating outstanding performance while Paragraphs (7 and 8) received an average score.

5- Scope of book questions and methods of evaluation: -

In order to determine the extent to which teachers evaluated the field vocabulary, the arithmetic mean, standard deviation and percentage were extracted. The results of this analysis are shown in table (5).

**Table No. (5): Arithmetic mean, standard deviation and percentage of teachers' estimates on the area of book questions.**

No.	Fifth: The field of questions of the book and means of evaluation	Arithmetic mean	Standard Deviation	Percentage	Rating
1.	The book questions measure all the goals contained therein	3.88	0.82	٧٧,٦	High
2.	The book's questions are clear and scientifically accurate	3.71	0.78	٧٤,١	High
3.	The book's questions are diverse (essay, thematic... Etc.)	4.14	0.80	٨٢,٧	High
4.	The questions of the book take into account the individual differences between students	3.71	0.76	٧٤,١	High
5.	Book questions help to enhance the student's understanding of the lesson topic	3.94	0.76	٧٨,٨	High
6.	The questions of the book are distributed to the units appropriately	3.98	0.65	٧٩,٦	High
7.	The book's questions range from easy to difficult	3.59	0.96	٧١,٨	High
8.	The book's questions are easy to pronounce and the student can easily understand	3.65	0.66	٧٢,٩	High
9.	The book's questions include different domains of learning (cognitive, psychomotor, and affective).	3.63	0.72	٧٢,٥	High
<b>Total marks</b>		3.80		76.1	High

According to the information provided in Table (5), the college performs very well in the subject of book questions and evaluation methods. They earned a high score of 3.8038, which represents 76.1% of the total possible score. They have also done a good job in all the different parts of this topic.

#### **\* Presentation of results**

The results of the survey showed that teachers' ratings for scientific textbooks taught in grade 4 preparatory schools in Iraq were high, with the overall rating (71.1%) for books and all fields included in them. It also revealed that the level of teacher evaluation for each element of the book was :the general appearance of the book (75.8%), the introduction of the

book (68.6%), the content of the book (71.2%), the means and activities included in the book (74.5%), and the means of evaluation included in the book (76.1%). These results demonstrate the quality of Iraq's experience in curriculum development and design, as it is a rich and high-level experience in parallel with the experience of leading countries and institutions.

### **\* Conclusions**

In light of the research objectives, questions, and results, we can conclude that: -

1- The researcher concluded that the book of biology for the fourth grade preparatory in Iraq is suitable for use, based on teachers' evaluation estimates of the book, which were high.

2- The researcher concluded that the local environment and the potential of different schools should be taken into account when designing the curricula of science, especially (biology)

### **\* Recommendations**

In light of the research results, the researcher recommends the following: -

1- Emphasizes the need for the participation of teachers and supervisors in the development and design of textbooks, as they are

considered those who implement this book in the classroom.

2- Recommends doing more evaluation studies for scientific books in various fields.

3- It is recommended to evaluate the level of readability of the book by students, investigate their opinions about the book and analyze the content of various scientific books.

4- It is recommended not only to provide the school laboratory to assist in the application of the theoretical concepts contained in the book, but also to provide the school with the educational means necessary to teach the book.

5- The need to focus the book on harnessing the potential of the local environment, especially in light of the physical obstacles facing Iraqi schools.

### **\* Suggestions**

1- Conducting in-depth and multiple studies that match the current study from the perspective of the students.

2- Conducting multiple studies that match the current study of biology for the preparatory stage in the grades other than the fourth stage

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