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Research Article

## **Analysis of the science book for the second intermediate grade in light of knowledge economy skills**

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### **Abstract**

The aim of the current research is to analyze the content of the science book for the second intermediate grade in the light of knowledge economics skills, the researchers adopted the descriptive analytical approach, as the research community and its sample were from the science book for the second intermediate grade approved by the Iraqi Ministry of Education for the academic year 2020/2021, the researchers prepared a list of criteria for the knowledge economy that included (7) main areas: (knowledge, technology, communication, mental development, social and economic, and evaluation), from which (69) indicators were branched, representing the skills of knowledge economy, whose validity was verified, then the researchers Analyzing the book in its light. The validity and reliability of the analysis were confirmed, and (Holstie's equation, frequencies and percentages) were adopted as statistical means to show the results. The results came by including the science book (6112) repeatedly, distributed unevenly among the seven fields.

**Keywords:** textbook, knowledge economics skills.

**Research Problem:** The shift towards a knowledge economy should start with reforming the educational system and developing curricula in general and the textbook in particular. Science curricula at the present time are characterized by dynamism and speed of change, it exploits the potentials of science and technology and links them to the life of the individual as a basis for its content, as it aims to prepare a citizen who makes good use of science tools, accepts development, and possesses basic skills for that. These curricula must be constantly subject to experimentation, evaluation, and modification to suit the rapid changes in this century and the recent developments in scientific education, but despite Iraq's possession of the necessary human energies and the important civilizational role and the recent processes of developing curricula, it was outside the global knowledge index for the year (2020), which included (138) countries. Thus, the researchers decided to analyze the science book for the second intermediate grade in light of the knowledge economy skills it contains. The research problem can be formulated as follows: **What are the knowledge economy skills included in the science book for the second intermediate grade?**

**Research Importance:** Education is the key to entering the era of knowledge and the development of societies through the development of human capital, and it interacts positively with the data of the times, being the focus of the educational process, it is responsible for preparing the student in an integrated manner by providing him with information and experiences that make him qualified to keep pace with knowledge and technological changes so that it is an active element in the society in which it lives and in the global economy (Molebash, 1999, p.33). Educational reforms moved from focusing on the knowledge content of the curricula to focusing on the processes that the learner is interested in, and on higher intellectual skills, production skills and the ability to make decisions, it became

necessary to make changes to the curricula and develop them in order to prepare the student to live in the time of the communications revolution and adapt to it, as the knowledge is based on the appreciation of the human being, his mind and his creativity, and benefiting from the amount of information and technology in the economic fields to be competitive and marketable (Al-Miqdadi, 14, 2018). The textbook is the main and effective curricular tool, it has a fundamental role in the educational process, it is the source of the least expensive information when compared to other alternatives, it is capable of evaluation, development and enrichment with drawings, shapes and images (Al-Tamimi, 2009, p. 244). The researchers believe that science is one of the important educational subjects that require study that clearly guarantees knowledge economy skills, such as thinking skills, problem solving, research, investigation, decision-making, communication, the ability for dialogue and discussion, as well as the use of modern technological means.

Since the textbook has great importance in being a basic reference for the student, who develops his knowledge and increases his experiences by containing the necessary activities, this study came to analyze the content of the science book for the second intermediate stage in terms of the extent to which it includes knowledge economy skills, some or all of them. The importance of the research is reflected in:

1. The results of the research can provide an in-depth idea of the knowledge economy skills that benefit researchers and those interested in this field.
2. It is possible that this study will contribute to the inclusion of knowledge economy skills in all science books in the future.
3. It can be prepared as an evaluation study of what the Ministry of Education is doing in developing curricula towards a knowledge economy.

**Research Objective:** The current research objective is to: Identify the percentage of knowledge economy skills included in the science book for the second intermediate grade in its parts (first and second).

**Research limits:** The research was limited to: knowledge limits: the science book for the second intermediate grade in its first part, second edition of 2018, and its second part, first edition of 2017, issued by the Directorate of General Curricula in the Iraqi Ministry of Education.

#### **Define terms:**

**Content analysis:** Younis (2016) defined it as: the method used to describe the quantitative, orderly and objective content of the scientific material included in science books (Younis, 2016, p. 486).

**The textbook:** Al-Issawi et al., (2012) defined it as: "One of the main elements on which the curriculum is based and constitutes the container that contains the educational material, and it is the main reference from which the learner derives his information more than other sources, and it is the basis on which the teacher relies in preparing his lessons before the Facing the learners in the classroom" (Al-Issawi et al., 2012, p. 124).

**Knowledge economy skills:** Researchers procedurally define them as: a set of knowledge and experiences that middle school students in Iraq need to help them produce knowledge and use it in important life situations, with the aim of improving their quality of life in line with global developments, by dividing it into several areas, including: knowledge field, communication field, technology field, mental field, social field, economic field, and evaluation field.

#### **Theoretical background and previous studies:**

**The textbook:** The textbook is the main reference and translator of the curriculum, as it is the most important tool for applying the curriculum and no less important than it is in the educational process, as it includes basic information that achieves the educational goals, adopted by the educational system in accordance with the

philosophy of society, it is the window from which the learner looks into the world of knowledge (Al-Tamimi, 2009, p. 245). The textbook derives its importance from its multiple roles in the educational process (Saadeh and Muhammad, 2011, p. 78) believes that it deals with information and ideas briefly and focused, containing a large amount of information and facts that achieve the desired goal in changing the behavior of learners, it provides a common background between the teacher and the learner, which contributes to stimulating discussions that achieve their understanding, and is a factor in the development of higher thinking skills of the learners and their acquisition of values and trends. (Al-Zwaini et al., 2013, p. 103) adds that the textbook is important in providing opportunities for learners to train the reading skill, so it helps them in other subjects, contribute to the transmission of the culture of society from one generation to another, preserve and purify the cultural heritage, providing the opportunity for the teacher to use Multiple special teaching methods. (Abdullah, Al-Afoon and Nassif, 2020, p. 69) believes that the textbook is one of the important means that achieve the objectives of the curriculum, and it is one of the most important effective educational means, which requires its presentation on scientific bases and standards, and that it is closely related to the life of the learner and keeps pace with the knowledge and scientific development in order to achieve the link between the study and the scientific life that the learner will come out with.

**Knowledge Economy Skills:** Studies differed in determining the skills needed for individuals in the light of the knowledge economy, in America, three skills have been identified for all professions, including education: they are literary, intellectual, and personal quality skills, which are skills that achieve general competencies in personal qualities, information systems, and communication technology (Yim-Teo, 2004, p.13). Also, the New Zealand Planning Council in 1991 issued a memorandum in which it recommended the need to pay attention to the following skills to move the country to the knowledge economy, which are: (communication skills, information technology, language skills, thinking skills, management and work skills, creativity and problem solving) (Yim-Teo, 2004, p. .13). While the (Jordanian Ministry of Education) identified eight knowledge economy skills: (learning how to learn, information management, creativity, organizational awareness, information technology, communication, personal influence, leadership) (Jordanian Ministry of Education, 2005, p.3). Shaqfeh (2013) mentioned eleven basic skills: (learning how to learn, information management, creative thinking, decision making, problem solving, teamwork, communication, information technology, personal influence, leadership, critical thinking) (Shaqfeh, 2013, p.40).

**Knowledge economy skills in the current study** After the researchers reviewed the above classifications of knowledge economy skills, and reviewed some of the studies I dealt with, such as the Miqdadi study (2018), the Al-Enezi study (2005), and the Shaqfa study (2003), the researchers prepared a list of knowledge economy skills within seven areas and made their indicators in line with the skills mentioned in the Shaqfeh study (2003), as well as the indicators mentioned in Miqdadi (2018), which are: (knowledge field, technology field, communication field, growth field, mental field, social field, economic field, evaluation field).

#### **Previous studies:**

1- Shaqfeh study (2013): It aimed to determine the extent to which knowledge economy skills are included in science books for the upper basic stage and the extent to which tenth grade students acquire them, the sample included science books for the upper basic stage of the Palestinian curriculum and (880) students of the tenth grade of the basic stage, adopted the descriptive analytical approach, and the research tool is the analysis list and a test prepared to measure the extent of acquisition. Weakness in the acquisition of knowledge economy skills by tenth grade students.

2- Al-Miqdadi's study (2018): It aimed to know the percentage of knowledge economy skills included in the content of mathematics books for the preparatory stage, the descriptive analytical approach was adopted, and the sample consisted of mathematics books for the preparatory stage, the scientific branch of the fourth and fifth grades (biological and applied), and the tool was a list of knowledge economy skills, the results revealed a relative disparity in the inclusion of the content of mathematics books for the preparatory stage of knowledge economy skills, the

weakness of integration between mathematics books for the different stages, as the results showed a disparity in the percentage of skills between the fourth grade textbook and the fifth grade science books.

**Research Methodology:** The researchers used the descriptive analytical method for its suitability to the nature of the study objectives.

**Research community:** It consisted of all science books for the second intermediate grade in its parts (first and second) established by the Directorate of General Curricula in the Iraqi Ministry of Education for the academic year 2020/2021.

**Research sample:** It included the content of the science book for the second intermediate grade in its parts (first and second) (excluding drawings, shapes and introductions to chapters) and the total number of pages was (252) pages, while the number of pages that were subjected to analysis (236), which represents a percentage (93.65%) of the total number of pages.

**Content analysis tool:** The researchers prepared a list of knowledge economy skills standards for the purpose of using them in the process of analyzing the content of the science book for the second intermediate grade, through:

- A. Examining a number of educational literature, research and books specialized in the knowledge economy.
- B. A review of a group of previous studies that dealt with knowledge economy skills, such as the Shaqfa study (2013), the Al-Enezi study (2015), the Al-Khalidi study (2017), and the Miqdadi study (2018).
- C. Preparing a list of the skills of the knowledge economy and including them in fields in its initial form, as the list included (69) skills comprising seven areas, namely: (the field of knowledge, technology, communication, mental development, social, economic, and evaluation).

**Validity of the tool:** "It is the ability of the tool to measure what it was prepared to measure," and it is one of the conditions that must be met by the tool (Al-Dhaman, 2007, p. 110). In order to verify the validity of the analysis list, the researchers, based on the apparent validity, presented the initial image of the list to a group of arbitrators specialized in teaching methods and science curricula, in light of their observations and opinions, the amendment was made, as the list obtained a high approval rate of (94%), which the researchers considered to be the validity of the tool.

Determining the spoken ratios of the knowledge economy skills: In order to determine the spoken ratios of the knowledge economy skills to compare them with the results of the analysis, and due to the lack of references to this from previous studies and educational literature, the researchers presented a survey to a group of experts and specialists in science and evaluation curricula, a question about a percentage that included the science book for the second intermediate grade, knowledge economy skills, by calculating the average percentages suggested by the arbitrators, the percentage spoken for each field in the science book in its first and second parts was as follows: (knowledge (30%), technology (10%), communication (10%), mental development (20%), social (5 %), economic (5%), evaluative (20%).

#### **Analysis of the content of my science book for the intermediate stage**

1. **Objective of the analysis:** The analysis aims to know the percentage of knowledge economy skills included in the science book for the second intermediate grade in its parts (first and second) by adopting the list of analysis in its final form.
2. **Unit of analysis:** The researchers adopted the unit of explicit and implicit idea of analysis, and frequency as a unit of enumeration.
3. **Steps of analysis:** The researchers followed the following steps in the analysis process:
  1. Read the content of the science book for the second intermediate grade in its parts (first and second).
  2. Re-reading the content of the books, identifying the ideas and paragraphs contained therein, and comparing them with the paragraphs of the analysis list and its fields.

3. Calculating the frequencies for the availability of skills for each field in the science textbook content of the study sample.
4. Unpacking the results of the analysis by calculating the number of times what skills have been achieved and what has not been achieved, and calculating the percentage of that, to be explained later.

**Validity of the analysis:** The researchers presented a sample of the analyzed material to a number of arbitrators and experts in the field of content analysis from specialists in curricula and teaching methods.

**The stability of the analysis:** To limit the subjectivity of the researchers and obtain stable results upon completing the analysis process, the researchers adopted two types of stability:

1. **Stability through time:** in which the stability coefficient is calculated according to the time factor, where the researchers repeated the analysis process after (three weeks) after the first analysis process, and calculate the stability coefficient by calculating the number of times of agreement between the two analyzes, using the Holesti equation.
2. **Stability between different analysts:** The researchers analyzed the process between them for the stability of the analysis, as a random sample was selected (20%) of the total number of the analysis sample, which amounted to (236) pages, so the number of pages reached (47) pages, and the reliability coefficient was calculated and was The obtained values are good and acceptable, as the reliability coefficient is good if it is (75%) or more (Abdul-Hadi, 2001, p. 388). The following table illustrates this:

Table (1) values of stability coefficients

stability over time	Between researchers and themselves after (3) weeks	0,91
stability across individuals	Between the first and second researcher	0,88
	Between the first and third researcher	0,86
	Between the second and third researcher	0,86

Statistical means: for data processing; the researchers used several statistical methods, including the statistical package program (spss).

**Presentation and Interpretation of Results:** The results related to the analysis of the science book for the second intermediate grade in its parts (first and second), as shown in Table (2):

S	Filed	Frequencies		Total frequencies	Percentage		The total percentage of the book
		First part	Second part		First part	Second part	
1	Knowledge	991	493	1484	31%	16,64%	24%
2	technology	51	206	257	2%	7%	5%
3	Connection	585	222	807	19%	7,49%	13%
4	mental development	1037	1416	2453	33%	48%	40%

5	social	48	1	49	2%	0,03%	1%
6	Economic	45	4	49	1%	0,13%	1%
7	Evaluation	393	620	1013	12%	21%	16%
total		3150	2962	6112	100%	100%	100%

It is clear from the above table that the content achieved (6112) frequencies of the skills of knowledge economy, distributed unevenly among its seven fields in the science book for the second intermediate grade, and that the inclusion rates were low and varied, as the field of mental development achieved the highest inclusion rate of (40%), while it was the lowest percentage of the two fields (social and economic), which amounted to (1%), while the percentage of the knowledge field reached (24%), followed by the field of evaluation (16%), then the field of communication with (13%) and then the field of technology (5%). By comparing the two parts of the science book for the second intermediate grade, the first part achieved (3150) recurrences, while the second part achieved (2962) recurrences. This discrepancy in the number of frequencies is natural because the number of pages and chapters of the first part is more than the number of pages and chapters of the second part.

Table (3) shows the percentages and sub-frequencies of the fields of knowledge economy in the science book for the second intermediate grade. The results can be detailed and discussed as follows:

Table (3) Frequencies and percentages of knowledge economy skills for each field in the science book for the second intermediate grade (parts one and two)

Field	Skills	Part one		Part two	
		Frequency	percentage	Frequency	percentage
Knowledge	<b>The content stirs learners' memory for curiosity.</b>	<b>226</b>	<b>22,80%</b>	<b>131</b>	<b>26,57%</b>
	<b>The content develops the ability for self-learning and its continuity by presenting it to activities that provide appropriate and sufficient opportunities for it.</b>	<b>156</b>	<b>15,74%</b>	<b>114</b>	<b>23,12%</b>
	<b>The content motivates learners to use the appropriate environment for learning, thus motivating them.</b>	<b>220</b>	<b>22,19%</b>	<b>75</b>	<b>15,21%</b>
	<b>The content motivates learners to apply what they have learned in their real lives.</b>	<b>148</b>	<b>14,93%</b>	<b>82</b>	<b>16,63%</b>
	<b>Content activates as many senses as possible during the learning process.</b>	<b>132</b>	<b>13,31%</b>	<b>70</b>	<b>14,19%</b>
	<b>The content directs learners to learn about the developments of the era in</b>	<b>0</b>	<b>0,00%</b>	<b>0</b>	<b>0,00%</b>

	ways related to it.				
	The content presents relevant learning topics that help learners learn for life.	23	2,32%	10	2,02%
	Content reviews what students learn to improve information that has not been memorized.	35	3,53%	8	1,62%
	The content prompts learners to research and critically discuss knowledge to ascertain it.	50	5,04%	3	0,60%
<b>Total</b>		<b>991</b>	<b>100,0</b>	<b>493</b>	<b>100,00</b>
Technology	Content develops the ability to use information technology.	0	0,00%	0	0,00%
	The content includes accurate and quality data and information.	7	13,72%	98	47,57%
	The content contains information search, classification and indexing activities.	11	21,56%	107	51,94%
	Encourages the learner to use technology to access knowledge and information related to the content of the learning subject.	10	19,60%	1	0,48%
	Guides the learner to safe and secure websites related to the content of the learning material.	2	3,92%	0	0,00%
	Encourages the learner to use the appropriate electronic resources to determine the required information.	3	5,88%	0	0,00%
	Contributes to the development of positive trends towards the applications of contemporary technology developments.	11	21,56%	0	0,00%
	Employs modern technology applications to support the learning process by helping the learner to express his learning ideas in a variety of ways.	7	13,72%	0	0,00%
	Employs information and communication technology in the educational situation.	0	0,00%	0	0,00%

<b>Total</b>		<b>51</b>	<b>100,00%</b>	<b>206</b>	<b>100,00%</b>
<b>Communication</b>	<b>It reinforces the importance of being considerate of others' feelings.</b>	<b>0</b>	<b>0,00%</b>	<b>1</b>	<b>0,45%</b>
	<b>Contributes to the exchange of experiences in a positive way.</b>	<b>29</b>	<b>4,95%</b>	<b>2</b>	<b>0,90%</b>
	<b>Promotes collaborative work and solving other people's problems.</b>	<b>17</b>	<b>2,90%</b>	<b>0</b>	<b>0,00%</b>
	<b>It strengthens the relationship between the school and the community.</b>	<b>17</b>	<b>2,90%</b>	<b>2</b>	<b>0,90%</b>
	<b>Develops the ability to constructive criticism and support it with evidence.</b>	<b>48</b>	<b>8,20%</b>	<b>0</b>	<b>0,00%</b>
	<b>Encourages expression and communication with others in several ways.</b>	<b>22</b>	<b>3,76%</b>	<b>0</b>	<b>0,00%</b>
	<b>Develops listening skills to receive messages from others.</b>	<b>105</b>	<b>17,94%</b>	<b>21</b>	<b>9,45%</b>
	<b>Encourages good preparation of the topic to be raised.</b>	<b>30</b>	<b>5,12%</b>	<b>69</b>	<b>31,08%</b>
	<b>Encourages discussion of the ideas presented.</b>	<b>151</b>	<b>25,81%</b>	<b>18</b>	<b>8,10%</b>
	<b>It encourages the questioning skill of the learner.</b>	<b>166</b>	<b>28,37%</b>	<b>109</b>	<b>49,09%</b>
<b>Total</b>	<b>585</b>	<b>100%</b>	<b>222</b>	<b>100%</b>	



Mental development	<b>Develops the ability to write research and reports.</b>	<b>18</b>	<b>1,73%</b>	<b>6</b>	<b>0,42%</b>
	<b>It develops the ability to distinguish and understand the issues at hand.</b>	<b>174</b>	<b>16,77%</b>	<b>188</b>	<b>13,27%</b>
	<b>Enhances the ability to accurately identify problems.</b>	<b>93</b>	<b>8,96%</b>	<b>192</b>	<b>13,55%</b>
	<b>It develops the ability to be slow in making judgments.</b>	<b>8</b>	<b>0,77%</b>	<b>47</b>	<b>3,31%</b>
	<b>Determines the available options based on the information provided.</b>	<b>102</b>	<b>9,83%</b>	<b>140</b>	<b>9,88%</b>
	<b>It encourages making sound decisions.</b>	<b>17</b>	<b>1,63%</b>	<b>39</b>	<b>2,75%</b>
	<b>It encourages boldness, perseverance and initiative.</b>	<b>35</b>	<b>3,37%</b>	<b>20</b>	<b>1,41%</b>
	<b>Develops scientific thinking skills</b>	<b>110</b>	<b>10,60%</b>	<b>119</b>	<b>8,40%</b>
	<b>It develops self-confidence and self-reliance.</b>	<b>35</b>	<b>3,37%</b>	<b>21</b>	<b>1,48%</b>
	<b>Helps learners to reach the results and their applications.</b>	<b>107</b>	<b>10,31%</b>	<b>127</b>	<b>8,96%</b>
	<b>Urges planning and gathering information to reach results.</b>	<b>19</b>	<b>1,83%</b>	<b>113</b>	<b>7,98%</b>
	<b>Urges the use of modern means in research and investigation.</b>	<b>28</b>	<b>2,70%</b>	<b>1</b>	<b>0,70%</b>
	<b>It encourages the use of the scientific research method based on developing and examining hypotheses, which helps to issue convincing and justified judgments.</b>	<b>40</b>	<b>3,85%</b>	<b>42</b>	<b>2,96%</b>
	<b>It develops the ability to generate many diverse ideas.</b>	<b>56</b>	<b>5,40%</b>	<b>55</b>	<b>3,88%</b>
	<b>Presents physical examples related to the learning material, which encourages the generation of new ideas in a constructive manner.</b>	<b>86</b>	<b>8,29%</b>	<b>97</b>	<b>6,85%</b>
<b>Develops the ability to determine the reliability of sources.</b>	<b>24</b>	<b>2,31%</b>	<b>0</b>	<b>0,00%</b>	

	<b>It directs the learner towards employing the content of the learning material in interpretation, analysis and prediction.</b>	39	3,76%	117	8,26%
	<b>Enhances the ability to distinguish similarities and differences.</b>	46	4,43%	92	6,49%
<b>Total</b>		<b>1037</b>	<b>100%</b>	<b>1416</b>	<b>100%</b>
<b>Social</b>	<b>Encourages active participation through community service and development.</b>	2	4,16%	0	0,00%
	<b>It encourages the exchange of information among learners, which contributes to providing the learner with the values of collaborative and positive work within the same team</b>	17	35,41%	0	0,00%
	<b>Focuses on helping or defending learners.</b>	0	0,00%	1	100%
	<b>Develops the principle of social justice among learners.</b>	17	35,41%	0	%0,00
	<b>Emphasizes the importance of developing a sense of integration and solidarity within a single society.</b>	1	2,08%	0	0,00%
	<b>It includes values that reinforce learners' conviction of the importance of preserving the capabilities of their local environment.</b>	11	22,91%	0	0,00%
	<b>Contributes to expressing positive attitudes towards the school, the administration and the teacher.</b>	0	0,00%	0	0,00%
	<b>It calls for looking at mistakes as opportunities to learn and not to blame or criticize.</b>	0	0,00%	0	0,00%
<b>Total</b>		<b>48</b>	<b>100%</b>	<b>1</b>	<b>100%</b>
<b>Economic</b>	<b>The content emphasizes the principle of respect for work.</b>	0	0,00%	0	0,00%
	<b>The content emphasizes the importance of investing in human resources.</b>	2	4,44%	0	0,00%
	<b>The content reinforces the importance of preserving the country's natural and economic resources.</b>	7	15,55%	0	0,00%

	<b>The content emphasizes the importance of the industry in supporting the national economy.</b>	13	28,88%	1	25%
	<b>The content includes learning situations that emphasize learning by doing.</b>	1	2,22%	1	25%
	<b>The content includes learning situations that illustrate the danger of depleting natural and economic resources.</b>	8	17,77%	2	50%
	<b>The content includes learning situations that encourage learners to innovate, take initiative and work productively.</b>	6	13,33%	0	0,00%
	<b>The content is related to the reality of the local economy in terms of needs and developments.</b>	8	17,77%	0	0,00%
<b>Total</b>		<b>45</b>	<b>100%</b>	<b>4</b>	<b>100%</b>
<b>Evaluation</b>	<b>The content employs information technology to improve the learner's practices and record the stages of his learning and his observations about the (learning progress record).</b>	34	8,65%	32	5,16%
	<b>The content uses a variety of assessment methods and tools that are appropriate to the specific educational goals.</b>	57	14,50%	117	18,87%
	<b>The content includes a diagnosis to determine the learner's tribal education.</b>	89	22,64%	57	9,19%
	<b>The content presents the assessment test items in a way that addresses the learner directly.</b>	60	15,26%	127	20,48%
	<b>Formative assessment emphasizes the principle of individual differences in learning through a variety of question types.</b>	50	12,72%	127	20,48%
	<b>Diversity of evaluation methods to suit the methods and patterns of thinking used by the learner in implementing different strategies for the solution.</b>	44	11,19%	128	20,64%
	<b>Teaching and assessment activities are</b>	59	15,01%	32	5,16%

	<b>closely related to each other.</b>				
<b>Total</b>		<b>393</b>	<b>100%</b>	<b>620</b>	<b>100%</b>

1. **Knowledge field:** according to the results shown; The skill (content raises learners' memory for curiosity) got the highest percentage of inclusion in the content within the knowledge field, as it reached (26, 57%), while the lowest percentage of skill (content directs learners to see the developments of the era in ways related to it), which did not get any frequency, was (0%). However, the content included most of the skills within the knowledge field in varying proportions in the two parts of the book.
2. **Technology field:** the results indicated that a skill (content that includes activities for searching for information, classification and indexing) had the highest rate of inclusion in the two parts of the book, as it reached (51,94%), and other skills came at lower rates, while the first part achieved The book contains seven skills in the field of technology, the frequencies of which did not live up to what was hoped, we find that (only three skills out of nine) were present in the second part of the book within this field, there is a clear deficiency in including technology skills in the content of the science book for the second intermediate grade, despite the importance of the availability of these skills that support the learning process and make it enjoyable and ensure the transmission and diversity of experiences In addition to being one of the pillars of the knowledge economy.
3. **Communication field :** according to the results in the table above, the skill (encourages the learner's questioning skill), achieved the highest percentage of inclusion of communication skills in the content of both parts of the book, as it reached (28,37%) in the first part and (49, 09%) in the second part, and the skill (enhances the importance of taking into account the feelings of others) came with the lowest inclusion rate (0.00%) in the first part, and (0.45%) in the second part, while the percentages of the rest of the skills varied between them. The content interest in encouraging learners to question and discuss the ideas presented, develop listening skills to receive messages from others, and encourage them to prepare well for the topic to be presented, provides the learner with a suitable environment for acquiring and sharing knowledge and exchanging information and experiences, which is reflected positively in modifying his behavior.
4. **Mental development field:** the results showed that the content was rich in mental development skills and with high frequencies for the two parts of the book, the skill (develops the ability to distinguish and understand the issues at hand.) achieved the highest percentage of inclusion, reaching (16,77%), while the skill ( It develops the ability to write research and reports) with the lowest inclusion rate (0.42%), and the frequencies of the two parts of the book were close to the skills in this field. These results are good, as the content focused on providing learners with mental skills, research skills, interpretation, prediction, critical thinking skills and solving problems, and this is what suits the nature of science subject.
5. **Social field:** the results indicated that my skill (encourages the exchange of information among learners, which contributes to the learner's acquisition of the values of participatory and positive work within the same team, and develops the principle of social justice among learners) achieved the highest percentage in the social field, reaching (35.41%) ), while the lowest percentage of my skill (contributes to expressing positive attitudes towards school, administration and teacher, and it calls for looking at mistakes as opportunities to learn and not to blame or criticize) which amounted to (0%) as it did not get any frequency, and these percentages are only for the first part of the book, the second part was almost devoid of social field skills, as the content neglected skills that enhance the integration and solidarity of the individual within his community, and support the process of addressing mistakes and correcting attitudes.
6. **Economic field:** the obtained results indicated that the skill (emphasis on the importance of industry in supporting the national economy) within the economic field reached a rate of (28.88%), which is the highest percentage of inclusion in this field, while the skill (emphasis on the principle of respect for work) got The lowest inclusion rate was (0.00%). The results were less than expected for this important field of knowledge economy, and the results recorded a large disparity in the rates of inclusion between the two parts of the science

book, as the second part was poor in its content of skills in the economic field. There is an importance to include skills related to the economic field, in line with the changes the world is witnessing at the level of economy and wealth, especially as it fits with the content of science and the application of its topics in various aspects of life.

7. **Evaluation field:** the results showed that a skill (content that includes a diagnosis to determine the learner's tribal education) obtained the highest percentage (22.64%), while a skill (content that employs information technology to improve the learner's practices and record the stages of his learning and his observations about (a record describing the learning progress) obtained )) at the lowest inclusion rate (5.16%) within the field of evaluation, The results did not record a large disparity between the two parts of the book in the rates of inclusion and frequencies, and the content did not neglect any skill of the evaluative knowledge economy skills, these ratios are good, as the content pays attention to the diversity of questions and their continuous overlapping that encourages the learner's knowledge building, and enhances his self-assessment skills through open and varied questions that provoke his higher mental abilities. The results indicate that the content was concerned with including exploration skills through the presence of introductory activities, explanation and interpretation, and focused on the mental skills of the learner, and that this is a good and good thing in science books, but it was limited to including skills in the social, economic and technology fields, and the percentages were low, although they are important areas that achieve change towards the knowledge economy.

Returning to Table (3) and comparing the percentages of including the fields of knowledge economy in the science book for the second intermediate grade, with the spoken percentages, it was found that the percentage of the knowledge area was (24%), which is slightly lower than the standard percentage (30%), as is the percentage of the field of mental development. 40%) is higher than the standard ratio of (20%), the percentage of the communication field (13%), which is higher than the standard ratio (10%), and the percentage of the orthodontic field (16%) is slightly lower than the standard percentage (20%), while the technology field ( 5%), the social field (1%) and the economic field (1%) their percentages are weak and did not rise to the standard ratios, which indicates the weakness of including the science book for the first intermediate grade for most of the knowledge economy skills.

**Conclusions:** In light of the study results, the researchers reached the following conclusions:

1. The knowledge economy skills were included in the science book for the second intermediate grade in varying proportions according to the following arrangement of its seven fields: (mental development, knowledge, evaluation, communication, technology, economic, social) and its first part outperformed its second part in the number of frequencies of these skills.
2. The skills within the same field did not get equal frequencies, but the percentages were different, and there are skills that did not get any frequencies.

**Recommendations:** In light of the obtained study results, the researchers recommended the following:

1. Benefiting from the results of this study in reconsidering the content of science books in terms of achieving a balance in including knowledge economy skills.
2. Activating scientific and research activities and developing the spirit of initiative and research among learners using computer programs, modern technologies and the Internet, and employing them in searching for information.

**Suggestions:** To complement the results of the study, the researchers suggest:

1. Conducting a comparative study between science books in Iraq and science books in an Arab or foreign country in the light of knowledge economy skills
2. Conducting a similar study in analyzing the content of books of other subjects for secondary or university levels.

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