

Analysis of The Chemistry Book for The Third Grade Medium on The Skills of The 21st Century

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Abstract

The current study aims to analyze the content of the chemistry book for the third middle grade according to the skills of the 21st century for the academic year (2020-2021).

To achieve this goal, a list of 21st century skills to be included in the chemistry book for the third grade was built after a series of literature, research and previous studies, as the 21st century skills tool was built with its main and sub-skills in its initial form consisted of (68) indicators distributed in three main groups and presented the list to a group of specialists in the field of curriculum and teaching methods, Thus the tool was formed in its final form of (59) sub-issue, and then analyzed the content of the chemistry book for the third grade intermediate in light of the tool skills of the 21st century and the analysis included three books in the reality (111) pages and adopted the explicit and implicit idea of a unit for recording and repetition, and the researcher found the sincerity of the analysis by presenting a random sample of analysis to a group of arbitrators and they agreed on the validity of the analysis Using the Holiste equation, stability was calculated in agreement with external analysts and with the researcher herself, and one of the most important findings of the researcher was that the chemistry book for the third grade average dissonance obtained a percentage (43.76%) By (658) repetitions In the light of the results of the research, the researcher came up with a number of recommendations, including:-

- 1 -Attention to the principle of integration between the topics of books and include them what is modern.
- 2 -Training teachers in educational and educational practices that lead to the development of all skills and development among learners by employing educational experiences and attitudes to apply research and exploration behavior using the skills of the 21st century.
- 3 -The need to conduct educational courses and workshops for teachers to increase their awareness of the importance of 21st-century skills.

. **The researcher suggested completing this study several proposals, including:-**

- 1-Study sing the level of awareness of 21st-century skills among teachers, supervisors, and school principals.
- 2-Study on the obstacles of developing the skills of the 21st century and developing proposed solutions.

Keywords/Chemistry Books, Middle School, 21st Century Skills

Problem statement First

The reform processes for chemistry methods that began since the middle of the 21st century are aimed at developing them, in line with the tremendous scientific and technical progress witnessed by the world, and in order to achieve the wishes and needs of learners, and prepare them to deal with the requirements of life and after making several changes to the chemistry methods many times in order to keep up with the scientific and technical development, and take into account the applied and functional aspects of the curriculum, and focus on linking science to life, and taking into account individual differences And because of the importance of chemistry curricula in that it is the door that leads to the age of science and information and represents the scientific base for learners, and through the experience of the two researchers in teaching for the middle school in addition to interviewing a number of teachers and teachers and supervisors and providing a questionnaire to a group of teachers and teachers who have experience in the field of teaching included the following questions?

Does the content of the chemistry book for middle school include 21st-century skills?-

- -Does the teacher encourage students to search online to keep up with developments related to chemistry topics?

90 %of chemistry teachers agreed not to include these skills in chemistry and science books for middle school.-

85 %-of teachers agreed not to encourage students to search online to keep up with developments in chemistry subjects.

It is clear from the results of the exploratory questionnaire on the agreement of the opinions of teachers and teachers that the chemistry curriculum suffers from a clear lack of address to the skills of the 11th century, so the need for a diagnostic process that leads to identifying the shortcomings of the chemistry book for the middle stage according to the skills of the twenty-first century and resulted in the following question.:

What 21st-century skills are included in the content of the middle-school chemistry book?

The importance of research :secondly

At the beginning of the 21st century, the entire world witnessed an era of intense transformation in all fields, be it education, trade, economy, technology, and this year's emergence of the covid-19 pandemic has added challenges for learners to deal with the use of technology and communication through them, and at such times, a different set of skills is needed that will enable the individual to adapt and succeed in meeting the challenges of real life. With this adaptation, there was a need for continuity of education to modify books to prepare the learners in good and sound preparations following the variables and requirements of the times, by including the skills required this afternoon, (Monali & other, 2020:1)

. Between the international trend, policymakers, and teachers, their goal of graduating graduates equipped to meet the demands and challenges of the modern world, globalization, and its economic implications have prompted many countries around the world to pursue political and economic policies to move the value chain from the industrial economy to the knowledge economy, and mastery of 21st-century skills is often promoted as necessary for those efforts. (Olivia & Go, 2015:1)

This has affected the overall perception of the teaching process, after focusing on organizing exciting women in the structure of learning, became interested in preparing educational attitudes and presenting them to the learner in the form of problems that provoke his creativity and require him to practice higher thinking skills and cognitive processes that include the coordination and organization of information in meaningful knowledge contexts, in which the learner is an active partner in the reception, coding, and analysis of information, (Asha and others. ,2012: 521)

The topic of 21st-century skills has received great attention in international and regional forums to diagnose the pros and cons of the curriculum and the importance of developing the curriculum according to the requirements of the current era and has held several conferences to include them in the curriculum, including :

_The international conference for the evaluation of education (2018) held in Saudi Arabia and conference stressed the importance of developing the skills of the future "within learning for life" and the goal of the conference through its sessions and discussions, which was attended by nearly 14,000 participants to the need to enhance the skills of the century ways to measure them in education, learning, and training.

_The conference, which was held in Gaza (2019) by the Palestinian Ministry of Education on the sidelines of the importance of 21st-century curriculum skills, also recommended the importance of integrating 21st-century skills with the curriculum to engage learners, which has a role in the success and development of society.

All international, Arab, and local conferences stressed the need to adapt content to the skills of the 21st century and the development of the curriculum to suit the age level and level of thinking of learners, as the innovative capacity and creative spirit, the requirements of success in this era, and that the future of humanity depends on the ability to "reconfigure our understanding of human capacity and put creativity and innovation at the forefront of our educational systems". Critical thinking and enthusiastic experimentation promote greater creativity and innovation (OECD,18: 2012).

For education to achieve its goal, it is necessary to use a variety of methods, primarily the curriculum. The educational curriculum is the means that is based on the opposite of the image of society and its philosophy, and its objectives, and it is present and future, the curriculum was built in conjunction with different mental, physical, and moral aspects, for different individuals, which correspond to the progressive and cognitive developments of learners, as countries work on the development of educational curricula in conjunction with the needs of the environment and the developments of the times, so we should look at the curriculum the traveler's view of the path that guides the path that guides the reached of puberty to the goal and achieve The most important challenges facing the Islamic nation, which increase the importance of including skills in the curriculum, are:-

- Giant economic conglomerates based on free global economic competition.
- Globalization, free communication, and the flow of information, goods, capital, and satellites are the challenges of today's era. The deepening of the curriculum also requires focusing on the applied aspect of it and its basic objectives to understand it and deal with it and increase our contribution to it (Obeidat &others .2013:314)

, if the chemistry curriculum is one of the most related to the rapid scientific and technical changes and developments that have led to major developments in different areas of life and is a fertile area for the development of the skills of the 21st century among learners, so the It is clear to the extent of interest in chemistry methods at various educational stages through subjecting them to successive development processes, to become more attractive, interesting and motivated for self-learning, to develop the abilities and skills of learners, so that they can prepare them for the environmental scientific life in which they live and to give them sufficient abilities of science that make them familiar with the origins of science and its rules so that they can build on them or be content with success in life,(Al-Shahrani, 2020: 240).

Education in this age requires learners to participate in activities and work on applying interlocking concepts and key concepts to make applied subjects such as chemistry easy to learn and interesting through the process of linking concepts as the material needs an integrated collaborative environment based on inquiry, discovery, thinking, inference and problem solving,(Formalejo&other,2014:178)

and the textbook has several roles in the educational process, including

-Represents an economic means, presents facts, concepts, and generalizations.

Represents a flexible tool that can be used inside and outside the classroom.-

Provides scientific knowledge in structured images commensurate with the rapid changes in knowledge.- (Support, 2015: 101)

A good education should be built based on arming the learner with the ability to think critically and the ability to look forward to the future and logical thinking, i.e. human education right, and focused on the growth and development of personality, thus ensuring that education continues throughout his life in a healthy environment, for a better life, (Khalil, 2013: 70).

so the process of analyzing school content is a therapeutic diagnostic process carried out systematically, through quantitative and qualitative analysis that is subject to control, accuracy, measurement, and organization based on scientific judgments to know the quality of the school content (Riffe, et al,2019; 18). Foreign studies, including(Sukor, et al,2010) and(Osmana, et al 2010) and many Arab studies, including (Al-Balwi Study 2019) and(Abu Jazira Study 2018), confirmed the need to build and develop science curricula in light of the skills of the 21st-century learners and from the foregoing highlights the importance of research through the following:-

1- The current research is a purposeful scientific attempt to study the skills of the 21st century, which has not been addressed by researchers, according to the researcher, as it is the first research in Iraq that dealt with the analysis of chemistry books for the middle stage according to the skills of the 21st century .

2-This research may benefit those carrying out the educational process in Iraq to review and develop the curriculum in conjunction with scientific, technical, and technological developments.

3-21st century skills help experts and decision-makers to develop the curriculum by knowing the shortcomings of chemistry approaches and working to avoid them by providing a modern vision of chemistry curricula suited to the trends and skills of the 21st century...

The aim of the study. thirdly

.-Analysis of the content of chemistry books for middle school according to the skills of the 21st century for the academic year (2020-2021).

fourthly - Research Limitations

The current search is limited to what comes:-:

Chemistry textbook for students of the third-grade middle/ 9th edition of 2019 / prepared by the Iraqi Ministry of Education.

Fifth -Determination of Terms

First: Analysis of the content known by

(Hashimi and Attia, 2014): "A method of scientific research that is included under the descriptive research method and its purpose is to know the characteristics of textbooks and describe these characteristics quantitatively" expressed in quantitative symbols in addition to the results obtained in other ways that are indicators that determine the direction of development required." (Hashimi and Attia, 2014: 175).

Second: - The textbook was known by

(Arnos and Reza,2018): "This book includes a set of basic information developed to achieve predetermined goals cognitive, skill, emotional) and this information is provided in a scientifically structured form to teach a particular subject in a course and for a certain period " (Arnos and Reza, 2018: 16).

(Aygoren&OGUZ,2019): "Materials are written in the form of a printed or electronic book covering established study subjects in any field of study in all scientific detail, aimed at assisting in the implementation of the intended curriculum".

(62 :Aygoren&Oguz,2019)

Third intermediate:-

(Shehata and Zainab, 2003): - "It is an academic stage within the educational ladder in Iraq consisting it consists of three-stage an: first, second, and third intermediate. it follows the primary stage with six grades and comes before the middle school, which consists of three grades". (Shehata and Zainab, 2003: 116)

Fourth: The skills of the 21st century were known by:

- (Beers, 2014): "These are the skills that students need to succeed and work in life, and include critical thinking, problem-solving, innovation, creativity, and content learning skills, and cooperation and life skills of adaptation, personal and social responsibility, and the ability to interact with others." (Beers, 2014: 26)

-(Dr. Praggya M. Singh. et,2020): "The term 21st-century skills refers to a broad set of knowledge, skills, work habits and personal characteristics that are believed by teachers school reformers, university professors, employers, and others - to be critical importance to success in today's world".

2020:14),Dr. Praggya M. Singh.e&othe(

Chapter 2: background of theory and previous studies

First: A brief overview of content analysis

Content analysis is a quantitative analysis of scientifically based messages (including attention to objectivity, self-interaction, initial design, reliability, validity, generalization, repetition, and hypotheses testing) is also limited to the types of variables that can be measured or the context in which they are made to ascertain their meaning and potential impact,(2014: 19, other&, (Liang enables the researcher to detect strengths and weaknesses. Providing the basic foundations for correction and facilitating the selection of appropriate educational content using analytical tools in terms of categories and units of analysis to find out the relationship between parts and themes of the texts,(setyowati & sutrison,2020:2)

Content analysis modules

Represents a group of basic units that provide assistance to the text reader and analyst to learn the details associated with the interpretation of the results reached and are distributed in several units, the most important of which are :

-**The word:** the researcher quantifies each word that has significance intellectual, political, educational, and how much it repeats in one page or several pages.

-**Subject Theme:** Represents one or more sentences that confirm a particular concept educationally, economically, or politically. (Assaf, 2006: 240).

Single unit: represents the means of communication, it may be a magazine, a story, etc. -

-**Character:** The main character traits that are contained in the literary work may be a world.

-**Space and Time Unit:** The physical division of content such as columns and the number of lines occupied by the topic and its quantitative appreciation of the extent to which a topic is occupied within a particular book or content.

(Samuk and

Huda, 2009: 49)

Second: The foundations of the construction of the textbook

The construction of the textbook is based on several foundations, including:

1-It is based on the characteristics, culture, and traditions of society.

2-It is based on the characteristics of the students, their level of growth, abilities, and trends, and the age to which they belong. The

book takes into account the principle of integration between theory and practice, by providing the opportunity to carry out activities that help them to apply the positions they have learned. (Trick and Reconcile, 2009: 316)

Twenty-first-century skills.

"It is a combination of knowledge, skill, experience, digital culture, career skills, and life skills for learners to be successful in work and life," said 21st Century Skills Partnership (2009), which aims to support learners in life and employment, and is considered to be the core school issues, 21st-century topics, the Center for 21st Century Skills, Life Skills, Career skills, learning skills, and innovation. , IT Skills, (Sahin,2009:21).

The need for 21st-century skills:-

The rapid changes in the field of communication and technology, the birth of modern channels of communication and modern technology and its impact on transactions, employment, economic development, pluralistic culture, environment, and sustainable development, processes of development of education, and improvement of its quality have led to the need for the emergence of these skills. (Rabat, 2018: 339)

This era represents the "ability to open up new horizons" and evoke new ways of thinking, asking new ideas and solutions, asking unfamiliar questions and reaching unexpected answers, increasing innovation and creativity as they agreed (2007, Sternberg) and Gardner, 2008, according to the quote, (Sheikh Eid, 2019: 51).

Integrating 21st Century Skills into Education:-

Education in the 21st century simply addresses what learners need to learn to succeed in school, work, family, and community life (Trilling, 2010; 9).

Al-Hadari and Jabr (2016) quoted The Islands (2018) as helping learners to:

1-Helps learners understand the subjects, learn the relationship between them and link them to develop thinking, build new ideas and use knowledge and technical tools to continue learning for life. ..

2-Enable learners to live in a technical environment, information and information revolution and remove cultural barriers.

3-Enable learners to be part of their thinking, positive, and awareness skills in dealing with others. (Bo Islands, 2018: 53)

Classification of 21st-century skills according to organizations**First: Framework of the Educational Laboratory of the Central Northern Region (NCREL.2003)**

The educational laboratory has come up with these skills based on a range of processes, including reviewing the results of research and literature and surveying the opinions of educators to:

1-Digital age skills: the use of digital technology and communication tools, basic, scientific, economic, technical, visual, informatics, multicultural understanding, and cosmic awareness .

2-Innovative thinking skills: creative curiosity, risk tolerance, sound thinking, adaptability, self-orientation, and higher thinking skills. Effective communication skills: teamwork skills, interactive communication, personal skills.

3-High productivity skills: Prioritization skills include planning the effective use of technological tools

(Cevik & Senturk,2019 : 3)

Second, Singapore's 21st Century Skills Framework (2010)

-Basic values,

-Psychological and social competencies

-Emerging competencies in the 21st century.

Third: Framework of the Partnership for Learning in the 21st Century (P21)

Includes three key skills resulting from a broad partnership of several organizations, i.e. about 40 organizations, including Mager and Shell, hundreds of members, professional development organizations, and some ministries of education, as follows :

1-Career and life skills: initiative and self-guidance, flexibility and adaptation, productivity and accountability, social skills, and understanding of multi-leadership and responsible cultures.

Digital culture skills: ICT culture, information culture skill, media culture.2-

3-Learning and innovation skills: expert thinking, complex communication, applied imagination, and invention.

(Stephen

lamb,2017.13)

The relationship of 21st-century skills to the curriculum

The relationship between skills and curricula is not practical or reciprocal, but it is a relationship that begins with the needs, foundations, and philosophy of each field and its objectives, as it has become urgent for learners to have high skills that enable them to quickly adapt to the surrounding variables and provide them with advanced skills to interact with different activities, (Religion, 2007:42), so the partnership organization has prepared a map of how to integrate skills in the teaching of science (chemistry biology) and has set educational goals at the end of each stage of study through the science syllabus and chemistry can reach the information that learners can reach. The National Assembly (nsta,2014) has shown that the curriculum should be based on surveying and focusing on creativity, knowledge, the use of modern technology, communication, cooperation, and problem-solving (Prophet, 2020: 27)

Domains of 21st-century skills:-

(Levy and Murnane,2006) in 2006 noted there are two types of skills needed for learners expert thinking "the ability to solve new problems that cannot be solved by applying rules and complex communication "the ability to not only to convey information but also to convey a specific interpretation of information to others in function s such as teaching, selling and negotiating. These skills are compatible with critical thinking and the skills of, communication, collaboration creativity, and innovation that the partnership for 21st-century skills described, (Tracie Omohundro,2015:16).

Critical thinking and problem solving (expert thinking), communication and collaboration (complex communication), creativity and innovation (applied imagination and invention) these skills are the keys to unlocking a lifetime of learning and creative work. (Gian and others, 2015: 32)

Group 1: - Skill of learning and creativity

This skill focuses on discovery and invention, as well as meeting the new requirements of 21st-century work, and includes three sub-skills :

Critical thinking and problem-solving-

Critical thinking is defined as "the ability to think effectively, investigate, access, analyze and synthesize information, and can be taught, practiced and mastered, which is one of the three core skill groups, needed to succeed in school and work

(Redecker et a 2007:21).

Communication and collaboration

Cooperation means sharing work between two parties, whether they are people, institutions, or countries to achieve a goal or mission, refers to learning or work that is accomplished through an interactive process that leads to something in common, as education has always been interested in the basics of good communication as digital tools and the requirements of our time require a much wider and deeper personal set of communication and collaboration skills to promote learning together. (Trilling &Fadel, 2009:54). Creativity and Innovation (Creativity and Innovation) Beers (2006) defines creativity and innovation as "using knowledge and understanding to create new ways of thinking to create new solutions to problems and to create new products and services", creativity requires a safe environment in

which ideas are accepted and this environment provides a port of comfort and mental integrity in which students can generate and apply new ideas. (Beers, 2014: 5 3)

Group II: - Digital Culture Skills

Define it as Mastery of ICT and applications to solve cognitive tasks at work and skills that support the senior ranks, and the processes of thinking and skills related to cognitive processes for the benefit of learners that this type of skills are critical for both people and organizations to keep up with developments and innovation of products and processes. (Chris&other ,2019:17)

Several sub-skills are organized:1

Culture of information and communication technologies Is one of the terms that have been- circulated in the present era as a result of the complexity of the information environment resulting from the great diversity of information forms and sources, as this has imposed new challenges in the form of information and communication technologies. (Shelby, 2016: 10)

2-Information Culture: Informational Culture

The culture of information and communication focuses on the gradual use of higher cognitive abilities to understand information, as information technology is a special focus as one of the modules in the curriculum, and the introduction of digital equipment for learners to use information technology as an educational tool, the Economic Development Council invites teachers to employ "learner-centered learning strategies" (Economic Development Council, 2011 b:70)

3-Media Culture: - Media Culture

Media culture "provides a framework for accessing, analyzing, evaluating and creating messages in a variety of forms, building an understanding of the role of media in society, as well as developing basic skills from inquiry, self-expression and media literacy in this context to the means of communicating messages (publications, drawings, animations, audio, video, websites, etc.), and the formulation of the message for a particular message, and the effects of the media message on society. A high level of media knowledge is required to choose the appropriate medium for a particular topic. (Trilling &Fathl,2009:68).

Group 3: Career and Life Skills

It is defined as developing a person's skills to be self-oriented, independent, educated, and a workforce capable of adapting to change, taking responsibility, managing projects, leading, and achieving real results that include the following skills:

A- Flexibility and adaptability :1-

Being flexible means being able to give effective feedback, with the ability to accept praise, setbacks, positive criticism, and the ability to be balanced in understanding and managing different situations. (Busarin,2017:31).

2- Initiative and self-guidance: - The nature of science depends on asking questions about the natural phenomena surrounding us, to try to understand and interpret them, those questions are what guide the learner and urge him to make accurate observations and try to find an answer to these questions, these processes develop the learners initiative and self-guidance, and encourage lifelong learning, as it represents the ability to set goals related to the learning process, plan to achieve those goals and manage time and effort and evaluate the quality of learning independently. (Argument, 2018: 168).

Social skills and understanding of multiple cultures:3-

Having social and multicultural skills is essential for learners to work well in both the school environment and life, allowing the learner to interact effectively with others and work effectively in a variety of teams. (suto,2015: 7).

4- Productivity and Accountability

Known as "managing and addressing basic objectives and requirements and time management and including project management and setting goals when facing obstacles and pressures, planning and management to achieve expected results", it also refers to the ability to work ethically, work using different techniques to participate in trustworthy activities, and effective cooperation with the team, (31:2017, Busarin), while accountability means effective management of time, responsibility and self-control to meet production demands as productivity and accountability reflect students' ability to acquire new learning and apply appropriate processes and tools to facilitate the product. Promote ethical standards. (Shelby, 2014: 14).

5- Leadership and responsibility

Refers to the learner's ability to work and take care of the community and encourage others and evaluate the strengths of others to achieve goals, and to use individual communication to guide others on how to acquire skills that the change we seek can provide a lot of opportunities to take responsibility and exercise leadership, which are important skills for future employers are building many other 21st century skills within p21, such as cooperation, communication, and understanding between cultures. Many student leadership programs are already focused on developing these skills (Trilling1,2009:85)

Chapter 3

Research Methodology:

- (Al Mashhadani, 2017) mentioned that the descriptive approach "is based on describing a phenomenon, to reach its causes and the factors that control it, and to draw conclusions and generalizations to collect, organize and analyze data, and help to study the facts related to the nature of a phenomenon or situation or a group of events." (Mashhadani, 2017: 162)

Second: Research procedures

The Research procedures are:

community Research:

It means a group of people or books or documents specifically defined and interested in a researcher to study them and generalize the results of the research and in light of that society is determined by the nature of the research and its purposes.

(Al-Zuhairi, 2017: 139)

Table (1) Percentages of the research community and its appointment in the chapters of the chemistry book for the third-grade average

Sample		Society		The theme of the chapter	ت
Percentage%	Number of pages	Percentage%	Number of pages		
21.62%	24	20.74%	28	The atomic composition of matter	1
9%	10	8.88%	12	The first and second two fellowships	2
9%	10	8.88%	12	The third group.	3
9%	10	10.37%	14	Solutions and expression of concentrations	4
7.20%	8	7.40%	10	The fourth group	5
10.81%	12	10.37%	14	Introduction to Organic Chemistry	6
13.51%	15	13.33%	18	The fifth group	7
19.81%	12	10.37%	14	The sixth group	8
9%	10	9.62%	13	The seventh group	9
100%	111	100%	135	Total	

Research tool

Billson defines the analysis tool as a method of scientific research that targets the objective, structured and quantitative description of the apparent content of the communication material, in which metadata is obtained about the content or written information, (Nyoman Kantha Ratna,2010: 358).

The researchers numbered a list of 21st-century skills and indicators according to the Partnership for 21st Century Skills (2009) issued by the United States of America and developed indicators for these skills after studying the main skills and translating them with many relevant foreign and Arabic sources and references and special studies By analysis.

The validity of the analysis tool:

means the validity of the method of measurement and the evidence of measuring the subjects and phenomena that the researcher wants to analyze, and draw conclusions that depend on them and then work to generalize them i.e. it seeks

to confirm the validity of the search tool or the tool used in the research and its validity either in the collection of data or the measurement of variables with a high degree of efficiency and accuracy". (Mashhadani, 2017: 129.)

The stability of analysis Reliability

"knows that the results of the analysis will be the same as the re-analysis of the same material and the same tool and style after the appropriate period or the re-analysis of another researcher with the same specifications and conditions and on the sample itself i.e. consistency of analysis overtime time and consistency between analysts by comparing the results"

(Saadi and Mekdad, 2021:136)

Specialists note that consistency in content analysis research depends on two types of agreement:

-Consistency over time: i.e. the analyst gets the same results when applying the same analysis categories to the same content in a different period.

-Agreement or consistency between analysts: The researcher hired two experienced outside analysts* after being trained in how to analyze using the same analytical rules and procedures.

For the calculation of the two types of stability, a sample of the analyzed material was selected representing (20%) Of the total content of (111) i.e. (55) pages. (Abu Al-Nasr, 2018: 168).

Table (2) Analysis Stability Coefficients

0.95%	Between the researcher and herself three weeks later.	Agreement among analysts
0.86%	Between the researcher and the first analyst	
0.85%	Between the researcher and the second analyst	
0.86%	Between the first analyst and the second analyst	

Statistical means

The researchers used the following statistical methods: - the two mathematical methods (repetitions, percentage), (lentils, 2013:16), And Holsti equation: to extract stability between the researcher and the first analyst, researcher and second analyst .

$$C.R = 2M/(N1+N2) \quad (\text{Holsti,1969: 140})$$

Chapter 4: Presentation and interpretation of results

First: View result

After the researchers analyzed the chemistry book for the third middle grade in light of the skills of the 21st century, the results of the analysis reached by the two researchers are now presented, interpreted, and discussed as follows:

View the results of the chemistry book analysis for the third middle-grade Key groups:

The main groups-

The results of the analysis of the content of the chemistry book for the third average of (111) pages with the availability of 21st-century skills in varying proportions in the chemistry book for the third-grade middle grade, the first group (learning and creativity skills) obtained (622) repetitions (94.54%) Digital culture skills, career skills, and life were ranked first with (18) repetitions (2.73%) As illustrated by table (3)

Table (3) Percentages of 21st Century Skills in Chemistry Book for The Third Average

Rank	Percentages	Duplicate	Skills	
The first one	94.53%	622	Learning and creativity skills	1
Second	2.73%	18	Digital culture skills	2
Second	2.73%	18	Career and life skills	3
	100%	658	Total	

The following figure represents the percentages of 21st-century skills in the chemistry book for the third-grade middle grade

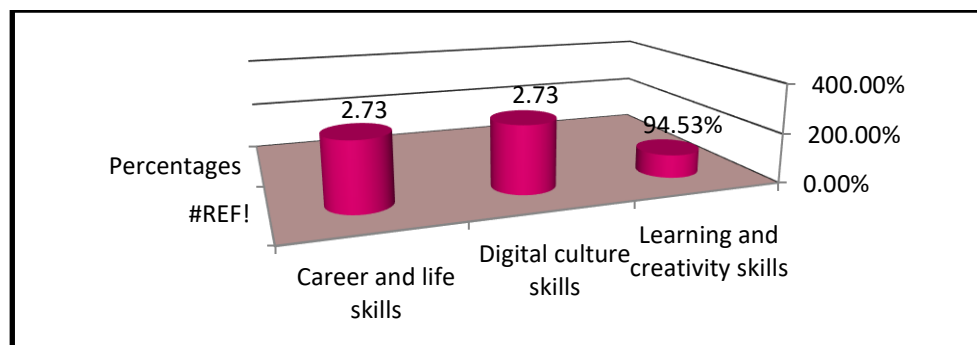


Figure 2 shows that skills ratios vary and some of them are neglected, i.e. the content does not address the skills of the 21st century in an orderly manner, but rather in a scattered and unstructured manner, which affects the learning process because of its importance in the process of the growth of the intellectuals mentally and intellectually. This disparity in skills inclusion ratios in the three books indicated a lack of coordination and integration between its subjects and the lack of the principle of succession and continuity in the organization of the school course, which made each book not complete the previous one (Faraj, 2007: 60).

Conclusions

1-The results indicate the neglect of chemistry books for many keys and sub-skills and their indicators, and this indicates a weakness in the order of the topics of the book, especially the skills of digital culture, which indicates the neglect of the book.

2-The focus has been on communication and sharing skills more than the rest of the skills of the 21st century, which indicates the interest of middle-stage writers in the presentation skills of being able to interpret, verbally express and explain the reasons.

•In light of the research results, the researcher recommends:

1-Specialists and practitioners of different curricula should reconsider the planning of chemistry books to conform to the skills of the 21st century within the outline of the curriculum in Iraq .

2-The need to develop the skills of the 21st-century types of thinking in the curriculum for different stages by inviting specialists to prepare the curriculum for chemistry to benefit from the results reached in the current research in the development of the content of chemistry books and enrich them with the skills of the 21st century.

Propositions proposals

In light of the results of the research, the researcher suggests

In light of the results of the research, the researcher suggests:

-1-Conduct an analytical study of chemistry and other approaches in different stages to know the extent to which they include the skills of the 21st century.

.2-Study the level of awareness of 21st-century skills among teachers, supervisors, and school principals. Conduct a similar study to measure the skills of the 21st century in teachers.

Analysis of preparatory school books according to the skills of the 21st century: .3-

1-Conduct an analytical study of chemistry and other approaches in different stages to know the extent to which they include the skills of the 21st century.

2-Study the level of awareness of 21st-century skills among teachers, supervisors, and school principals. Conduct a similar study to measure the skills of the 21st century in teachers.

3-Analysis of preparatory school books according to the skills of the 21st century

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