

The Degree of Inclusion of Life and Career Skills in the Science Textbook for the 7th grade

Abdallah Nayef Ali Dawaghreh

School of Educational Studies, Universiti Sains Malaysia, Jordanian Ministry of Education

Nor Asniza Ishak

School of Educational Studies, Universiti Sains Malaysia, 11800 USM, Malaysia

Email: asnizaishak@usm.my

To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v14-i1/20493>

DOI:10.6007/IJARBSS/v14-i1/20493

Published Date: 12 January 2024

Abstract

The study aimed to determine the degree of inclusion of life skills in science textbooks for 7th Grades in Jordan. list of life skills required for inclusion in textbooks was determined using descriptive curriculum analysis. The list included (5) as the total number of sub-life skills that should be included in science textbooks. The frequency was found to be (571) times, and its distribution was as follows, Initiative and self-direction (186), sociocultural (181), productivity and accountability (94), flexibility and adaptability (67), leadership and responsibility (43), The recommendation of the two researchers came to reconsider the content of science books for the entire stages of education, especially the 7th grade textbook, and focusing on the inclusion of life and career skills, Holding specialized training courses and workshops for in-service science teachers in career and work skills and how to include them in science curriculum and how to address them while teaching science

Keywords: Life and Career Skills, Content Analysis, Science Textbook, Curriculum Development, The 7th Grade Science Curriculum.

Introduction

Studies from international and regional organizations confirm the need for the integration of Life Skills in School's Curriculum and Teacher Education Programs(UNESCO, 1996; AlSCO, 2004; UNICEF & AlSCO, 2017). The acquisition of life skills, especially in the early stages of learning, is one of the main goals of contemporary education and one of the new tasks of 21st-century schools, where the future of citizens of the world is inseparable from the advancement of education and the development of its task. Life skills are an integral part of the school curriculum and textbooks Ashorofat (2009) since they play an effective and influential role in the students' lives and overcome, the problems may encounter (Wafi, 2009).

The science curriculum and its textbooks are one of the most important educational curricula and textbooks that have to include life skills, due to the diversity of learning areas in science curricula and courses. Life Skills contribute significantly to developing many skills by which the students ensure to move from the stage of verbal education to performing learning (Abu al-Amael, 2013).

The Jordanian Ministry of Education has made great strides in reviewing school curricula in general and textbooks in particular. It has taken procedural steps aiming to develop the content of textbooks for all school grades. Therefore, establishing a National Curriculum Development Center is based on the expected outcome of preparing the students to deal with the requirements of development and modernization by focusing on the acquisition of different skills in general and life and career skills in particular.

Therefore, this study came to investigate the degree of including the life skills required to be part of the science textbook for the 7th Grade.

Operational Definitions

Content Analysis

Al Assaf (2006) defined it as "the systematic iterative monitoring of the chosen unit of analysis, whether it is a word, topic, singular, personality, unit of measurement or time, emphasizing its importance when judging the content of any educational material, as the analysis may be in light of one criterion or several combined criteria". While Berelson defined Content analysis in Stemler (2001: 1) as "a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding."

In this study, content analysis is a descriptive curriculum evaluation technique that aims to find the degree of including Life Skills in the 7th Grade science textbook in Jordan, which includes content components; including text, drawings, activities, and questions. The analysis results will identify the strengths and weaknesses of the curriculum according to 21st Century Skills inclusion standards.

Science textbook

Is the content of the national science curriculum for 7th grade, which was issued by the National Centre for Curriculum Development in 2020, and was approved by the Ministry of Education (Resolution 52/2020), and it includes the student's text book and the work book.

Life and career skills

These are the 21st Century Skills that include flexibility and adaptability skills, initiative and self-direction skills, social and cross-cultural skills, productivity and accountability skills, leadership and responsibility skills

Research Limitation

The study limitations are summarized as follows

Life and career skills: flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, leadership and responsibility)

Analyzing the content of the 7thGrade science textbook, including (scientific content /scientific activities /evaluation instruments /pictures, figures, tables and illustrations).

Research Background

The efforts of Including Life and career Skills in the Curricula

Due to the importance of the 21st Century Skills in preparing the students for jobs and technologies; to be able to fulfil the requirements of the 21st Century, there is an increased global demand to include the 21st Century Skills in the curricula of all subjects in general and in science curriculum in particular. The level of integrating the 21st Century Skills can be by including by including an explicit reference to the 21st Century Skills as a part of the educational vision or mission statement, or as a part them. In addition, the integration may be by including particular 21st Century Skills as a part of the national curriculum or to be taught and learnt at different stages or different disciplines areas (Joynes et al., 2019).

Jordan is a part of this world, so it started curriculum development process. The aim of this process is to review, to evaluate and to develop the curricula framework from kindergarten stage until high school. In addition, to develop textbooks, teaching materials and teachers' training courses according to the newest teaching strategies and with what achieves effective skills acquisitions of all skills needed that enable the students to meet the requirements of this century. Hence, the latest curricula developments started with the math and science curriculum that aimed to include the 21st Century skills in these curricula as a starting point (The National Centre for *Curriculum Development*, n.d).

The Curriculum Development Process in Jordan

The general objectives of education in Jordan emanate from the philosophy of education that aims to create a citizen who is able to acquire skills of using, producing and developing it, and use this technology to serve the society. The National Centre for *Curriculum Development* (NCCD) is responsible for planning, designing and publishing most of the national curricula for most subjects in Jordan (The Hashemite Kingdom of Jordan, Ministry of Education, n.d).

The main priority for the NCCD is to develop the science and mathematics curricula for all stages. The developments aim to enable the Jordanian students to compete with peers and to achieve advanced positions in international tests such as testing the International Trends in the Study of Mathematics and Science (TIMSS), and the Program of International Student Assessment (PISA) (The National Centre for *Curriculum Development* website, n.d).

The 7th Grade Science Curriculum

The latest curriculum development for the 7th Grade science curriculum was in 2020, which was conducted by the NCCD in cooperation with Harper Collins Publications based on the science curriculum general, stage, and grade objectives. The 7th grade science curriculum includes Grade topics that cover the scientific fields; of biology, chemistry, and physics (The National Centre for Curriculum Development, 2019).

Objectives are the major component of the curriculum, by the end of the 7th Grade, the students are expected to be able to accomplish the objectives of the 7th-grade science curriculum.

Life and Career Skills

Life and career skills represent no cognitive skills that have the potential to improve academic achievement, promote postgraduate success, and enhance career readiness (Ball et al., 2016). Life skills can be defined as abilities to deal effectively with the demands and challenges of

life. Others define life skills as behavioural, cognitive, or interpersonal skills that enable individuals to succeed in various areas of life (Hodge, Danish, & Martin, 2013).

In addition, possessing life and career skills give a high value and priority for the employers mastering these skills such as the ability to work on a team and time management (Barton, 2006). Given the numerous benefits, assessing and developing life and career skills among youth is important. Further, the development of these skills happens across different contexts such as schools, afterschool, sports, and youth employment. These contexts represent opportunities for youth to practice 21st century skills, which is critical to 21st century skill development (P21, n.d.; American Association of School Librarians, 2007). Life Skills of the 21st Century Skills include the following skills:

Flexibility and Adaptability

The flexibility and adaptability skills have two essential aspects; adapting to change and being flexible. Adapting to change means that a student is able to “adapt to varied roles and responsibilities. Being adaptable means that you can thrive on change and can manage unexpected events without getting upset (Partnership for 21st Century Skills, 2009).

Flexibility and adaptability skills are extremely important, because if the individual is inflexible and rigid or even narrowly focused this will limit his ability to respond to the changing environment effectively. Furthermore, if the individuals understand their reaction to change and develop their behaviours accordingly they will face changes effectively (Calarco, Gurvis, 2006).

P21 (2008) outlines a number of strategies that can be used to teach students so that after school they will be able to exercise flexibility and adaptability in the workplace. One of the strategies is to teach students how to appreciate feedback and how to respond to it in a positive manner. O’Connor and McDermott in Kivunja (2015) say that feedback loop is a good way to teach student’s flexibility and adaptability that happens in two ways. Firstly, reinforcing feedback loop that students reinforce what they are doing, through finding new and better ways of completing the task as indicated by the feedback. Secondly, by balancing feedback loop at which students see where they were making mistakes and so correct their approach to improve productivity and effectiveness.

Initiative and Self-direction

According to Kivunja (2015) the 21st century students need to be able to initiate or look for ways to help and accomplish tasks without being told to by someone else. They must be ready to take initiative to learn new ideas, concepts, processes, and applications, which raise their efficiency and effectiveness. While Self-direction is the ability to cope with change, and to discover how organizational effectiveness and productivity can be improved.

Furthermore, there are other skills involved in initiative and self-direction skills. The first skill is the ability to set goals, the ability to balance short-term goals (tactical) and long term (strategic) goals, and the third skill is the ability to utilize time and manage workload efficiently (Centre for Career Connections, 2016).

In order to exercise Initiative and self- direction skills effectively, the Framework for 21st century Skills Learning (2009) stated that the student has to be able to set goals with tangible and intangible success criteria, to balance short-term and long-term goals and to utilize time and manage workload efficiently. Furthermore, students need to be able to work independently, to go beyond basic mastery of skills and/or curriculum to explore and expand one’s own learning and opportunities to gain expertise, to demonstrate commitment to

learning as a lifelong process and to reflect critically on previous experiences in order to inform future progress

The Framework for 21st century Skills Learning (2011) outlines three strategies, which can be used to teach students initiative and self-direction skills. Those strategies involve teaching students how to manage goals and time, how to work independently; and how to be self-directed learners.

Social and cross-cultural skills

Kivunja (2015) Social and cross-cultural skills means to have the ability to understand, communicate, and effectively interact with people across cultures. Kivunja (2015) added that to success in the 21st century requires students to be able to interact effectively with people come in contact with, and to work effectively in diverse teams, not only in their own school or physical workplace, but also in the virtual community of the Digital Economy.

Social and cross- cultural skills with others involve the ability to interact effectively with others, which means to know when is the appropriate time to speak or listen, and the ability to behave in a respectable and professional manner. They also involve the ability to work effectively in diverse teams, which means respect cultural differences and work effectively with people from a range of social and cultural, respond open-mindedly to different ideas and values, and finally to benefit from social and cultural differences to increase innovation (Centre for Career Connections, 2016).

In order to exercise Social and cross-cultural skills effectively, the Framework for 21st century Skills Learning (2009) stated that the student has to be able to interact effectively with others, to know when it is appropriate to listen and when to speak, to present themselves in a respectable, professional manner. In addition, students need to be learned how to respect cultural differences and work effectively with people from a range of social and cultural backgrounds, how to respond open-mindedly to different ideas and values and how to benefit social and cultural differences to create new ideas and increase both innovation and quality of work.

Productivity and Accountability

The 21st century skills of productivity and accountability focus on three interrelated elements, namely, efficiency, effectiveness and high quality goods and service as stated by (Trilling and Fadel, 2009). Being productive means being able to produce a something of a certain quality with a given timeframe. Accountability is how we are assessed on our productivity; people are held accountable for the actions they take to complete a task (Kivunja, 2015).

Centre for Career Connections (2016) stated that mastering productivity and accountability skills effectively involves two main skills, which are the ability to manage projects and to produce results. The ability to manage projects is the ability to set and meet goals despite the obstacles and competing pressure, furthermore, to prioritize, plan and manage work to achieve the desired goals. While the ability to produce results indicates working positively and ethically, participate actively, collaborate effectively with teams with respect to the team diversity and finally to be accountable for results.

If students learn Productivity and accountability skills, they will become good at managing projects that are in high demand in the 21st century Information Economy. The students need to learn how to prioritize the tasks they are required to complete, how to plan well and to allocate and manage time according to the demand imposed by the task to be completed

(Kivunja, 2015). While the Partnership for 21st Century Skills (2009) added, that students must be able work positively and ethically, as well as be reliable. Students need to be able to collaborate and cooperate effectively with teams.

Leadership and responsibility

It is difficult to appreciate the leadership skills required in the 21st century, the difficulties arise mainly because it is a slippery concept that has eluded precise definition over many generations. Bernard Bass illustrated that in (Kivunja, 2015: 9) by saying: "There are almost as many different definitions of leadership as there are persons who have attempted to define the concept. ... Moreover, many of the definitions are ambiguous".

Bernard Bass added in (Kivunja, 2015: 9) that many scholars that have offered a definition of leadership is that "leadership is a matter of personality; it is the ability to induce compliance by followers, the exercise of influence, a form of persuasion, an instrument to achieve goals, an effect on interactions among people".

Leadership and responsibility skills include guiding and leading others through using interpersonal and problem-solving skills, utilizing from the strength of others to achieve the desired goals, and demonstrating integrity and ethical behaviour in using influence and authority. In addition, they include being responsible to others by acting the responsibility parallel with the interest of the wider community (Centre for Career Connections, 2016).

Leadership involves a high level of interpersonal problem-solving skills that can be applied to influence the behaviors and actions of others. Therefore, students must learn and exercise skills that include the ability to persuade, guide and lead others. Furthermore, students need to learn being able to inspire others to excel at their personal bests and to be able to demonstrate integrity and ethical behavior in using influence and power, to be able respect and appreciate team diversity beside being accountable for results (Framework for 21st century Skills Learning, 2009).

Aims and Research Questions

The ministries of education and the educational organization are responsible for determining what the students in both schools and universities need to learn to be a successful generation. This responsibility depends mainly on the skills and knowledge required after the student graduates. Accordingly, trials to predict the students' future needs became a necessity. Many studies were conducted, in the Arab world, to investigate the degree of the inclusion of the skills needed in the 21st century in general, and the inclusion of Life and career skills in particular.

These studies indicated that the inclusion of the 21st Century Skills did not reach the desired degree required and that the current curricula suffer from a clear shortcoming in preparing learners for life and work in the twenty-first century. For example the studies of, (Al- Omari, 2020; AL-Eid, 2019; Hajja, 2018; Younis, 2016; Hassan, 2015; Shalabi, 2014).

Hence, the low degree of the 21st Century Skills inclusion in the curricula in general and in the science curriculum, in particular, led to a low skills acquisition by the students for all types of skills; learning and innovation, Information, media & technology skills and life and career skills.

The studies of al-Mansour (2018); Al-Omari (2020) indicated the low inclusion of the 21st Century Skills in science curricula in Jordan for the 5th, 6th, 7th and 10th grades. Therefore, the results of these studies revealed that the degree of the student's acquisition of 21st

Century Skills was low and recommended developing the science curriculum in Jordan according to the 21st Century Skills.

Therefore, the researchers believe that it is necessary to determine whether the weakness of students in mastering the skills of the century in general and life and professional skills in particular, is due to weakness in the process of developing the science curriculum, especially the textbook, or due to other factors such as the teacher or infrastructure. Therefore, the researcher will use the content analysis technique of the science textbook for Grade 7 in light of the skills of the 21st century; the researcher will convert qualitative data into quantitative data (Luo, 2018).

Research Questions

This research aims to the following questions

What are the most important life and career skills that should be included in the science textbook for 7th Grade in Jordan?

What is the extent to which the content of the science textbook for 7th Grade in Jordan includes life and career skills suitable for students of this stage?

Methods and Materials

After reviewing the literature review and previous studies related to the subject of the study, the quantitative data were collected.

Content Analysis

The quantitative data was collected by the 7th Grade science textbook content analysis, the analysis aims to identify the extent to which the content of the science textbook for the 7th Grade in Jordan included the needed life and career skills for students of this stage.

Validity and Reliability Analysis

The study instrument, content analysis card, was prepared in its initial form based on the theoretical literature, previous studies and its findings on the life skills necessary for middle school students in general and the seventh grade in particular, which enable them to be able to deal with life situations effectively and skilfully. A number of opinions were also polled

The teaching staff at the universities, a number of curriculum developers and authors, in addition to a number of educational supervisors of scientific subjects at the Ministry of education and to ensure the authenticity of the instrument, it was presented to a number of experienced arbitrators, where most of the proposed arbitrators' amendments were adopted.

Instrument Stability

The stability of the analysis through the use of the analysis mechanism for the content of books was verified by the two researchers by analyzing a random sample of book units. Two units were randomly selected from (10) units of Target Books for the study sample, and the analysis was repeated after two weeks and the agreement rate between the first and second analysis was calculated, which amounted to (89%). This coefficient of stability is high and quite acceptable for the purposes of conducting the study. By checking the truthfulness and stability of the study tool, the tool (content analysis card) has stabilized in its final form.

Results

Study Results and Discussion

1st : The results of the first question and its discussion

What are Life and career skills are supposed to be included in the developed science textbooks?

To answer this question, a list of Life and career skills has been prepared that are proposed to be included in science textbooks for the seventh grade (Study instrument) Table (1)

Table (1)

list of Life and career skills has been prepared that are proposed to be included in science textbooks

Main skill	Sub-skill	Indications
Life and Career Skills	Flexibility and Adaptability	Develops the learner's adaptation to diverse roles and responsibilities
		Directs the learner to invest feedback effectively
		The content directs the learner to accept success and failure
		The content includes a number of different perspectives
		Develops the learner's adaptation to diverse roles and responsibilities
	Initiative and Self-Direction	Content motivates learner to self-questioning
		The content directs learner to perform tasks without direct supervision
		Gives an opportunity to go beyond curriculum requirements to explore and expand personal learning
		The content directs learner towards the continuous learning process
		The content develops the process of building new knowledge based on past experiences
		The content directs learner to the self-evaluation process
	Social and Cross-Cultural Skills	The content illustrates the different roles needed from learner
		The content develops interest in different opinions, observations, experiences and perspectives
		The content encourages community participation according to specific standards.
		The content contributes to the use of science in solving societal problems.
		The content directs learner to work effectively in diverse teams that respect cultural differences
	Productivity and Accountability	Includes learning situations with complex projects
		content includes projects with multiple goals
		Directs to manage projects efficiently

		The content directs learner to suggestions that will increase productivity
		content focuses on the importance of time and managing it effectively
	Leadership and Responsibility	Develops a sense of responsibility and bearing results
		The content directs learners to lead work teams in the right way.
		The content directs learners to use personal persuasion skills
		Ensures the leader's ethics and responsibility
		The content directs learners to benefit from the opinions of others in the serving common goals.

2nd : The results of the second question and its discussion

To what extent are Life and career skills included in the science textbooks developed for the seventh grade in Jordan

To answer this question, the book of science course two parts (I and II) was analyzed, and the extraction of Life and career skills

And classify them according to the main skill they include and indicate their repetitions, add these repetitions and extract their percentages as shown in Table (2)

Table (2)

Repetitions and percentages of Life and Career Skills indicators

Main skill I	Sub-skill II	Indications	1 st semester		2 nd semester		Total indicators	
			Repetition	ratio	Repetition	ratio	Repetition	ratio
Life and Career Skills	Flexibility and Adaptability	Develops the learner's adaptation to diverse roles and responsibilities	9	24 %	6	21 %	15	22 %
		Directs the learner to invest feedback effectively	8	21 %	5	17 %	13	19 %
		The content directs the learner to accept success and failure	5	13 %	3	10 %	8	12 %
		The content includes a number of different perspectives	9	24 %	6	21 %	15	22 %
		Develops the learner's adaptation to diverse roles and responsibilities	7	18 %	9	31 %	16	24 %
		Total sub-skill indicators	38	100 %	29	100 %	67	100 %
		The ratio of sub-skill indicators from the main skill	12%		12%		12%	

<i>Initiative and Self-Direction</i>	Content motivates learner to self-questioning	23	21 %	26	33 %	49	26 %
	The content directs learner to perform tasks without direct supervision	17	16 %	8	10 %	25	13 %
	Gives an opportunity to go beyond curriculum requirements to explore and expand personal learning	11	10 %	7	9%	18	10 %
	The content directs learner towards the continuous learning process	10	9%	5	6%	15	8%
	The content develops the process of building new knowledge based on past experiences	19	18 %	17	22 %	36	19 %
	The content directs learner to the self-evaluation process	28	26 %	15	19 %	43	23 %
	Total sub-skill indicators	108	100 %	78	100 %	186	100 %
	The ratio of sub-skill indicators from the main skill	34%		31%		33%	
<i>Social and Cross-Cultural Skills</i>	The content illustrates the different roles needed from learner	27	28 %	23	28 %	50	28 %
	The content develops interest in different opinions, observations, experiences and perspectives	33	34 %	33	40 %	66	36 %
	The content encourages community participation according to specific standards.	14	14 %	10	12 %	24	13 %
	The content contributes to the use of science in solving societal problems.	19	19 %	14	17 %	33	18 %
	The content directs learner to work effectively in diverse teams that respect cultural differences	5	5%	3	4%	8	4%
	Total sub-skill indicators	98	100 %	83	100 %	181	100 %
	The ratio of sub-skill indicators from the main skill	31%		33%		32%	

<i>Productivity and Accountability</i>	Includes learning situations with complex projects	8	15 %	5	13 %	13	14 %
	content includes projects with multiple goals	10	19 %	7	18 %	17	18 %
	Directs to manage projects efficiently	6	11 %	4	10 %	10	11 %
	The content directs learner to suggestions that will increase productivity	11	20 %	8	20 %	19	20 %
	content focuses on the importance of time and managing it effectively	19	35 %	16	40 %	35	37 %
	Total sub-skill indicators	54	100 %	40	100 %	94	100 %
	The ratio of sub-skill indicators from the main skill	17%		16%		16%	
<i>Leadership and Responsibility</i>	Develops a sense of responsibility and bearing results	7	33 %	8	36 %	15	35 %
	The content directs learners to lead work teams in the right way.	0	0%	1	5%	1	2%
	The content directs learners to use personal persuasion skills	9	43 %	7	32 %	16	37 %
	Ensures the leader's ethics and responsibility	3	14 %	5	23 %	8	19 %
	The content directs learners to benefit from the opinions of others in the serving common goals.	2	10 %	1	5%	3	7%
	Total sub-skill indicators	21	100 %	22	100 %	43	100 %
	The ratio of sub-skill indicators from the main skill	7%		9%		8%	
	The sum of the main skill indicators	319		252		571	

Table (2) shows the repetitions of the indicators achieved in Life and Career Skills and for each of the five sub-skills,(Flexibility and adaptability skills, Initiative and self-direction skills, Social and cross-cultural skills , Productivity and accountability skills; and, Leadership and responsibility skills)

As well as the percentage of each of them from the sum of the aggregate indicators in the analysis model.

Table (2) shows the total number of repetitions of indicators in the two semesters of the science textbook for the two semesters, where the total number of repetitions in the first semester was (319) times while the repetitions in the second semester were (252) times, and a total of (571) times.

The repetitions of each sub-skill were as follows : Flexibility and adaptability skills (67) times and by an amount of 12%, Initiative and self-direction skills had a number of repetitions of (186) times and by 33%, the social and cross-cultural skills sub-skill came with a number of repetitions of (181) times and by an amount of 32%, as for the productivity and accountability skills were repeated (94) times and by 16%, and finally the leadership and responsibility skills skill was repeated (43) times and by 8% .

Based on these data, we note that the order of the sub-skill according to the repetition rates of its indicators in the book was as in Table No. 3

Table (3)

Order of the sub-skill according to the repetition rates of its indicators

<i>Sub- skill</i>	<i>arrangement</i>	<i>ratio</i>
Initiative and Self-Direction	1 st	%33
Social and Cross-Cultural	2 nd	%32
Productivity and accountability	3 rd	%16
Flexibility and adaptability	4 th	%12
Leadership and responsibility	5 th	%8

The pie chart represent **figure (1)** the ratio of the life and career skills included in the 7th Grade science textbook. Both the social and cross-cultural skills and the initiative and direction skills had the highest rate of inclusion. On the other hand, the flexibility and adaptability skills got the lowest rate.

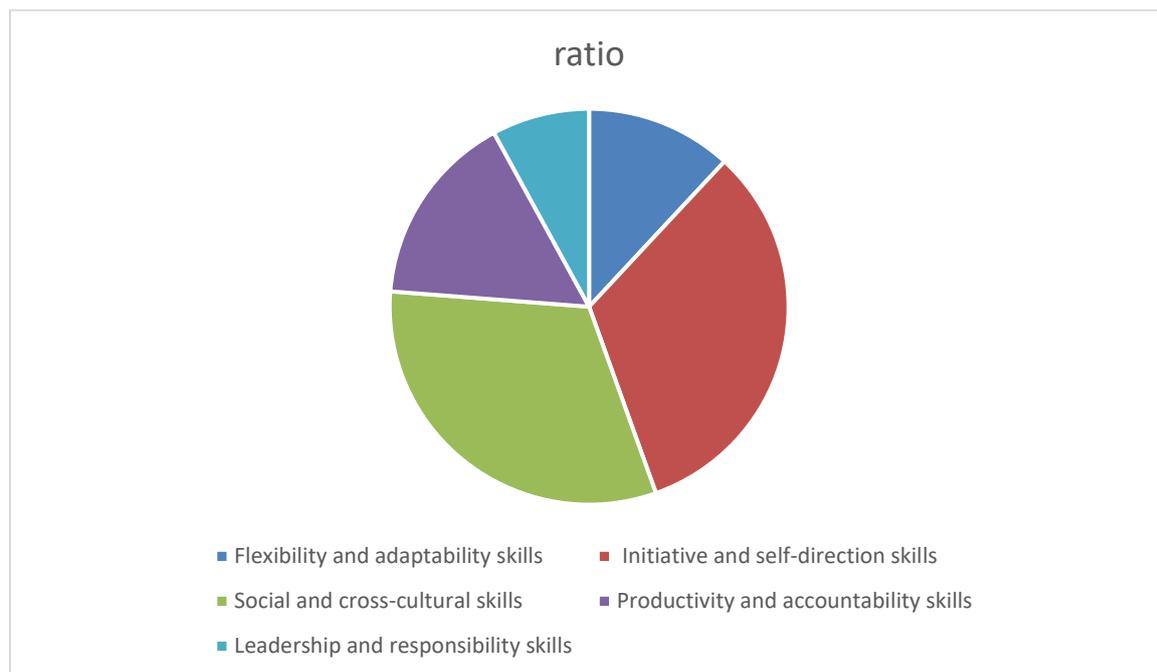


Figure (1) The ratio of life and professional skills included in the Grade 7 science textbook

Discussion

The analysis of the results indicates a discrepancy in the extent of inclusion of sub-skills from the main life and professional skills, as we note a weakness and a decrease in the inclusion of the science textbook for the seventh grade of life and professional skills in general.

The fact of integrating skills into the content of the science textbook for the 7th Grade indicates shortcomings, in addition to the skills contained in the content are superficial, because they were mostly mentioned by mentioning the activity or skill without going in depth, as well as the scarcity of calendar activities to measure.

Initiative and self-direction came first in terms of skills. The sub-branch has a saturation repetition rate (33%) and a high degree of comprehensiveness and achievement with a repetition of 186 times. This came to achieve the most important goals of Science Education based on building the student's personality and making the student proactive through activities, conducting experiments and solving tasks in the book. It seems that the developing of the textbook recommended this goal, as stated in the National Centre for Curriculum Development. In addition, this ratio is close to the ratio of the social and multicultural sub-skill and for the same explanation, as the researchers saw that the writers repeatedly incorporated this skill through teamwork of activities, discussion of answers and acceptance of the other, exposure to some social issues and their solutions through presentation and discussion of points of view.

As for the rest of the sub-skills, the results revealed the weakness in their inclusion, as the percentage of repetition of the productivity and accountability skills reached 16%, the researchers attribute the this low percentage to the lack of skills and experience of the curriculum authors in integrating such skills. Moreover, it may be due to the topics included in the 7th Grade science textbook, these topics do not have suitable activities that may increase the inclusion the productivity and accountability skill. Furthermore, thus result may be due to weak infrastructure in the public schools in Jordan.

For flexibility, adaptability, leadership and responsibility skills. The researchers believe that the reason for these low percentages is that skills are new and need more experienced and qualified specialists in Curriculum Planning and design compared to other skills. This leads to the difficulties that prevent flexibility, adaptability, leadership and responsibility skills from being clearly included in the 7th Grade science textbooks, as well as the difficulty of including activities based on personal responsibility at this age stage. This is what Al-Omari (2020), Hajjah (2018) and Shalabi (2014) agreed upon on; hence, all pointed to a clear decrease in the inclusion of life and professional skills in textbooks that it underwent analysis.

Researchers also believe that the novelty of some skills such as flexibility, adaptability, leadership and responsibility, which are considered the great need for these skills for the teacher and student to carry out their activities, which are often not widely available in the textbooks, as most activities are either individual or group participatory, but without feedback in order to develop those skills.

Recommendations/Future Directions

The researchers recommend the following in light of the results of the study:

* Reconsidering the content of science books for the entire stages of education, especially the 7th Grade textbook, in terms of addressing and including job and work skills, and focusing on the inclusion of life and career skills, including leadership and responsibility skills, productivity and accountability, Initiative and self-orientation.

* The Ministry of Education have to set the standards for building science curriculum at different educational stages in order to include the skills of the profession and the job in a scientific, systematic and intentional manner in order to achieve the principles of integration and continuity.

* The Ministry of Education with the cooperation with the curriculum design and development officials need to develop the mechanisms of including Life and Career Skills in all school subjects textbooks in general, and in science textbooks in particular to unify the efforts and the work.

* Holding specialized training courses and workshops for in-service science teachers in career and work skills and how to include them in science curriculum and how to address them while teaching science.

Life and career skills are essential to prepare the students to be engaged as citizens in the dynamic global community in order to deal with the challenges and opportunities effectively. This study contributed by its both theoretical and practical sides by the results it has revealed. These results could guide the curriculum developer in general, and the science curriculum developers in particular by examining the degree of including the life and Career Skills as one of the important skills in twenty first century for the middle school stage. Furthermore, this study could help the researchers in the field of curriculum for other subject as well as for other school stages by the theoretical framework that was included in this study.

References

- Abu al-hamael, A. (2013). The effectiveness of an enrichment program in science to develop life skills among sixth grade students in Jeddah governorate. *Journal of the Faculty of Education, Benha University*, 93.
- Al-Eid, S. I. (2019). Analyzing the content of technology books for the basic stage in light of the twenty-first century skills, and the extent to which tenth grade students have acquired them, an unpublished Master's thesis, College of Education, Islamic University, Gaza.
- AlMansor, A. (2018). Inclusion of 21st century skills in the content of science text books at the basic education stage in Jordan (PhD. Dissertation, Aal-Al Bayt University, Jordan.
- Al-Omari, W. (2020). Embedding the 21st century skills in physics text books for the higher basic stage in Jordan: an analytical study. *Jordan Journal of the Educational Sciences*. <https://journals.yu.edu.jo/jjes/Issues/2020/Vol16No4/4.html>
- Al-shurofat, M. (2009). The extent to which science textbooks for the lower basic grades contain life skills. Master's thesis in teaching methods. Al-Bayt University, Mafraq, Jordan.
- American Association of School Librarians. (2007). Standards for the 21st century learner. <https://www.epsnj.org/site/handlers/filedownload.ashx?moduleinstanceid=7770&dataid=32216&FileName=AASL%2021ST%20C%20learner.Pdf>
- Ball, A., Joyce, H., Butcher, D. (2016) Exploring 21st century skills and learning environments for middle school youth. *International Journal of School Social Work*, 1(1), 1-15.
- Barton, P. (2006). High school reform and work: Facing labor market realities. <http://files.eric.ed.gov/fulltext/ED492034.pdf>

- Calarco, A., Gurvis, J. (2006). Adaptability responding effectively to change. Centre For Creative Leadership, North Carolina.
- Centre for Career Connections. (2016). Life and career skills. https://www2.bellevuecollege.edu/careerpath/life_skills.html
- Hajjah, H. R. (2018). The extent to which science books include the upper elementary stage of the twenty-first century skills. *studies Educational Sciences, University of Jordan - Deanship of Scientific Research, Arabic*. 45, No. 3, p. 163-178.
- Hassan, S. M. (2015). The Development of the Mathematics Curriculum for the Sixth Grade in the Light of the Skills of the Twenty-first Century, *Journal of the Faculty of Education, Port Said University*, 18, 297-345.
- Hodge, K., Danish, S., & Martin, J. (2013). Developing a conceptual framework for life skills interventions. *The Counseling Psychologist*, 41(8), 1125-1152.
- Joynes, C., Rossignoli, S., & Fenyiwa Amonoo-Kuofi, E. (2019). 21st century skills: evidence of issues in definition, demand and delivery for development contexts (K4D Helpdesk Report). Institute of Development Studies. Brighton, UK.
- Kivunja, C. (2015). Teaching students to learn and to work well with 21st century skills: unpacking the career and life skills domain of the new learning paradigm. *International Journal of Higher Education*, 4(1). <http://dx.doi.org/10.5430/ijhe.v4n1p1>
- Luo, A. (2018). What is content analysis and how can you use it in your research. <https://www.scribbr.com/methodology/content-analysis/>
- Partnership for 21st Century Skills (2009). *P21 Framework Definitions*. <https://files.eric.ed.gov/fulltext/ED519462.pdf>
- Partnership for 21st Century Skills. (2008). Partnership for 21st Century Skills (P21). Moving Education Forward. www.21stcenturyskills.org/documents/p21_brochure_final14.pdf.
- Shalaby, N. (2014). A proposed framework for integrating 21st century skills in science curricula with basic education in Egypt. *International Journal of Educational Specialization*.
- Stemler, S. (2001). An overview of content analysis. *Practical Assessment, Research & Evaluation*, 7(17). e: <http://PAREonline.net/getvn.asp?v=7&n=17>.
- The National Centre for Curriculum Development, (2019). The science curricula framework, standards and indicators from kindergarten to twelfth grade. http://nccd.gov.jo/?page_id=257
- The National Centre for Curriculum Development, (n.d). Center's Current Priorities http://nccd.gov.jo/?page_id=257
- Trilling, B., & Fadel, C. (2009). *21st century skills: Learning for life in our times*. Jossey-Bass, San Francisco, CA.
- Wafi, A. (2009). Life skills and their relationship to multiple intelligences among high school students in the Gaza Strip. Master's thesis. Islamic University, Palestine, Gaza.
- Younis, I. S. (2016). Evaluating the geography curriculum in the general secondary stage in light of the twenty-first century skills, *Journal of the Educational Association for Social Studies, Ain Shams University - Faculty of Education, Cairo*, No. 76, pp. 63-92.