The Skill Development of 21st Century Teachers on the Basis of Applying the Concepts of Instructional Design Skills

Mervat Babair
Princess Nourah Bint Abdulrahman University

This study aims to investigate the skill development of 21st century teachers on the basis of applying the concepts of instructional design skills. It also aims to identify the instructional design skills of teachers of the 21 st century, as well as to know the skills that teachers of the future should possess. Moreover, it is an attempt to identify the most important challenges facing the teacher in the twenty-first century. For data collection, the researcher designed a questionnaire to be distributed on 20 curriculum experts. The study followed the descriptive approach to analyze, interpret and describe the results of the study. The results showed that there is awareness of the 21st century skills and the methods compatible with instructional design. However, there are certain challenges facing teachers in the 21st century. The study concluded that it is necessity to provide teacher guides and training programs on how to develop and measure 21st century skills.

Keywords: instructional design, 21st century teachers, 21st century skills, skill development, instructional design skills

INTRODUCTION

The current era is characterized by rapid change and tremendous development in the field of information science and technology. In this context, the demand for instructional design jobs is increasing as many experts in the field of education are turning to technology to create meaningful educational and training content. In the past several years, training has shifted from classroom training sessions to fully interactive online training modules, delivered through cloud-based learning management systems. It is no longer "good enough" to have a basic understanding of learning theory to gain a career in instructional design as today's professionals need to be able to apply learning best practices to technology tools that create great content for the end user. Based on the tremendous progress of technology, the traditional tools that trainers are accustomed to in the classroom and training halls have become completely different concerning their capabilities. Moreover, their integration has become a basis to provide a huge number of possibilities and capabilities that were not available before.

The tremendous development in all fields makes the need for researchers in the educational field to continue to search for new educational methods that are commensurate with the features of this development and help students to learn soundly and contribute significantly to the development of their practical skills in the field of educational technology. No one can ignore the great role played by the Internet in the educational field and how it changed educational concepts and added many new terms to the educational dictionary by adding the latest educational programs to web pages (Garrison, 2006)**.**

Quality in education is the necessary, effective and driving force for the educational system in order to achieve its goals and deliver its message entrusted to it by society and all parties that have a relationship with education (Al-Wurthan, 2005).

PROBLEM STATEMENT

Education is an intentional process of arranging and organizing educational events in a systematic manner until the desired change in the learner's behavior occurs. This indicates the importance of education being designed and a system that aims at creating learning. It follows that the teacher should be a designer, not a prompter (Abdel Moneim, 1989). The problem lies in good planning of the educational lesson, which begins with analyzing the characteristics of the learners, such as knowing their ages, their academic levels, the extent of the nature of the social, economic and cultural life of the learners in addition to the learner's gender, knowing the level of experiences that the learner possesses, and his previous experiences and self-skills that distinguish him from other educated people. Learning styles through which the teacher attempts, using famous learning methods and theories, to convey educational experience easily and in a simplified manner to, must be identified. The importance of learning lies in the fact that a person acquires many patterns of behavior as a result of his interaction and contact with the surrounding environment. Therefore, the current study attempts to answer the following main question:

How can the impact of including instructional design skills in the skills of teachers of the twenty-first century be measured?

The following sub-questions emerge:
1- What are the skills that a teacher needs to develop?
2- What learning methods are compatible with instructional design skills?
3- What are the difficulties and challenges facing the teacher in the twenty-first century?

OBJECTIVES

The current study aims to:
1. Identify the skills that need to be developed by the teacher.
2. Identify learning methods that are compatible with instructional design skills.
3. Know the difficulties and challenges facing the teacher in the twenty-first century

SIGNIFICANCE OF THE STUDY

The Theoretical Significance

The previous studies on the instructional design skills have strongly recommended that teachers in the twenty-first century should develop these skills and give them much importance. Therefore, the present study will add an important title to the international library since it comes as a response to the efforts made by scholars in this regard.

The Practical Significance

Practically, this study aims to achieve the inclusion of instructional design skills which will be reflected in the preparation of twenty-first century teachers. It ultimately helps in improving their performance. Moreover, this study draws the attention of all those responsible for scientific education and teachers to the importance of these skills.

METHODOLOGY

This study follows the descriptive approach which is used to describe and analyze the study data. The researcher designs a questionnaire which includes three parts. The first part aims to know the participants' knowledge of the 21st century skills, the second part seeks to know the participants' knowledge of the

methods compatible with instructional design, while the third part aims to know the challenges facing the 21st century teacher.

Population of the Study
The study population includes curriculum experts in Saudi Arabia for the year 1441-1442.

Sample of the Study
The study sample included 48 curriculum experts as a random sample to represent the field study population.

The Limits of the Study
Topic
This study is limited to examining the true meaning of instructional design skills that can be added to the skills of teachers in the twenty-first century.

Place
This research is limited to the specific geographical scope of the field study in the Kingdom of Saudi Arabia.

Time
This research was carried out in the first semester of the academic year 1441 AH / 1442 AH.

PREVIOUS STUDIES

Studies Related to Instructional Design
Al-Taie and Al-Silifani (2014)
This study aimed to find out the effectiveness of designing an educational-learning program according to the "Gerlach and Ely" model in the eleventh preparatory grade students' acquisition of temporal concepts in the subject of history, and developing their habits of mind and historical empathy. The researcher formulated three hypotheses to verify this. Moreover, the researcher relied on the design of equivalent groups, the first of which was a group that was studied according to an educational-learning design according to the "Gerlach and Ely" model, while the second group was a control group that was studied according to the usual method. The research sample was selected from the Directorate of Education in Dohuk in (2012) and included students from the eleventh grade (Art Section) in preparatory schools for males**.**The research sample included 51 students from two middle schools who were intentionally selected from among the schools in the original study population. The experimental and control groups were randomly distributed, as (Rabad) School represented the experimental group with (25) students, and (Khunas) School represented the control group with (26) students. The results of the research showed that the group that studied using an instructional-learning design according to the "Gerlach and Ely" model showed a marked superiority over the group that studied in the traditional way in terms of acquiring temporal concepts. The same group also excelled in acquiring habits of mind and historical empathy**.**

Al-Jeriwi (2018)
The study aimed to know the effectiveness of a training program based on educational design using electronic information sources and the production of training workshop. The study sample included the total study population; 52 female students of Princess Nourah Bint Abdul Rahman University, during the academic year 1437/1438 AH. The training program was used by female students at the university. The research tools included a cognitive test and a note card. The results showed that there were statistically significant differences at the level (0.01) between the mean scores of the study sample members in the pre and post measurements in the cognitive test. Differences were also observed in the performance note cards in the design of the training workshops. The differences were in favor of the post measurement. The

program achieved effectiveness with a gain ratio greater than 2.1 according to Black's equation, as it was noted that it was effective in stimulating positive learning and providing the students with an opportunity for constructive dialogue and discussion by exchanging experiences among them.

Studies Related to the Skills of the Twenty-First Century

Al-Ghamdi and Al-Qahtani (2016)

According to the framework of successful learning for the twenty-first century, the study aimed to evaluate the performance of mathematics teaching among primary school teachers. A proposed concept for its development has been presented. In order for this study to achieve its objectives, the descriptive analytical approach was used, and a note card, that was built in the light of the successful learning framework of a partnership organization for twenty-first century skills, was applied after verifying its validity and reliability on a multi-stage cluster random sample consisting of 131 teachers in Riyadh.The results of the study showed that the average performance level of the study sample in the light of the skills of the successful learning framework for the twenty-first century was (2.44) out of (4), and it was achieved to a weak level. These skills were arranged in descending order according to the degree of their achievement as follows: the skill of learning and innovation with an arithmetic mean (2.63) out of (4) and achieved at a medium degree, and the skill of life and adaptation with an arithmetic mean (2.54) out of (4) and achieved with a medium score, information, science and technology skills with an arithmetic mean (2.16) out of (4) and achieved a weak degree.

Al-Omari (2019)

The study aimed to find out the role of female educational supervisors in developing higher-order thinking skills in the light of Vision 2030. The descriptive analytical approach was used. A questionnaire was designed to collect data, and the study sample consisted of (160) primary grade teachers. After the statistical processing, the results of the study showed that there is a role for supervisors in developing higher-order thinking skills, as the skills (life skills management, student capacity management, strengthening the knowledge economy, educational technology management) came to a (medium) degree of application, and the skills (educational arts management, management of evaluation systems) with a (large) degree of applicability.

THE THEORETICAL FRAMEWORK

The Concept of Instructional Design

The term instructional design contains two concepts: design, and instruction (teaching), and they are detailed as follows:

Design

It is "a science that describes the procedures necessary to achieve specific educational goals that organize, analyze, develop, implement and evaluate education" (Mustafa, 2006).

Instruction

"It is a selective, educational social process that aims at the growth of the learner and responding to his desires, characteristics and learning methods. The interaction in this process is for all the elements that are concerned with the educational process: administrators, supervisors, teachers and students, using procedures that are commensurate with his ability and capabilities." (Al-Hilah, 2003).

What Is Instructional Design?

Instructional design as a process is a systematic method for developing educational specifications using teaching and learning theories that ensure quality education. It is an introductory process of analyzing learning needs and objectives and developing a delivery system to meet those need. As a system, instructional design, in light of the interest in theory and research in educational strategies, and how to

develop and apply them, is one of the branches of knowledge. Furthermore, instructional design as a science is a science that defines the basic characteristics of development, implementation, evaluation, and monitoring of situations that facilitate learning—at all levels of thinking—for both large and small subject units. In fact, instructional design can begin at any point during the design process. It often clarifies the ideas that build to the core of the educational situation, and the input process allows the designer to follow all parts of the process of learning the scientific material and build processes that achieve all goals.

As a field of study, instructional design is the scientific knowledge building that helps – in some way – to achieve the educational process and its required outcomes through its interest in research and theories of the detailed specifications and events of education and its sources, its innovation, construction, evaluation, and preservation (Al-Feki, 2010).

Therefore, instructional design has multiple definitions. Some consider it a systemic approach to producing and planning effective educational materials, and others consider it a systemic approach in which planning, development, evaluation and management of the educational process are effectively carried out, while others call it a process through which the learning process is determined. (Shehata, 2011).

The Importance of Instructional Design

Instructional design aims mainly to link theoretical ideas and principles with the applied scientific field, as it is the science that is the link between those theories and applications. It also seeks to organize the contents of the educational process, control its operations, and achieve its objectives, as the components of the educational process are viewed as an integrated whole. And because education is a system that includes interacting and overlapping components, it must be addressed through the systems approach to education, which is instructional design processes.

Moreover, instructional design seeks to bring about development and comprehensive systemic change for education, and it is not only concerned about changing its parts, because there is interdependence between the components that are included in the education system. (Salem, 2004).In the context of talking about educational institutions, instructional design contributes to developing the capabilities of teachers through preparation programs for teachers and professional trainers so that radical changes are brought about and the systems approach is applied. It also helps students and teachers to learn and experiment without fear or hesitation of making mistakes. In a similar context, course management systems have a positive impact on instructional design practices in terms of enhancing educational decisions and providing opportunities for different learning activities (Vannoy, 2008).

Skills of Teachers of the Twenty-First Century

An important development issue on which societies depend for their progress and their ability to face many accelerating challenges is the subject of preparing teachers for the twenty-first century. In this context, global societies face great challenges, and it is difficult for many future research and studies to anticipate their size and impact. Therefore, we need to keep pace with the global developments that are taking place and we need to join the race of developed countries because the challenges we face in the Arab countries are more profound and complex. The only way to do that is to build the Arab citizen so that he becomes the creative person capable of innovation, development and renewal. When we talk about the great task of the educational system in preparing individuals for a knowledge society, we find that the basis of any educational system in the world is public education, and educational institutions represent the main element in any educational system (Khamis, 2018).

The education that shapes the minds of learners and directs their interests is public education. Rather, it is what motivates them to inspire, as it proves the strong bases for moving towards a knowledge society. This is a measure of how much education can be improved if it can be the first product of knowledge. Therefore, we can say that our educational institutions are the ones who decide our future, so we would not be exaggerating when saying that if we can develop and improve educational systems – in particular – we can then build the knowledge society (Khamis, 2018).

The Importance of Acquiring Twenty-First Century Skills

The shift from an industrial economy to a knowledge economy (based on the developments of information, communication and media technology) requires different sets of requirements and skills that individuals must acquire through education systems, and which must keep pace with these developments and challenges. Therefore, those responsible for education must formulate education systems within this situation to be able to provide students with skills that not only enable them to acquire knowledge, but also give them the ability to produce knowledge and apply it in different aspects of life (Al-Saeed and Al-Madi).

The importance of the twenty-first century skills lies in the fact that they enable the learner to learn and achieve in higher-level subjects. They also provide a structured framework that ensures learners' involvement in the learning process helps them build confidence, prepares them for innovation, leadership in the twenty-first century, and active participation in civic life (Shalaby, 2014).

Characteristics of the Teachers of the Twenty-First Century

In the last few decades, many skills dominated the educational scene. Such skills seem to be outdated in the twenty-first century which has requirements that require diverse educational systems to provide students with several new skills. More specifically, these requirements require educational institutions to focus all their attention on the new skills of this century. Hence, we find that the "Partnership" organization is concerned with these skills.

These guidelines have included many skills, including critical thinking, cooperation, judgment, information literacy, media literacy, leadership and responsibility, social skills, cross-cultural skills, dealing with technical applications, economic and business literacy, digital competencies, self-direction, flexibility and adaptability, and understanding cosmic issues (Al-Kabbas, 2017).Therefore, it is necessary to have teachers who have the characteristics and qualities of an effective teacher in the twenty-first century, in order to be able to very effectively develop these skills among learners. Thus, there will be educational outcomes of high quality and capable of optimal use of technology, which is one of the greatest features and characteristics of the active teacher. Technology today plays a vital role in the skills framework of the century. The existence of a new framework aids and encourages the understanding and evaluation of knowledge and enhances the skills of the teacher to use specific technology in the curriculum effectively. This means that just possessing some technical skills do not guarantee that they will be used in the manner that serves the teaching and learning process (Al-Kabbas, 2017).

Some studies have shown the failure of these educational technologies to bring about a real transformation in the educational processes in some cases. Despite knowing the importance of using educational technology and preparing the teacher to use technology in the classroom, most of the time the training is focused only on technology rather than directly on its application in the subject matter that the teacher is teaching. In this context, the teacher must possess technical knowledge in order to be able to use it successfully in the educational process, in addition to knowledge of the content of his specialization, and knowledge of teaching methods. The teacher must link this knowledge when planning teaching (Al-Saleh, 2005).

If we follow the historical aspect of teacher preparation, we find that the focus was based on the content of the teacher's specialization and the development of the knowledge aspect, in addition to knowledge of the methods of teaching this content, which was based mainly on the "Schulman" model. Schulman has suggested that the knowledge necessary for teachers is classified into two distinct areas, namely, subject matter content knowledge and pedagogical content knowledge.

Mishra and Kohler added the third aspect to the "Schulman" dual model, which is the teacher's knowledge of and use of educational technologies. This produced a more comprehensive model for determining the skills, characteristics and knowledge of teachers, in strong accordance with the requirements of the century. In this context, Mishra and Kohler added this aspect in addition to the teacher's knowledge of the content of his specialization, and his knowledge of teaching methods. The modified model was launched under the name "T-Pack" model, based on the pioneering historical "Schulman" model, which served as a guide in the process of teacher preparation in faculties of education for a long time (Hassan, 2016).

Challenges Facing the 21ˢᵗ Century Teacher

Below is a list of the most prominent contemporary challenges facing many faculty members and it is urging that they be addressed and dealt with correctly (Ali, 2011):

1- Education market: This concept refers to the treatment of education as a commercial commodity whose owners aim to obtain material profit only. An example of this is the entry of the educational process into the markets as a type of commodity subject to sale, pricing and marketing. Thus, the conversion of universities into companies and the import and export of academic programs have increased. In this regard, the presence of the private sector in the field of education has increased, and the number of private and international schools has increased significantly. Moreover, a large number of students from different countries began to leave their home countries in order to study abroad. So education systems have to work within the new races that have emerged in the world.

2- The impact of technology: Thanks to technology today, new types of social communication have emerged, and they have been able to compete with the traditional school system. Young people today are taking many educational contents from informal contexts. It has also become possible to save the contents of a full academic year's books on a small computer. This rapid change in technology provides new fundamentals for enhancing teaching and learning. This presents an opportunity that is yet to come in its full form despite the creation of many online universities.

3- Student needs: What has raised the level of academic requirements in the current era is the necessity of acquiring the skills of the century, and the model of increasing school years to equip and prepare students for jobs in the industrial field. In addition to acquiring the simple skills of communication, initiative, adaptability, and abilities related to finding solutions to the issues at hand, what is required today is a mastery of the content and a deep understanding of the discipline. The increasing mobility of young people and the increase in opportunities to study abroad is causing concern among public education institutions. What increases the pressures and tires educators and teachers – in making the study relevant to reality and purposeful – are the "new distractions" provided by modern technology. In order to address the challenges of facilitating student learning, and making teaching enjoyable for students, this requires the creation of a teaching force of a special character. This is to find modern ways to qualify teachers and to create an appropriate and new atmosphere in schools that will help them in this.

4- New Expectations from Schooling: There is a constant demand from key partners, employers and parents, as well as voices and demands for what they expect from schools, that students' skills be developed. There is variation in expectations of school education within each country. All this, of course, is not a separate development from the innovation arising from economic globalization.

5- Impact on Teaching: Today we notice an increase in writing about the characteristics that lead to the desired results among students, in line with the acceptance of the idea that the student needs to acquire new skills that enable him to adapt to the new economic systems, and that these characteristics must be present among the teachers responsible for these results. In order for the teacher to perform his profession optimally, he must continue to constantly study and learn everything new. The profession of a teacher is like other professions and their profession is a profession of continuous learning, whose practices are guided by research. It can also be said that teaching is a highly demanding and complex intellectual work, which confirms that the strong effective teaching process cannot be achieved without sober and continuous preparation.

The Most Important Skills of the Twenty-First Century

The skill of using modern teaching strategies and how to employ them in proportion to the knowledge content of the subject.

- Thinking skills that enable students to receive and produce knowledge, which can be developed and used by students. These skills include critical thinking skills, basic thinking skills, creative thinking skills, and problem solving.
- Skills of using modern educational techniques such as using clips from YouTube, whether visual or audio, static and animated presentations, etc., and the way to employ technology to achieve the lesson objectives.
- Skills of appropriate selection of evaluation criteria and the use of modern technology in the field of evaluation, such as reinforcement tables, graphs, and other criteria which should be taken into consideration.
- Classroom management skill and preparing the classroom environment, which includes seats, tables, aids, and the projector setting.

In this context, (Al-Zahrani and Ibrahim, 2012) stated that in order for teachers of the twenty-first century to be able to enter the era of the knowledge economy, there is an important set of skills that these teachers must develop in order to strive to prepare the knowledge society in the presence of the multiple challenges experienced by educational systems. These skills are developing higher-order thinking skills, managing students' abilities, capacity management through diagnostic and therapeutic teaching, support for the knowledge economy, educational technology management, managing the evaluation system.

DATA ANALYSIS

In order to analyze and compare the results of the study tools, the researcher uses the Statistical Package for Social Sciences (SPSS). Arithmetic means, frequencies and standard deviations of the results are calculated. Moreover, the researcher relied on the Likart Five-Point Scale in order to determine the degree of agreement of the study sample, numbering (48), on the questionnaire statements for each part. The arithmetic means and standard deviations were calculated for each paragraph of the questionnaire and the tool as a whole. The values of the arithmetic means were used to measure the extent to which the sample members agreed on the statements of the questionnaire, as shown in Table No. (1).

TABLE 1
THE VALUES OF THE ARITHMETIC MEANS OF THE LIKERT FIVE-POINT SCALE

Weighted Mean	Level
From 1 to 1.80	Strongly disagree
From 1.81 to 2.60	Disagree
From 2.61 to 3.40	Neutral
From 3.41 to 4.30	Agree
From 4.31 to 5	Strongly agree

* Prepared by the researcher

First: The Results Related to the First Part (the Participants' Knowledge of the 21st Century Skills)

To answer the main question of the first part which consisted of (8) statements about the participants' knowledge of the 21st century skills, the percentage of frequencies, arithmetic means and standard deviations of the answers of the sample members were calculated. This is done with the aim to identify the extent to which the participants are familiar with the 21st century skills. Table (2) illustrates this.

TABLE 2
WEIGHTED AVERAGES AND STANDARD DEVIATIONS OF RESPONDENTS' RESPONSES TO THE STATEMENTS CONSTITUTING THE PART OF THE S KNOWLEDGE OF THE 21ST CENTURY SKILLS

Statements of the first part (the participants' knowledge of the 21st century skills)	Scale	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard deviation	Result
Skills of designing, programming, playing games and general use of technology	Frequency	0	1	2	39	6	4.04	0.498	Agree
	Percentage (%)	%0	%2.083	%4.16	%81.25	%12.5			
Skills of communication, knowing individual differences and facilitating learning	Frequency	0	0	3	41	4	4.02	0.381	Agree
	Percentage (%)	%0	%0	%6.25	%85.41	%8.33			
Focusing on practice and continuous learning	Frequency	0	0	4	42	2	3.95	0.351	Agree
	Percentage (%)	%0	%0	%8.33	%87.5	%4.16			
Endurance, creativity, and comprehensive knowledge	Frequency	0	0	2	40	6	4.08	0.399	Agree
	Percentage (%)	%0	%0	%4.16	%83.33	%12.5			
Skills of development, evaluation and analysis of learners' needs	Frequency	0	0	3	39	6	4.06	0.428	Agree
	Percentage (%)	%0	%0	%6.25	%81.25	%12.5			
Skills of using computer, selecting appropriate learning apps, getting information from authentic sources	Frequency	0	1	1	42	4	4.02	0.432	Agree
	Percentage (%)	%0	%2.08	%2.08	%87.5	%8.33			
Skills of class management, dealing with slow learners, and dealing with children	Frequency	0	1	2	40	5	4.02	0.478	Agree
	Percentage (%)	%0	%2.08	%4.16	%83.33	%10.41			
Creative thinking skills and etiquette	Frequency	0	2	2	41	3	3.93	0.516	Agree
	Percentage (%)	%0	%4.16	%4.16	%85.41	%6.25			
Result of the first part (the participants' knowledge of the 21st century skills)							4.01	0.058	Agree

Table (2) above shows the percentage of frequencies, arithmetic means, and standard deviations of the answers of the study sample members on the statements of the first part of the questionnaire. The arithmetic means of the mentioned paragraphs ranged between (3.93 and 4.08). This indicates the approval of the sample members on the statements of the first part, as the arithmetic means from 3.41 to 4.30 indicate the approval of the respondents according to the weights mentioned in Table No. (1). The first statement (Skills of designing, programming, playing games and general use of technology) obtained an arithmetic mean (4.04) and a standard deviation (0.498), the second statement (Skills of communication, knowing individual differences and facilitating learning) obtained an arithmetic mean (4.02) and a standard deviation (0.381), the third statement (Focusing on practice and continuous learning) obtained an arithmetic mean (3.95) and a standard deviation (0.351). Furthermore, the fourth paragraph (Endurance, creativity, and comprehensive knowledge) got an arithmetic mean (4.08) and a standard deviation (0.399) .In the same context, the fifth paragraph (Skills of development, evaluation and analysis of learners' needs) obtained an arithmetic mean (4.06) and a standard deviation (0.428), the sixth paragraph (Skills of using computer, selecting appropriate learning apps, getting information from authentic sources) obtained an arithmetic mean (4.02) and a standard deviation (0.432), the seventh paragraph (Skills of class management, dealing with slow learners, and dealing with children) got an arithmetic mean (4.02) and a standard deviation (0.478), while the eighth paragraph (Creative thinking skills and etiquette) got an arithmetic mean (3.93) and a standard deviation (0.516). This indicates the high level of the participants' knowledge of the 21st century skills.The researcher explains this result that the participants are aware of the 21st century skills. Below is a discussion of the results of each paragraph of the first part.

The results related to the first statement of the first part of the questionnaire showed a high degree of agreement, as it obtained an arithmetic mean (4) and a standard deviation (0.645), and this indicates the participants' awareness of the importance of the skills of designing, programming, playing games and general use of technology. The results also showed that the second statement obtained a high degree of agreement with an arithmetic mean (4.02) and a standard deviation (0.381).The researcher believes that this result reflects the awareness of the study sample members regarding the significance of the skills of communication, knowing individual differences and facilitating learning.

The results also showed that the third statement obtained a high degree of approval, with a mean (3.95) and a standard deviation (0.351). This result indicates the awareness of the study sample concerning the paramount importance of practice and continuous learning. The results related to the fourth statement indicated a high degree of approval, with a mean (4.08) and a standard deviation (0.399). The researcher attributes this result to the awareness of the study sample members of the significance of endurance, creativity, and comprehensive knowledge.

The results also indicated that the fifth statement obtained a high degree of approval, with a mean (4.06) and a standard deviation (0.428). The researcher believes that this result reflects that the participants view skills of development, evaluation and analysis of learners' needs as important for the 21st century teacher. The results also showed that the sixth statement received a high degree of approval, with a mean (4.02) and a standard deviation (0.432). This result clearly indicates the awareness of the study sample members of the urging need for developing skills of using computer, selecting appropriate learning apps, and getting information from authentic sources.

The results also indicated that the seventh statement related to the skills of class management, dealing with slow learners, and dealing with children obtained a high degree of approval, with a mean (4.02) and a standard deviation (0.478). This result indicates that such skills, according to the respondents, are needed in the 21st century. The results also indicated that the last paragraph of the first part of the questionnaire received a high degree of approval, with a mean (3.93) and a standard deviation (0.516).The researcher attributes this result to the awareness of the sample members of the importance of creative thinking skills and etiquette as skills of the 21st century teacher. It can be said that these results, in general, indicate that the sample members are aware of the skills that have become important for teachers in the 21st century.

Second: Results Related to the Second Part (the Participants' Knowledge of the Methods Compatible With Instructional Design)

To answer the main question for the second part, which consisted of (8) statements related to the participants' knowledge of the methods compatible with instructional design, the percentage of frequencies, arithmetic means and standard deviations of the answers of the sample members were calculated. This aims to know the participants' knowledge of the methods compatible with instructional design. Table (3) illustrates this.

Table No. (3) shows the percentage of frequencies, arithmetic means, and standard deviations of the answers of the study sample members to the second part statements. The arithmetic means of the mentioned statements ranged between (3.95 and 4.14). This indicates the approval of the sample members on the statements of the second part, as the arithmetic means from 3.41 to 4.30 indicate the approval of the respondents according to the weights mentioned in Table No. (1). The first statement (free learning) got an arithmetic mean (4.08) and a standard deviation (0.399), while the second statement (Active and interactive learning) got an arithmetic mean (4.14) and a standard deviation (0.407).

Moreover, the third statement (Self learning and oriented courses) obtained an arithmetic mean (4) and a standard deviation (0.5), while the fourth statement (Strategies based on collaborative instructional design) got an arithmetic mean (3.95) and a standard deviation (0.644). Besides, the fifth statement (Training courses) got an arithmetic mean (4.10) and a standard deviation (0.509), the sixth statement (Use of teaching aids) got an arithmetic mean (4.08) and a standard deviation (0.493), while the seventh statement (Individual learning and group learning styles) obtained an arithmetic mean (4.12) and a standard deviation (0.330).

The last statement of this part (Experiment and documentary films) got an arithmetic mean (4.06) and a standard deviation (0.428). This indicates the high level of the participants' knowledge of the methods compatible with instructional design. The researcher discussed the results of each statement of the second part as follows.

The results related to the first statement of the second part of the questionnaire showed a high degree of approval, as it obtained an arithmetic mean (4.08) and a standard deviation (0.399). The researcher attributes this result to the fact that the sample members realize the importance of free learning. It is also noted that the second statement obtained a high degree of approval, with a mean (4.14) and a standard deviation (0.407). This result clearly indicates the importance of active and interactive learning methods from the respondents' viewpoint.

The results also indicated that the third statement obtained a high degree of approval, with an arithmetic mean (4) and a standard deviation (0.5). The participants realize the effectiveness of self learning and oriented courses. In the same context, the results reflected that the fourth statement obtained a high degree of approval, with a mean (3.95) and a standard deviation (0.644). The researcher explains this result that the respondents know the importance of the strategies based on collaborative instructional design.

The results also showed that the fifth statement obtained a high degree of approval, with an arithmetic mean (4.10) and a standard deviation (0.509). This result reflects the importance of Training courses from the respondents' point of view. The results also indicated that the sixth statement received a high degree of approval, with a mean (4.08) and a standard deviation (0.493). The researcher believes that this result indicates the awareness of the study sample members concerning the efficiency and effectiveness of the use of teaching aids.

TABLE 3
ARITHMETIC MEANS AND STANDARD DEVIATIONS OF RESPONDENTS' RESPONSES TO THE STATEMENTS RELATED TO THE PARTICIPANTS' KNOWLEDGE OF THE METHODS COMPATIBLE WITH INSTRUCTIONAL DESIGN

Paragraphs of the third part (the participants' knowledge of the methods compatible with instructional design)	Scale	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard deviation	Result
Free learning	Frequency	0	0	2	40	6	4.08	0.399	Agree
	Percentage (%)	%0	%0	%4.16	%83.33	%12.5			
Active and interactive learning	Frequency	0	0	1	39	8	4.14	0.407	Agree
	Percentage (%)	%0	%0	%2.083	%81.25	%16.66			
Self learning and oriented courses	Frequency	0	1	3	39	5	4	0.5	Agree
	Percentage (%)	%0	%2.083	%6.25	%81.25	%10.41			
Strategies based on collaborative instructional design	Frequency	1	1	2	39	5	3.95	0.644	Agree
	Percentage (%)	%2.083	%2.083	%4.16	%81.25	%10.41			
Training courses	Frequency	0	1	1	38	8	4.10	0.509	Agree
	Percentage (%)	%0	%2.083	%2.083	%79.16	%16.667			
Use of teaching aids	Frequency	0	1	1	39	7	4.08	0.493	Agree
	Percentage (%)	%0	%2.083	%2.083	%81.25	%14.58			
Individual learning and group learning styles	Frequency	0	0	0	42	6	4.12	0.330	Agree
	Percentage (%)	%0	%0	%0	%87.5	%12.5			
Experiment and documentary films	Frequency	0	0	3	39	6	4.06	0.428	Agree
	Percentage (%)	%0	%0	%6.25	%81.25	%12.5			
Result of the second part (the participants' knowledge of the methods compatible with instructional design)							4.07	0.094	Agree

The results also showed that the seventh statement obtained a high degree of approval, with a mean (4.12) and a standard deviation (0.330). Therefore, individual learning and group learning styles are important according to the sample members. The last statement of this part received a high degree of approval, with a mean (4.06) and a standard deviation (0.428). In this respect, experiment and documentary films are viewed as significant for teaching in the 21st century. It can be said that these results in general indicate the participants' high level of knowledge of the methods compatible with instructional design.

Third: Results Related to the Third part (the Challenges Facing the 21st Century Teacher)

To answer the main question for the third part which consisted of (6) statements on the challenges facing the 21st century teacher, the percentage of frequencies, arithmetic means and standard deviations of the answers of the sample members were calculated. This aims to identify the challenges facing the 21st century teacher from the point of view of study sample. Table (4) illustrates this.

Table No. (4) shows the percentage of frequencies, arithmetic means, and standard deviations of the answers of the study sample members to the third part statements. The arithmetic means of the mentioned paragraphs ranged between (3.97 and 4.06). This indicates the approval of the sample members on the statements of the third part, as the arithmetic means from 3.41 to 4.30 indicate the approval of the respondents according to the weights mentioned in Table No. (1). The first statement related to the topic (The increasing number of students, and the insufficient time to design lessons) obtained an arithmetic mean (4.06) and a standard deviation (0.474), while the second statement (The lack of material equipment and infrastructure that make schools unable to implement technical education) obtained an arithmetic mean (3.97) and a standard deviation (0.661), the third statement (Administrative burdens that distract the teacher from concentrating on his main duty) obtained an arithmetic mean (4.02) and a standard deviation (0.432). The fourth statement (The rapid advancement in the field of technology which requires schools to cope with) obtained an arithmetic mean (3.97) and a standard deviation (0.661), while the fifth statement (The emergence of new learning apps) obtained an arithmetic mean (4.04) and a standard deviation (0.498), while the last statement of this part (Lack of knowledge of technology and its applications) got an arithmetic mean (4.06) and a standard deviation (0.316).

The researcher believes that these results clearly indicate the high degree of the participants' awareness of certain challenges facing the 21st century teacher. The result of each statement of the third part is discussed below.

The results related to the first statement of the third part of the questionnaire showed a high degree of approval, with a mean (4.06) and a standard deviation (0.474). The researcher believes that this result reflects the fact that the increasing number of students and the insufficient time to design lessons represent a serious challenge for the 21st century teacher. The results also indicated that the second statement obtained a high degree of approval, with a mean (3.97) and a standard deviation (0.661). This result indicates that the lack of material equipment and infrastructure that make schools unable to implement technical education is a real challenge from the viewpoint of the study sample.

The results also showed that the third statement obtained a high degree of approval, with a mean (4.02) and a standard deviation (0.432). This reflects that the administrative burdens that distract the teacher from concentrating on his main duty stand as one of the challenges facing the 21st century teachers. Furthermore, the results reflected that the fourth statement obtained a high degree of approval, with a mean (3.97) and a standard deviation (0.661). This indicates that another challenge in this regard is represented in the rapid advancement in the field of technology which requires schools to cope with.

The results also indicated that the fifth statement obtained a high degree of approval, with a mean (4.04) and a standard deviation (0.498). This indicates that another challenge, from the viewpoint of the study sample, is related to the emergence of new learning apps which can be so difficult for teachers. In this context, the last statement of this part obtained a high degree of approval, with a mean (4.06) and a standard deviation (0.316). This clearly indicates that teachers' lack of knowledge of technology and its applications represent a real challenge, and it requires specific training courses.

TABLE 4

ARITHMETIC MEANS AND STANDARD DEVIATIONS OF RESPONDENTS' RESPONSES TO THE STATEMENTS RELATED TO THE CHALLENGES FACING THE 21ST CENTURY TEACHER

Statements of the third part (the challenges facing the 21st century teacher)	Scale	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard deviation	Result
The increasing number of students, and the insufficient time to design lessons	Frequency	0	1	1	40	6	4.06	0.474	Agree
	Percentage (%)	%0	%2.08	%2.08	%83.33	%12.5			
Lack of material equipment and infrastructure that make schools unable to implement technical education	Frequency	1	1	2	38	6	3.97	0.661	Agree
	Percentage (%)	%2.08	%2.08	%4.16	%79.16	%12.5			
Administrative burdens that distract the teacher from concentrating on his main duty	Frequency	0	1	1	42	4	4.02	0.432	Agree
	Percentage (%)	%0	%2.08	%2.08	%87.5	%8.33			
The rapid advancement in the field of technology which requires schools to cope with	Frequency	1	1	2	38	6	3.97	0.661	Agree
	Percentage (%)	%2.08	%2.08	%4.16	%79.16	%12.5			
The emergence of new learning apps	Frequency	0	1	2	39	6	4.04	0.498	Agree
	Percentage (%)	%0	%2.08	%4.16	%81.25	%12.5			
Lack of knowledge of technology and its applications	Frequency	0	0	1	43	4	4.06	0.316	Agree
	Percentage (%)	%0	%0	%2.08	%89.58	%8.33			
Result of the third part (the challenges facing the 21st century teacher)							4.02	0.134	Agree

RECOMMENDATIONS AND SUGGESTIONS

First: Recommendations
- Integrating the skills of the twenty-first century into the skills of instructional design, in preparation for their inclusion in the developed syllabus.
- Structuring activities to develop general education teachers' skills of the twenty-first century.
- Providing teacher guides and teacher training programs to develop and measure twenty-first century skills.
- Designing and adjusting tools to measure the skills of the twenty-first century through different fields of study.
- Reconsidering teacher training programs in terms of addressing the skills of the twenty-first century, given their importance in preparing teachers who are able to address the problems they may face.
- Paying attention to teachers' instructional design skills and developing them.
- Encouraging teachers to participate in the production and design of educational programs that serve students.

Second: Suggestions
- Studying the impact of instructional design models on developing twenty-first century skills to improve teacher performance.
- Designing a proposed course in instructional design and twenty-first century skills for students of the College of Education.
- Measuring the effect of using instructional design models in developing self-learning skills or academic achievement in general and university education courses.
- Conducting studies on the development of educational curricula in faculties of education in the light of the skills of the twenty-first century.

ACKNOWLEDGEMENT

REFERENCES

Abdel Moneim, A.M. (1989). *Teaching aids, Cairo*. Faculty of Education, Al-Azhar University, Egypt.

Al-Ghamdi, M. (2015). *Analysis of the content of mathematics books for the upper grades of the primary stage in the light of the skills of the twenty-first century*. MA, Imam Muhammad bin Saud Islamic University, Saudi Arabia.

Al-Ghamdi, M., & Al-Qahtani, F. (2016). *Evaluating the teaching performance of primary school mathematics teachers in the light of the successful learning framework for the twenty-first century*. Ministry of Education, King Khalid University.

Al-Hilah, M.M. (2008). *Instructional Design: Theory and Practice* (4th Edition). Amman: Dar Al Masirah for Publishing, Distribution and Printing.

Ali, A.A. (2011). *A New Professional Role for Teachers in Twenty-First Century Schools (The Complete Transformation of Teacher Education)*. Retrieved from http://www.almarefh.net/show_content_sub.php?CUV=382&Model=M&SubModel=132&ID=1016&ShowAll=On.

Al-Jeriwi, S.S. (2018). The effectiveness of a training program based on educational design using electronic information sources to develop the skills of designing and producing training workshops for female students of Princess Nourahbint Abdul Rahman University. A*l-Fath Magazine*, p.74, Saudi Arabia.

Al-Kabbas, A. (2017). *The TPACK model as one of the contemporary models for identifying and evaluating the characteristics of the effective teacher in the twenty-first century, presented in the Eighteenth Educational Supervision Forum (Teacher 2030) during the period 1-3/6/1438, the northern border.*

Al-Omari, S.H. (2019). The role of female educational supervisors in developing the skills of the 21st century among primary grade teachers and its impact on achieving Vision 2030 in Jeddah. *Journal of Educational and Psychological Sciences*, *3*(3). Kingdom of Saudi Arabia.

Al-Saeed, S.M., & Al-Madi, A.R.I. (2013). Problems of teaching developed science curricula and academic achievement. *Journal of Educational Sciences Studies*, *26*, 1.

Al-Saleh, B.A. (2005). *E-Learning and Instructional Design, Partnership for Quality*. Research Presented to the Tenth Conference of the Egyptian Association for Educational Technology.

Al-Saleh, B.A. (2013). *Twenty-first century skills, Learning for life in our time.* Riyadh, King Saud University, Saudi Arabia.

Al-Tai, F.K., & Al-Silifani, S.J. (2014). The effectiveness of an instructional learning design according to the Gerlach and Ely model in acquiring temporal concepts for eleventh-grade students in the subject of history and developing their habits of mind and historical empathy. *The Specialized International Educational Journal*, *3*, 4.

Al-Wurthan, A.A.R. (2005). *The extent to which teachers accept the standards of total quality in education: A field study in Al-Ahsa Governorate*. MA, College of Education, King Saud University, Saudi Arabia.

Al-Zaanin, J. (2001). *Technological education is the necessity of the twenty-first century*. Afaq Library, Gaza, Palestine.

Al-Zahrani, A.A., Ibrahim, Y.A.H. (2012). The Teacher of the Twenty-first Century. *Knowledge Magazine*.

Al-Zahrani, G.A. (2017). *Standards of teacher competence in the field of technology*. Arab East Colleges for Graduate Studies, Princess Nourah bint Abdul Rahman University. Kingdom of Saudi Arabia.

Don, L., Gross, M., & Witte, S. (2013). Preparing Teachers and Librarians to Collaborate to Teach 21st Century Skills: Views of LIS and Education Faculty. *School Library Research*, *16*. ISSN: 2165-1019

El-Feki, A.A.I. (2010). *Designing a multimedia course based on blended learning to develop thinking and skill performance for students of educational technology*. Ph.D., Institute of Educational Studies, Cairo University, Egypt.

El-Feki, M.S. (2011). A proposed model for the design of interactive learning environments based on the Internet. *The Journal of Education Technology, Studies and Research*, *a special issue*. The Seventh Scientific Conference of the Arab Society for Educational Technology, e-learning and the challenges of Arab peoples.

Garrison & Terry Anderson. (2006). *E-learning in the twenty-first century: A framework for research and application*. Obeikan Library, Saudi Arabia.

Hassan, M.S.A. (2016). Developing educational design stages and skills and adapting them to suit the instructional design of textbooks. *Journal of Educational Studies, National Center for Curriculum and Educational Research*, *17*, 32.

Khamis, M.A. (2003). *Educational Technology Operations*. Dar Al-Hekma, Cairo, Egypt.

Khamis, S.F. (2018). 21st Century Skills: A Framework for Learning for the Future. *Journal of Childhood and Development, Egypt*, *31*(1), 149–163.

Mustafa, A.F. (2006). *Production of educational websites*. Cairo, the world of books. Egypt.

Salem, A.M. (2004). *Education Technology and E-Learning*. Al-Rushd Library, Riyadh, Saudi Arabia.

Shalaby, N. (2014). A proposed framework for integrating twenty-first century skills in science curricula in basic education in Egypt. *The Specialized International Educational Journal*, *3*, 10.

Shehata, N. (2011). Educational standards for building an educational website. *e-Learning Magazine*. Retrieved from http://emag.mans.edu.eg/index.php

Tawfiq, A.R. (2007). *Training Origins and Principles* (First Edition). Professional Experience Center, Cairo, Egypt.

Vannoy, K.E.H. (2008). *Instructional Design Using Course Management System.* Doctor of Philosophy, Capella University.