TEACHING PRACTICES OF SECONDARY SCHOOL TEACHERS AND WAYS OF DEVELOPING THEM IN LIGHT OF 21ST CENTURY SKILLS: A MIXED-METHODS STUDY

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ABSTRACT

The current study aims to investigate the extent to which secondary school teachers in Saudi Arabia practice 21st century skills. To this end, the researcher used both quantitative and qualitative approaches based on triangulation. The quantitative approach was represented by a questionnaire, which included four fields with a total of 31 statements. This was distributed to 181 secondary school supervisors in Saudi Arabia. The qualitative approach was represented by interviews with seven secondary school teachers and the analysis of the performance documents (lesson plans) of eight teachers. To determine the validity and reliability of the results, external validity, internal consistency, referential competence and consensual validation were calculated.

The results of the questionnaires indicate that, from supervisors' perspectives, secondary school teachers practice 21st century skills to a moderate degree in all fields of study. General cognitive pedagogy ranked first, followed by communicative-participatory skills. Technical skills came in third place, and thinking skills ranked last. The results highlighted the importance of practicing 21st century skills in classrooms, though the practice of these skills among teachers was low.

The study recommends integrating 21st century skills in teacher preparation and certification programs, training them to focus on them within the classroom.

Keywords: 21st Century Skills, Teaching Practices, Secondary School Teachers, Supervisors.

INTRODUCTION AND THEORETICAL FRAMEWORK

Nowadays, we witness the accelerated development of knowledge and technology. Therefore, it is inevitable that individuals will be encouraged to interact with such developments. Due to the importance of the teacher and the learner as two pillars of the educational system, education philosophy focuses on preparing teachers and learners in a way that raises their educational level and provides them with the expertise and skills they need in the 21st century.

Because of the acceleration of technology and the accompanying changes to the labour market, 21st century skills have been considered one of the central issues of many educational systems since the mid-1990s. The general frameworks for these skills were defined by educational institutions in the United States in 2003 through the launch of Partnership for 21st Century Skills Foundation, an American organization that sponsors the system of readiness and competition in the 21st century. The general framework for these skills was developed in 2009 (McDowell, 2017).

Partnership for 21st Century Skills (2017) defines 21st century skills as the set of skills necessary for successful work in the 21st century. These include learning and innovation skills;

knowledge of informational, media and technological culture; social and communication skills; creativity and innovation; perseverance; curiosity; thinking skills; leadership; adaptability; self-direction; and economic and commercial enlightenment.

One study (Ramirez, 2018) believes that 21st century skills are a set of competencies that represent the necessary skills and experiences that enable individuals to succeed in life and face its challenges effectively. According to these studies (Al-Harithi, 2020; Hafsah, 2017), these skills revolve around a teacher's teaching of technology skills, specialized teaching competencies, classroom management, constructive interaction in the educational learning process and thinking skills.

These skills are considered necessary for school-, college- and university-level education, as the role of these educational institutions is no longer confined to educating students enough for them to pass exams or obtain degrees; they should also encourage students to work and think and to face the inevitable hardships of life effectively and positively. This requires educational institutions to be able to cope with 21st century skills. Hence, the American Association of Colleges for Teacher Education (2008) adopted 21st century skills in its programs in order to qualify teachers, with the hope of providing such skills to students of various grades (AACTE, 2008).

In the same context, Partnership for 21st Century Skills (2017) indicates that the quality of teaching that teachers provide to students is a functional task that requires focus on qualifying and training teachers and evaluating their skills, abilities and knowledge in order to produce high-quality educational outcomes for the teacher and students alike.

Therefore, numerous studies have emphasized the necessity of preparing, qualifying and developing the skills of teachers in accordance with 21st century skills. Previous educational studies have presented various definitions of these skills, orders and priorities. One study (Al-Harithi, 2020) pays attention to communication and participatory skills, whereas another (Al-Magharebeh & Mustafa, 2020; Al-Tabab, 2020) focuses on personal, social, teaching and technical skills. These studies (Al-Sharif & Ahmed, 2020; Al-Juhani, 2019) consider participatory skills, communication, and critical thinking and technology skills to be the most important. On the other hand, this study (Kinnunen & Ahonen, 2015) indicates that social skills, information technology and life/work skills are more relevant.

There are various classifications of 21st century skills, which can be attributed to differences in environment, target sample, research interests, or deduction processes. In spite of these differences, the overall studies and related research confirm the need for teachers to possess such skills. These studies (Hall, 2018; Hafsah, 2017) pinpoint that a teacher's possession of 21st century skills helps him/her to transfer these skills to students, thus enhancing the students' acquisition of participatory skills, thinking skills, technology and cognitive expansion.

Accordingly, the availability of teachers with sufficient 21st century skills contributes to the development of competitive educational outcomes, which are consistent with the challenges of the third millennium and its accelerated technological flow. Therefore, this study attempts to investigate the secondary school teachers' practice of 21st century skills in Saudi Arabia.

Study Problem

In light of rapid technological developments, educational systems have developed academic university programs and held conferences, seminars, workshops and training courses

that aim to advance the educational process and improve teachers' performances in line with 21st century skills.

Educational institutions in Saudi Arabia have tried to cope with these modern educational trends in order to improve educational outputs. Thus, they started to prepare and qualify teachers; however, despite the efforts made by the Ministry of Education in adopting numerous innovative projects, these efforts have not been matched by a noticeable improvement in learning outcomes. This indicates a gap between theory and practice, as supported by the results of education quality indicators in Saudi Arabia. Notably, there was a decrease in the percentage of those who passed the teacher competency test provided by the National Center for Measurement (Ministry of Education Agency for Planning and Development, 2018). In a related context, these studies (Al-Asmari, 2019; Ahmed, 2018) found discrepancies in the performance of secondary education teachers, which sometimes does not correspond with modern 21st century skills.

In an open interview with a sample of secondary education teachers and supervisors regarding 21st century skills, the researcher noted that teachers' focuses revolved around classroom performance (teaching methods, evaluation, and classroom management) rather than effective leadership skills, thinking skills, and technological and life skills.

Consequently, researchers believe that it is important to examine the extent to which teachers practice 21st century skills in classrooms. This study (Rutten & Soetaert, 2016) points out that it is useless for teachers to possess these skills if they do not translate them into actual practice. Therefore, it becomes very important to conduct this study to determine the extent to which secondary school teachers practice such skills.

Accordingly, the study problem can be represented by the main question:

To what extent do secondary school teachers apply 21st century skills in their classes?

Study Objectives

The study attempts to achieve the following objectives:

- Prepare a list of the most important 21st century skills, which should be made available to secondary school teachers in Saudi Arabia.

- Investigate the extent to which secondary school teachers in Saudi Arabia practice 21st century skills.

Importance of the Study

The importance of the study lies in:

- Its contribution to the development of programs that provide teachers with the means to develop 21st century skills to raise their various competencies.

- Conducting specialized studies on teachers' practices of such skills.

- The development of an educational environment (techniques and equipment) that contributes to achieving desired educational goals.

Study Terms

- **Practice**: The set of roles and activities that secondary school teachers perform in the classroom environment in light of 21st century skills.

- **21st Century Skills**: The set of basic skills that secondary school teachers are expected to possess and practice in Saudi Arabia in light of 21st century skills. In the current study, these skills are represented in

four areas, based on theoretical literature (Al-Harithi, 2020; Al-Attab, 2020; Hafsah, 2017). In addition, these skills benefited from interview data that was retrieved from a pilot sample of secondary school teachers in Saudi Arabia. These areas are:

➤ **Technical Skills**: A set of various technical materials, Instruments and applications that enable secondary school teachers to plan, implement and evaluate lessons.

➤ **Collaborative-Communicative Skills**: A set of activities that are practiced to transfer ideas and experiences from teachers to learners using agreed-upon terms, symbols and strategies in a cooperative, democratic and participatory environment.

➤ **General Cognitive Pedagogy**: The basic skills on which the teaching process is based, namely knowledge of pedagogy and learning environments related to classroom management, learning management, dealing with students, teaching strategies, academic learning time, waiting time and classroom/social systems.

➤ **Thinking Skills**: The ability to present and analyse ideas from different angles, make inferences, innovate and evaluate, accept differences and possess the ability to meta-think.

RELATED STUDIES

Here, we review the most important and recent studies that have investigated 21st century skills presented in descending chronological order.

Al-Harthi (2020) conducted a study to identify the most important 21st century skills that should be included in preparation programs for teachers, and whether these skills were included in such programs or not. The researcher used a questionnaire that included 24 sub-skills distributed over seven main areas. 77 faculty members of the College of Education at King Khalid University in Abha completed the questionnaire. The results indicated that all skills were found to be very important. However, these skills were only available to a moderate degree in the teacher preparation programs.

Al-Magharebeh & Mustafa (2020) investigated the degree to which special education students in Saudi universities possessed 21st century skills from the perspective of faculty members. The study used questionnaires distributed to 57 faculty members working in the special education departments of Saudi universities. It encompassed three main areas: 'personal and social skills', 'teaching skills' and 'technical skills'. Results indicated that 'personal and social skills' placed first, followed by 'teaching skills', with 'technical skills' coming last. The study also found that the students in these universities possessed relatively high-level 21st century skills.

Al-Sharif & Ahmed (2020) attempted to determine the extent to which students of the Islamic University possessed 21st century skills and its relationship with their academic achievement. The researchers used a questionnaire encompassing five fields. The results showed that participation ranked first, followed by communication, critical thinking, and then technology. Innovation placed last. The results further proved that there is no correlation between 21st century skills and academic achievement.

Al-Attab (2020) aimed to determine the level of practice that faculty members at the University of Bisha and IBB University had regarding 21st century skills from the viewpoint of graduate students. The study used a questionnaire encompassing six fields distributed to 83 graduate students of the Faculty of Education at the two universities. The results indicated that mastering the art of teaching ranked first, followed by communication and collaboration, then higher thinking skills. Knowledge economy placed fourth, evaluation management placed fifth

and education technology management placed last. In all fields, no significant differences between the universities were recognised.

Al-Juhani (2019) evaluated the performance of middle-stage science teachers in Saudi Arabia in light of 21st century skills using a note card that included 25 female teachers in the Tabuk region. The results of the study indicated that the teaching performance of science teachers was moderate. Three areas came in first place: dealing with technology, communication skills, and thinking skills. Collaborative skills ranked second and specialized professional skills ranked third.

Phonsa et al., (2019) investigated the most important 21st century skills of elementary school principals in Taiwan. The study sample consisted of 203 school administrators and nine experts. Through the analysis of documents and personal interviews, it was proposed that there were five main fields of 21st century skills, presented in the following order: technology and communication skills, management skills, thinking skills, participation and teamwork skills and self-development and other development skills.

Hall (2018) conducted a study to identify the degree of awareness of 21st century skills among Crusader High School teachers. The study revealed that the teachers believed 21st century learning skills must include collaboration and technology use. Moreover, the study revealed that teachers believed additional professional development was necessary in continuing the effective implementation of 21st century skills.

Kinnunen & Ahonen (2015) conducted a study to identify the most important 21st century skills that students need in their practical lives. A questionnaire was distributed to 718 students aged 11-15 in Finland. The results indicated that social skills ranked first, IT skills ranked second and life and work skills ranked last.

Woods-Groves (2015) attempted to identify the most important 21st century skills that students need from kindergarten to twelfth grade. The study sample consisted of 3,000 students. The study used the Human Behaviour Rating Scale, which included 91 statements related to the 21st century skills, in addition to a questionnaire for teachers, which included 30 statements. The study found that the most important sub-indicators for 21st century skills revolved around persistence skills, curiosity and social skills.

Al-Harbi (2013) aimed to predict the skills that should be available to 21st century teachers from the perspective of teachers and supervisors in Saudi Arabia. The researcher used a questionnaire distributed to 176 teachers and 78 supervisors in Al-Riyadh. From the teachers' perspectives, higher thinking management skills and evaluation skills were most important, followed by educational technology skills, life skills, knowledge-based economy skills, then learning management skills. Students' abilities management skills placed last. From supervisors' perspectives, knowledge economy skills and thinking management skills came in first place, followed by life skills, education technology, learning management, and evaluation skills. Students' abilities management skills placed last.

METHODOLOGY

Study Population

The study population consisted of male and female supervisors and teachers working in secondary schools in Dammam in Saudi Arabia. The number of supervisors in the sample totalled 220, while there are currently 4,063 supervisors in the academic year (2020/2021) (Statistics Department: Administration of Education in the Eastern Region, 2020).

Study Sample

The study sample was chosen randomly, and the questionnaire was distributed to all participants, amounting to 220 supervisors. 181 supervisors (82%) returned the questionnaire. From a quantitative perspective, the questionnaire investigated the extent to which secondary school teachers practiced 21st century skills from supervisors' perspectives.

From a qualitative perspective, the study included:

1. Individual interviews with seven secondary school teachers working in the educational supervision centres of the Education Administration in the Eastern Province cities of Dammam, Khubar & Dhahran. All supervisors had more than ten years of teaching experience and had passed the stages of being assistant teachers, practicing teachers, advanced teachers and expert teachers.

2. An analysis of the performance documents of 'daily lesson plans' of eight other teachers who were not included in the interview sheet.

Methodology of the Study

Research methods are defined as 'techniques and procedures used in the data collection process' (Cohen et al., 2007). Various methods can be used to collect data: surveys, questionnaire, interviews, written responses, focus groups, drawings, photos, videos and historical documents (Marton, 1988; Marton & Booth, 1997; Harris, 2008). These studies (Gass & Mackey, 2007; Gay & Airasian, 2003) argue that both quantitative and qualitative methods can be jointly used for data collection. They suggest that a questionnaire can be used to collect the majority of the data, but qualitative methods can be used alongside this to obtain more in-depth explanations.

In this section, research methods and Instruments that explain how to collect and use the necessary data for the purposes of interpretation and prediction will be reviewed. According to this study (Cohen et al., 2007), research methodology includes research methods and data collection methods that can help 'inferences, interpretation and prediction' processes. Research methods can be divided into three main categories: quantitative, qualitative and mixed quantitative and qualitative methods (Cohen et al., 2007; Creswell, 2008; Bryman, 2008; Denscombe, 2008; Berg, 2009).

It is worth mentioning that the choice of method depends on the nature of the study, its population, the type of assumptions, the research variables and the research questions (Gay and Airasian, 2003; Cohen et al., 2007; Creswell, 2008; Bryman, 2008; Berg, 2009). However, another study (Denscombe, 2008) argues that this choice may be influenced by 'job interest, funding opportunities, training, and interpersonal skills rather than a purely "rational" choices that are based on the merits of each of the available alternatives.

This study uses descriptive statistics to describe the teaching practices of secondary school teachers and ways to develop them in light of 21st century skills to improve teaching practices and curricula design in Saudi Arabia. According to these studies (Wisker, 2007; Gilbert, 2008), it is possible to conduct investigative research that allows the researcher to collect data on situations, activities and experiences. In other words, surveys can describe the population and their perspectives by using appropriate samples (May, 2001).

One study (Ary et al., 1985) notes that survey research is very common in social studies. Researchers resort to this type of research when they need data from a large sample, as interviews and observations are used with a limited number of participants (Gilbert, 2008). As for this study, in order to obtain answers to the study question, using both quantitative and

qualitative methods was helpful. The author used a questionnaire as the main Instrument for collecting data from the supervisors, while the sample of eight secondary school teachers were interviewed and their performance documents (lesson plan records) were analysed. This was in order to collect a large amount of data and understand some issues in more detail.

The mixed method approach was used in this study based on the triangulation of Instruments and results, as triangulation is one of the most effective means of collecting, analysing and interpreting data. If the data and their interpretations are consistent, this method provides structural support for data and information and indicates high validity.

Validity of the Study Instrument

Triangulation was used to confirm the validity of study Instruments

1. The external validity and internal consistency of the questionnaire that was distributed to the secondary school supervisors were confirmed.

2. Reference competency: the researcher presented the answers to the interview questions to the expert teachers themselves and discussed their contents with them in order to provide justification for their opinions. The blogs were accepted by the responding teachers.

3. Consensual validity: this refers to whether what others say is consistent with what has been described by the researcher. This requires presenting the researcher's findings to expert specialists to find out the extent to which they agree with the researcher. Results and explanations were discussed with a number of specialists in curricula, teaching and teaching technology.

Study Instrument

First - The Questionnaire

In order to investigate secondary school teachers' use of 21st century skills from supervisors' perspectives, the study Instrument was built based on previous studies, such as these (Al-Harithi, 2020; Al-Attab, 2020; Hafsah, 2017). The questionnaire initially consisted of 39 statements distributed over five fields: technical skills, participatory-communicative skills, general cognitive pedagogy, cognitive content pedagogy and thinking skills.

External validity was verified by presenting the questionnaire to a group of specialists to hear their opinions on the accuracy and relatedness of the content and suitability of the statements. They were asked to add, modify or delete statements according to their judgements.

The researcher has, accordingly, modified and developed the questionnaire according to the responses he obtained from these specialists. Therefore, he deleted the field of cognitive content pedagogy, as this field focuses on specialized skills and competencies in the knowledge field, not on 21st century skills. Hence, the questionnaire only included 31 statements distributed over four areas: technical skills, participatory-communication skills, general pedagogical knowledge, and thinking skills.

In order to verify the internal consistency of the statements, the questionnaire was re-applied to a sample of 20 secondary school supervisors. Pearson correlation coefficients of questionnaire statements and fields were calculated. The correlation coefficients ranged from 0.51 to 0.87. This indicates that the internal consistency of the questionnaire and its statements are valid.

For the purposes of verifying the stability of the internal consistency of the questionnaire, the researcher used two methods: the half-segmentation method (where the correlation

coefficient between the two halves was 0.79) and the stability coefficient using the Cronbach's alpha. The pilot sample data was tested and then re-tested after two weeks. The internal consistency value of the questionnaire was 0.87, which indicates good reliability.

Each statement was assigned a five-point response scale according to the Likert scale (very high, high, medium, little, very little), represented numerically (5, 4, 3, 2, 1, respectively). Scores ranged from 31 to 155. To judge the level and degree of practice, the means of the individuals' responses were classified into three levels. A mean of 1-2.33 indicates a low level, 2.34-3.67 indicates a medium level and 3.68-5 indicates a high level.

Second - Individual Expert Interviews

The effectiveness of the questions reflects what the researcher wants to understand, i.e. the extent to which secondary school teachers practice 21st century skills from the teachers' own viewpoints, and this is related to the validity of the interview Instrument. An interview was conducted with seven experts from secondary schools in Dammam and an interview sheet was prepared. The researcher prepared a set of questions that lead to fruitful discussions on the study topic and its goal. In order to achieve an acceptable level of stability, the following was taken into account:

- Choosing appropriate conditions for conducting the interviews and confirming that the interviews would be used for the purposes of this study only.

- Unpacking and coding the content of these recorded interviews.

- Reading answers carefully.

- Identifying similar ideas and classifying data according to common themes.

- After completing the interviews and recording them, the researcher discussed the results with the teachers who were interviewed and gave them the freedom to delete, modify or add to answers.

Third - Analysing the Performance Documents

Eight lesson plan records were selected from different majors and from teachers with different teaching experience. These included lesson plans or notebooks with written descriptions of preparation, implementation and evaluation of lesson plans. In each record, the researcher considered the learning objectives, outcomes for each lesson, content, methods and strategies of teaching, methods of evaluation, work sheets, laboratories and activities.

STUDY RESULTS AND DISCUSSION

To answer the study's question regarding the extent to which secondary education teachers practice 21st century skills from supervisors' perspectives, the means and standard deviations of the responses were calculated. The results are detailed below in Table 1.

No.	Table 1 THE MEANS AND STANDARD DEVIATIONS OF THE RESPONSES TO EACH STATEMENT REGARDING .GENERAL PEDAGOGICAL KNOWLEDGE SKILLS, PRESENTED IN DESCENDING ORDER			
No.	Statement (indicator)	Mean	ST	Level
1	The teacher creates a safe, supportive and interactive study environment.	4.32	1.33	High
2	The teacher has the ability to adapt to situations and make appropriate decisions.	4.17	1.21	High

3	The teacher employs learner-centred learning strategies and methods.	3.87	0.4	High
4	The teacher varies evaluation methods and Instruments.	65.3	1.67	Moderate
5	The teacher provides timely feedback to students.	51.3	0.62	Moderate
6	The teacher takes into account the students' characteristics, preferences and individual differences.	47.3	0.81	Moderate
7	The teacher acts as a facilitator of the learning process.	17.3	0.8	Moderate
8	The teacher helps students acquire self-learning skills.	36.2	6.1	Moderate
Average Mean		56.3	03.1	Moderate

It can be seen from Table 1 that the mean of the statements in the field of general pedagogical knowledge skills had an overall mean of 3.56. The means of the statements ranged from 4.32 to 2.36. Statement 1 came in first place with a high mean of 4.32, followed by Statement 2 in second place with a mean of 4.17. Statement 7 ranked next to last, with a mean of 3.17, and Statement 8 ranked last with a mean of 2.36.

Table 2 THE MEANS AND STANDARD DEVIATIONS OF THE RESPONSES TO EACH STATEMENT REGARDING COMMUNICATIVE-PARTICIPATORY SKILLS, PRESENTED IN DESCENDING ORDER				
No.	Statement (indicator)	Mean	ST	Level
1	The teacher provides opportunities for students to debate, consult and participate in work.	15.4	10.1	High
2	The teacher has a positive attitude when discussing with students and managing their dialogues.	11.4	08.1	High
3	The teacher understands students' mistakes and addresses these mistakes with knowledge.	71.3	1.04	High
4	The teacher creates educational situations that support personal and social responsibility.	37.3	0.74	Moderate
5	The teacher enhances the importance of students' cooperation with the different research centres.	17.3	0.87	Moderate
6	The teacher encourages students to employ the acquired knowledge in new situations.	09.3	0.77	Moderate
7	The teacher encourages students to accept constructive criticism and others' opinions.	36.2	0.65	Moderate
Average Mean		42.3	06.1	

Table 2 presents the mean of the communicative-participatory skills, which was calculated to be 3.42. The means ranged from 4.15 to 2.36. Statement 1 came in first place with a mean of 4.15, followed by Statement 2 with a mean of 4.11. Statement 6 came second to last with a mean score of 3.09, and Statement 7 came last with a mean of 2.36.

Table 3 THE MEANS AND STANDARD DEVIATIONS OF THE RESPONSES TO STATEMENTS REGARDING TECHNICAL SKILLS, PRESENTED IN DESCENDING ORDER.				
No.	Statement (indicator)	Mean	ST	Level
1	The teacher uses different modern multimedia in their teaching.	81.3	0.72	High
2	The teacher can use technological techniques easily.	59.3	0.2	Moderate
3	The teacher uses blogs to create online platforms for students.	41.3	0.27	Moderate
4	The teacher uses electronic applications to communicate with students	39.3	0.24	Moderate
5	The teacher urges their students to use the digital library and various information sources.	3.2	21.1	Low
6	The teacher assists students to produce, develop and disseminate knowledge through modern technical means.	26.2	0.39	Low

7	The teacher clarifies the ethical and legal standards and issues related to information technology.	19.1	36.1	Low
	Average Mean	85.2	94.0	Moderate

Table 3 shows that the average mean of the technical skills was 2.85, and the means of the statements ranged from 3.81 to 1.19. Statement 1 came first with a high mean of 3.81, followed by Statement 2 with a mean of 3.59. Statement 6 ranked next to last with a low mean of 2.26, and Statement 7 came last with a low mean of 1.19.

Table 4
THE MEANS AND STANDARD DEVIATIONS OF THE RESPONSES TO STATEMENTS REGARDING THINKING SKILLS, PRESENTED IN DESCENDING ORDER.

No.	Statement (indicator)	Mean	ST	Level
1	The teacher introduces the course topics in an interesting way that triggers thinking.	16.3	18.0	Moderate
2	The teacher poses questions that lead students to develop their imagination.	07.3	02.0	Moderate
3	The teacher encourages students to innovate and create.	51.2	06.0	Moderate
4	The teacher stimulates students to ask questions and think about controversial issues.	39.2	14.0	Moderate
5	The teacher prompts students to arrive at conclusions that are novel and varied.	31.2	17.0	Low
6	The teacher provides opportunities for the self-evaluation of ideas and experiences presented in class.	19.2	15.0	Low
7	Students are encouraged to follow steps to solve problems.	07.2	06.0	Low
8	The teacher trains students to discover fallacies during dialogue and discussion.	03.2	17.0	Low
9	The teacher guides students to make decisions in light of results.	17.1	16.0	Low
	Average Mean	32.2	13.1	Low

It can be seen from Table 4 that the average mean of the statements regarding thinking skills was low (2.32), ranging from 3.16 to 1.17. Statement 1 came first with the highest mean of 3.16, followed by Statement 2 with a mean of 3.07. Statement 8 came next to last, with a mean of 2.03, followed by Statement 9 last with a mean of 1.17.

Table 5
THE MEANS AND STANDARD DEVIATIONS OF SECONDARY SCHOOL TEACHERS' PRACTICE OF 21ST CENTURY SKILLS FROM SUPERVISORS' PERSPECTIVES, PRESENTED IN DESCENDING ORDER.

Field	Mean	ST	Level
General pedagogical knowledge	3.56	6.1	Moderate
Communicative-participatory skills	3.42	03.1	Moderate
Technical skills	2.85	94.0	Moderate
Thinking skills	2.32	12.1	Low
The average Mean	3.03	0.76	Moderate

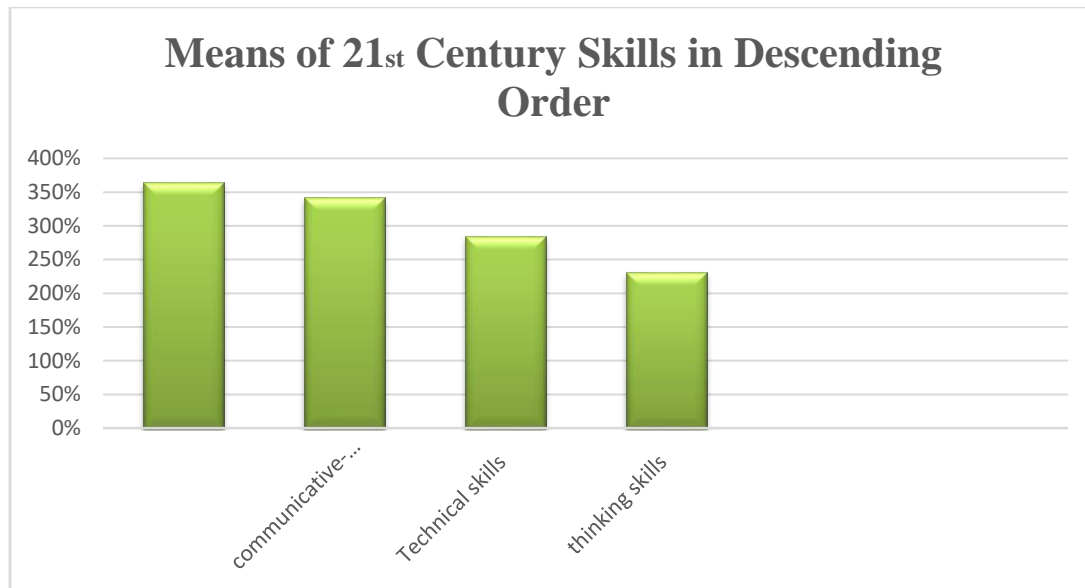This can be illustrated by the following graph:

FIGURE 1
MEANS FOR THE FIELDS OF SECONDARY SCHOOL TEACHERS'
PRACTICE OF 21ST CENTURY SKILLS

The results outlined in Table 5 indicate that general pedagogical knowledge ranked first with the highest mean of 3.56, followed by the field of communicative-participatory skills with a mean of 3.42. Technical skills came in third place with a mean of 2.85, while thinking skills ranked last with a low mean of 2.32. As for the total sum of these skills, the mean was calculated to be 3.03 and standard deviation was calculated to be 0.76. These results are similar to those found in other studies (Al-Harithi, 2020; Al-Juhani, 2019). They indicate the importance of teachers' practice of 21st century skills in producing high-quality educational outcomes for both teachers and learners, equipping students with the ability to face the hardships of contemporary life effectively (Figure 1). These findings are supported by the results of other related studies (Spirits, 2020; Phonsa et al., 2019; Hall, 2018; McDowell, 2017).

The fact that general pedagogical knowledge ranked first may indicate that secondary school teachers have an interest in the basic skills that underpin the implementation of the teaching process: classroom management, adaptability to classroom situations, social and interactive systems in the classroom, teaching methods, evaluation, feedback, tests, consideration of students' characteristics and the organization of a safe, supportive and interactive study environment where the teacher facilitates the educational process via student-centered learning strategies. Thus, these results are similar to the results of another study (Al-Attab, 2020), where managing the art of learning ranked first.

The above results agree with those of the interviews, where expert teachers were shown to take great care in organizing an interactive study environment, conducting student-centered classes, acknowledging student capabilities and taking into account the individual differences between students. Below are some of the teachers' comments that serve to reinforce the results.

- 'A good teacher is one who possesses the art of teaching and is able to simplify information and experiences and present them to students in an interesting way that stimulates and motivates them to love science.'

- 'My role as a teacher is to facilitate and organize the learning process. I believe that a teacher's method of teaching and classroom management is more important than anything else. It is even more important than the content itself. What is the use if the teacher has the best and most recent information in his/her major, but he/she cannot deliver it to his/her students in a simple and fun way?'

- 'A safe learning environment is key to effective learning and achieving the highest possible learning outcome'.

- 'It is necessary to take into account the cultural, social, economic and intellectual diversity in the students' environment, and a smart teacher is one who can bridge the gap between the differences of students' characteristics, needs and preferences'.

- 'The world today has many requirements and multiple needs. Students face many difficulties, which reflect on their psychology and learning. Teachers should realize this and meet their students' needs through applying evaluation methods that take these needs into account.'

- 'The teacher must realize the prior knowledge of his/her students, and start from that. This saves time and effort.'

These statements are consistent with the results of Table 1, where statements 1, 2 and 3 had high means. The first statement indicated the ability of secondary school teachers to organize a safe, supportive and interactive study environment, and the second statement indicated that teachers possess the ability to adapt with appropriate attitudes and decision-making, and the third statement refers to teachers' use of learning strategies and methods that are learner-centered.

In light of the analysis of secondary school teachers' daily preparation documents, records and notebooks, results indicated that, in all eight records, secondary school teachers focused most on teaching and evaluation strategies. Their notes make it clear that they are interested in organising an interactive study environment. They are very keen on using multiple teaching and evaluation strategies, where the teacher plays an important role in guiding and facilitating the educational process. Below are some of the teacher's statements recorded in their notebooks:

- 'Following methods that support reading comprehension, such as summarizing ideas, outlining the topic, commenting, and reproducing the text'.

- 'Following appropriate strategies to deepen understanding and summarizing knowledge, such as concept maps, drawing trees and making tables'.

- 'Assessment Instruments used: Direct questions, short tests, performance skills'.

The field of communicative-participatory skills ranked second with a mean of 3.42, similar to other research (Woods-Groves, 2015; Al-Juhni, 2019). This may be due to the close link between the field of general knowledge of pedagogy and the field of communicative-participatory skills, as both fields are said to have a common goal (Al-Sharif & Ahmed, 2020). If general cognitive pedagogy is centered around the implementation of the teaching process, then communicative-participatory skills is centered on social relations and cooperation within the classroom. This includes teachers' positive attitudes, which give students the opportunity to discuss, consult and participate in activities and accept mistakes, opinions and constructive criticism.

The students' acquisition of these skills is important in activating their role inside and outside the classroom, as indicated by numerous other studies (Al-Magharebeh & Mustafa, 2020; Al-Attab, 2020; Al-Jahni, 2019; Al-Harbi, 2013).

The results of the interviews were consistent with the results of communicative-participatory skills, where the seven teachers all expressed their interest in creating an interactive/friendly classroom environment. Here are some of their comments.

- 'My relationship with students is based on brotherly interaction and mutual respect'.

- 'The distinguished teacher is the one who can attract students' attention by exchanging feelings of respect and friendliness, as this guarantees the success of the relationship between the teacher and the student'.

- 'Respecting students, accepting their ideas and taking into consideration their feelings is essential for the educational process'.

- 'The teacher has to accept and respect the students' opinions, even if they were naïve.'

These results agree with those in Table 2, as several statements portray high school teachers' practice of communicative-participatory skills in a positive manner. Statement 1 came with a high mean of 4.15, followed by Statement 2 with a high mean of 4.11. Statement 3 also had a high mean of 3.71.

Having analyzed the secondary school teachers' daily preparation documents, records and notebooks, the results uncovered the interests of the sample members regarding communicative-participatory skills and their practice in the classroom. Below are some statements from their records.

- 'Discussing and analysing lesson ideas using collaborative learning strategy, dialogue and discussion'.

- 'Asking students to give examples that are related to their daily life'.

- 'The students must respect the etiquette of dialogue, listening to others and respecting different opinions'.

- 'Students need to appreciate the importance of observing social norms to produce linguistic discourse'.

Technical skills came in third place with a mean of 2.85, giving it the same ranking as that of this study (Al-Magharebeh & Mustafa, 2020). This area is considered one of the most important aspects of 21st century skills according to many studies (Al-Juhani, 2019; Al-Harbi, 2013). This is because technical skills help students use technological applications. They also save time and effort and make the learning process more fun and full of activity. This is supported by statements 1, 2, 3, and 4 in Table 3. Statement 1 had the highest mean at 3.81, followed by Statement 2 with a mean of 3.59. Statement 3 came third with a mean of 3.41, and Statement 4 had the lowest mean at 3.39.

The results of the interviews show that technical skills were important for five of the seven sample members (71.5%). Here are some of their remarks.

- 'Computers and computer technologies have become necessities of life, and the class cannot achieve its goals without this development. Rather, the teacher has to develop himself/herself in this area in order to keep pace with the requirements of the current era'.

- 'The era of technology made it easier for teachers and students to interact and communicate, and made the classroom more exciting and fun compared to traditional lessons'.

- 'The teacher who does not cope with the necessary computer processes will lose the ability to deal with the content of his/her subject, and will not be able to manage the classroom effectively'.

- 'I had little interest in computer applications, but in times of the Corona pandemic, either you have mastered computer skills and electronic applications, or you will be left behind in the educational process'.

Two out of seven teachers (28.5%) indicated that technical skills are not needed in all aspects of the classroom. One teacher (KH) expressed this by saying, 'Technology, especially

social networking sites, has stolen our time and positive interaction. We gave it so much interest that it distanced students from real life, from reading books, or from visiting the library. This negatively affected students' knowledge'. He also added, 'The textbook is the official document of knowledge and the source of information because it provides the teacher and students with sound information in a reliable, educational and safe form'. The other teacher (AH) stated, 'The focus on educational technology has robbed the teacher of his/her value, appreciation and social standing, and the students have started to show many negative behaviours and emotions. How can a teacher use technical skills in the classroom when some students, because of their economic circumstances, do not have computers or smart phones?'

These results were consistent with the results of the interviews. The researcher sees almost a complete match between the opinions of the teachers (KH and AH) and statements 5, 6 and 7 in Table 3, as Statement 5 had a low mean of 2.30. Statement 6 also had a low mean of 2.26, while Statement 7 had the lowest mean at 1.19.

In terms of the results of the analysis of teachers' preparation records, all eight members of the sample indicated that they use technological media (especially computers), particularly to make PowerPoint presentations. Four teachers mentioned that they use various technological media such as Microsoft Teams, Zoom, Kahoot, Google Instruments and YouTube. The researcher believes that the teachers' interest in technical and technological media may initially seem to be a compulsory requirement, as it is necessary for a teacher to write that they use technical media. It is worth mentioning that the COVID-19 pandemic has caused the use of technical media in education to become widespread, resulting in teachers documenting the suggestion of using media and technical applications imposed on them by the conditions of distanced education.

Despite its importance, thinking skills came in last place with a low mean of 2.32, which is a starting point and basis for the other fields according to many studies (Al-Attab, 2020; Al-Juhani, 2019; Al-Harbi, 2013). This field contributes to the students' acquisition of high-level thinking skills, development of imagination, being able to innovate, creating and solving problems and arriving at novel and varied conclusions.

However, as shown in Table 4, the supervisors' perspectives (especially statements 6, 7, 8 and 9) indicate that secondary school teachers rarely provide students with opportunities for the self-evaluation of ideas and experiences. The responses also imply that they seldom encourage students to solve problems, discover fallacies and make decisions.

The results of the interviews followed the same trend, indicating that thinking skills were not prioritized as highly as they should be. Five teachers in the target sample expressed a low level of practice of these skills in the classroom. Below are some of their remarks.

- 'The effective teacher is the one who uses class time wisely, plans and follows up the students, and answers their questions and inquiries without distracting them or wasting class time on marginal matters that students may learn with time in their practical life.'

- 'The school administration or supervisors often ask teachers to finish the academic content (the textbook). This takes effort, organization and management from the teacher, which may distance him/her more often from focusing on thinking processes, asking open questions and starting time-consuming discussions. The teacher may be embarrassed when some students ask questions that are difficult to answer.'

- 'Thinking skills, especially higher and complex ones, need special workshops and training courses. They are very useful in mathematics, physics and science classes. However, they may not be suitable for some courses, especially the literary subjects.'

- 'Teaching that aims to develop thinking skills requires a teacher who is skilled in these skills. It also needs administrative and supervisory facilities, and this is what we lack in practice. In addition, there is a lack of training courses and workshops that prepare teachers before and during service to develop thinking skills and help them to transfer these skills to students.'

On the other hand, two teachers stressed the importance of thinking skills through their attempts to implement some activities based on thinking skills, training and transferring such skills to students. One teacher (ND) believes that teaching students thinking skills is something that requires planning and meta-thinking. Only an expert teacher who is knowledgeable about teaching strategies and thinking skills is proficient in his/her specialization and who has a passion for teaching can master this. In a similar statement, another teacher (TK) stated that mastering thinking skills is a life necessity, and teachers should train students to face the requirements of life. She added that students may receive specialized knowledge from any source, but they soon forget it. However, if students acquire thinking skills and are accustomed to practicing them in classes, they will truly become active learners. This will help them acquire knowledge and be able to preserve it via well-organized methods.

The previous results regarding thinking skills are consistent with the results gained the lesson plan records in Dammam, as two teachers mentioned that they use strategies that involve critical thinking and brainstorming. However, these strategies were just theoretical in the lesson plans - teachers did not actually apply them in classrooms.

Study Limitations

The study was limited to:

1. Secondary school (male and female) supervisors in Saudi Arabia.

2. Secondary school (male and female) teachers in Saudi Arabia.

The study was conducted in the academic year 2020/2021 in Dammam, Khobar, and Dhahran in the Eastern Province of Saudi Arabia.

Contribution of the Current Study to the Literature

- The current study discusses a topic related to educational innovation, which comes as a response to global trends calling for the utilisation of 21st century skills in education. This may contribute to the development of teaching methods that can provide students with necessary life skills.

- This study is useful in providing a list of the 21st century skills that teachers should include in their practice. These skills may contribute to the development and improvement of the methods and practices that teachers use, as well as identify the strengths and weaknesses of their teaching practices.

CONCLUSIONS

In light of the results and discussion presented above, the study concludes that:

- Secondary school teachers' practice of 21st century skills, from supervisors' perspectives, was moderate.

- In terms of supervisors' perceptions of teacher practice, the field of general cognitive pedagogy placed first with a level of 'moderate', followed by the field of communicative-participatory skills, also with a level of 'moderate'. The field of technical skills ranked third and, finally, the field of thinking skills ranked last with a level of 'low'.

- It is important for teachers to practice 21st century skills in the classroom in order to produce high-quality educational outcomes for both teachers and students alike. The use of such skills will also help students face life's hardships effectively and positively.

RECOMMENDATIONS

Having presented the results and conclusions, the study recommends:

- Integrating 21st century skills into teacher preparation and certification programs in Saudi Arabian universities.

- Conducting research and studies related to measuring the impact of including 21st century skills in school curricula and their suitability to the needs of the labour market.

- Providing teachers with before-and-during service training programs in order to equip them with 21st century skills.

- Conducting workshops to develop the performance of secondary school teachers in Saudi Arabia in light of 21st century skills.

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