A Proposed Plan To Develop The Skills Of Math Teachers In Light Of New Educational Technologies

Dr. Hassan Abdullah Eshaq[1]*

Abstract

The current research identifies the reality of the application of modern educational technologies in mathematics education in the Kingdom of Saudi Arabia, the obstacles to the application of modern technological education in mathematics education, the impact of applications of modern learning technologies on the skills of mathematics teachers, and then to develop a proposed plan to improve the skills of mathematics teachers in the light of education. The study relied on the analytical descriptive approach and used the questionnaire as a tool for the study. The study sample consisted of (100) mathematics teachers in the Kingdom of Saudi Arabia. The study found that the reality of applying modern educational technologies in teaching mathematics in the Kingdom of Saudi Arabia is high. However, some obstacles to the application of modern educational technologies in teaching mathematics include the low knowledge of how to use educational technology and modern technologies, the belief of some teachers that teaching mathematics depends on interaction and direct communication with the student, the difficulty of controlling the educational situation and controlling the behavior of students, and the insistence of some teachers to follow the traditional methods in the educational process. The study shows that there is a statistically significant need for the applications of modern learning technology by mathematics teachers in the Kingdom to develop their capabilities in technological practices and active education.

Keywords: Modern Technologies, Technological Practices, Active Education, Math Education, Educational Technologies.

Introduction

In recent years, the world has witnessed tremendous developments in various fields as a result of the technological revolution that invaded all fields, including the field of education, where the educational process has witnessed great developments in recent years, which in turn led to the emergence of modern educational methods and methods used by teachers in all disciplines, including mathematics.

[1]*Associate Professor of Mathematics Education, College of Education - Jazan University, Kingdom of Saudi Arabia, 2023 Kingdom of Saudi Arabia, Jazan University,
Email: haeshaq@jazanu.edu.sa, haeshaq@gmail.com

Reflecting on mathematics, we find that it has become an essential part of daily life, and the process of mathematical comprehension is one of the important things in the educational process, and the teaching practices of teachers have a major role in understanding teaching methods and strategies (Al-Enezi and Al-Massad, 2018, p. 1).

The success of the educational process depends on the teacher and his skills, although the student is the focus of the educational process, the teacher is the main element that makes the education process a successful process, and his role is not limited to transferring information only, but also develops to become an assistant in the educational process, whether it is in preparing lessons, or researching various learning sources (Dweikat, 2022, p. 1). Therefore, he must be qualified to be able to use technology in a way that enriches the educational process (Malkawi and Al-Rasai, 2021, p. 207).

The vision of the Kingdom of Saudi Arabia 2030 has emphasized the role of technology and the importance of employing it in the educational process, through training teachers and developing their skills in the use of technology in teaching different curricula (Al-Anzi, Al-Massad, 2018, p. 2), and (STEM) is one of the global trends that have proven its effectiveness over the past three decades, and therefore the development plans set by the Ministry of Education within the Kingdom recommended the need to adopt science, technology, engineering, and mathematics for this system, due to its efficiency in the educational process (Aloraini, 2020, p10).

Therefore, there is an increasing need to improve the outputs of the educational system, which must start from the stages of teacher training on modern skills in technology-based teaching, and because mathematics is one of the basic courses that have received and are still receiving the attention of many educational researchers and curriculum planners, the current research came to develop a proposed vision to develop the skills of mathematics teachers in the light of modern technological learning.

Research Questions

Technology has become an essential part of the educational process within the classroom, which needs teachers with high levels of competence and experience in the use of modern technology, to be able to play their role in the teaching process more effectively, so the Kingdom of Saudi Arabia has been keen to introduce technology into the educational system at all school levels, including the preparatory stage, which was indicated by a study (Alqarni, 2015). Despite the great role played by technology in the educational process, there are

some challenges facing e-learning, which was indicated by many studies such as: (Othman, 2023; Zoukan and Moussa, 2021, AlAmri & Saleh, 2019), and these challenges need teachers familiar with technological innovations that are going through in the educational environment, which requires these teachers to possess high teaching skills that correspond to the requirements of the times, and from here we crystallize the research problem is in the following questions:

1. What is the reality of the application of modern technological education in mathematics education within the Kingdom of Saudi Arabia?
2. What are the obstacles to the application of modern technological education in mathematics education?
3. Do the applications of modern learning technologies affect the skills of mathematics teachers?
4. What is the proposed vision to improve the skills of mathematics teachers in light of modern technological education?

Importance of this research

The importance of current research is divided into:

First: Scientific importance which is represented in:

1. Enriching the scientific library with new results regarding the research topic.
2. Identifying technological education as one of the modern methods in learning systems.
3. Identifying the impact of using technological applications and their role in developing the skills of mathematics teachers.

Second: Application importance which is represented in:

1. Help math teachers enhance their strengths and address weaknesses in their educational practice.
2. Providing objective tools used in teaching mathematics with STEM education.
3. Assist decision-makers to take the necessary measures to meet the challenges facing the educational process.
4. Providing educational programs and courses for mathematics teachers to raise their level of efficiency in the use of technology in the educational process.
5. Provide solutions and proposals that in turn help overcome the obstacles faced by mathematics teachers.

Research Boundaries

The research boundaries include:

Objective boundaries: Recognizing the reality of the application of modern technological education in teaching mathematics in the

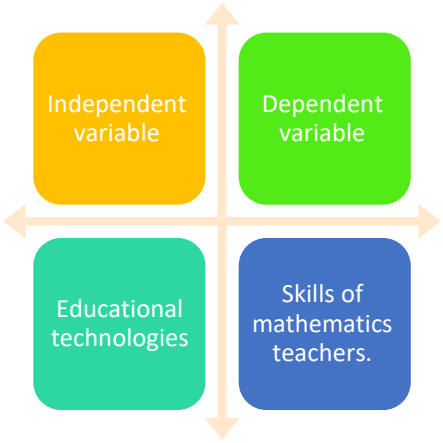
Kingdom of Saudi Arabia, identifying the obstacles to applying modern technological education in teaching mathematics, identifying the impact of modern learning applications on the skills of mathematics teachers, and then developing a proposed vision to improve the skills of teachers. Mathematics in the light of modern technological education.
Human boundaries: The current research was applied to a group of mathematics teachers.

Spatial boundaries: The current research was applied in middle schools in Jazan region, in the Kingdom of Saudi Arabia.

Temporal boundaries: The current research was conducted in the third semester of the academic year 1444 AH.

Research Hypothesis
In light of the research questions and objectives, the research hypothesis is that the applications of modern learning technologies affect the skills of mathematics teachers

Research Structure



Independent variable: educational technologies.
Dependent variable: Skills of mathematics teachers.

Research Methodology

The current research relies on a descriptive analytical approach, by referring to the theoretical literature on the subject of the research. The researcher uses a questionnaire tool to identify the reality of the application of modern technological learning in mathematics education within the Kingdom of Saudi Arabia, identify the obstacles facing the application of modern technological learning in mathematics learning, identify the impact of the applications of

modern learning technologies on the skills of mathematics teachers, and then to develop a proposed conception to improve the skills of mathematics teachers in the light of modern technological learning.

Research Concepts

- **Modern technological learning**

There are many names used by researchers for the concept of technological learning, but they all carry the same meaning. For example, Olayan (2019, p. 273) defines it as "the study and ethical practices that facilitate the process of education, and work to improve performance by creating technological resources and processes commensurate with the learning process, and then to use and manage them in that process." Rajab (2021, p. 14) defines as "a modern educational system that carries with it educational and technological competencies that the teacher or learner should recognize and possess to succeed in following it." Zoqan and Moussa (2021, p. 146) call it "an educational system that takes place through electronic means of communication such as electronic portals, the Internet, PowerPoint program, networks, chat rooms, and a data projector, whether inside the classroom or remotely." Finally, Najim (2020, p9) describes it as "one of the means that support the educational process and transform it from the stage of indoctrination to the stage of creativity, interaction and skills development and brings together all forms of teaching and learning e-learning, where the latest methods are used in the fields of teaching, publishing, and entertainment through the adoption of computers, storage media, and networks."

Literature Review

There are many studies that examine the role of technology in the educational process. The latest is a study by Akram et al. (2022) entitled "Teachers' Perceptions of Technology Integration in Teaching–Learning Practices: A Systematic Review". The study relied on the analytical approach, presenting previous studies conducted in the past five years, and the results found that teachers show positive perceptions regarding the integration of technology into teaching and learning practices. Teachers also believe that technology-based teaching helps them effectively enhance their educational practices, which makes the learning process exciting and interactive. The study also found that there are barriers to teachers when effectively integrating technology into educational practices including slow internet speed, load disconnection, lack of infrastructure, and lack of online teaching experience and training.

Aladwan (2020) conducted a similar study examining the use of educational technologies and modern electronic educational media in

teaching science for grades (fourth, fifth, and sixth) and its impact on the educational process from the point of view of public-school teachers affiliated with the Jordanian Ministry of Education. The study relied on the descriptive approach and used a questionnaire tool to collect data from the members of the study sample of (249) teachers who teach the first basic grades in government schools affiliated with the Jordanian Ministry of Education. The results revealed that a large number of members of the study sample feel that there are several educational obstacles using technical methods and means, represented in the lack of qualified teachers in the design of e-learning and the lack of appropriate training for e-learning. In addition, the lack of material capabilities to connect to the electronic network and the weakness of the infrastructure for e-learning are all factors that hinder the use of electronic technologies in teaching the third grade. The results also showed that a large percentage of the study sample considered the use of e-learning methods in the school positive and has a high degree of effectiveness if it is employed by individuals who possess sufficient skills and experience in the field of teaching methods and pedagogical strategies in general.

Abdel Hafez (2020) examined "The Role of E-Learning in Improving Mathematics Education at the University Level". The study aimed to measure the role of using the e-learning strategy in achieving improvement in the process of teaching mathematics (teaching, learning, evaluation) collectively and individually from the point of view of faculty members and students, and to know the significant differences between the variables of the study. The study relied on the descriptive analytical approach, and a questionnaire was used as a study tool to collect data from the study sample members numbering (78) from the faculty members of mathematics and information technology, and a group of students (154) from the departments of mathematics and information technology. The results revealed a degree of effectiveness of the e-learning strategy in improving mathematics education in the three areas combined and both faculty members and students felt good about e-learning. Similarly, Odeh (2019) conducted another study, entitled "The Role of E-Learning in Developing the Professional and Achievement Performance of Mathematics", to identify the role of e-learning in developing teacher performance and improving mathematics learning outcomes in Al-Jouf region. The study relied on the descriptive survey approach and the semi-experimental approach and used the questionnaire as a study tool to apply to a sample of (120) mathematics teachers and a sample of female students (178) students. The study reached a number of results, the most important of which are: E-learning has a major role in developing and empowering teachers with twenty-first century

skills, and there are positive attitudes for students toward the application of e-learning in schools.

Finally, AlAmri (2019) examined the challenges facing the effective integration of ICT in secondary schools in the Kingdom of Saudi Arabia. The study relied on the descriptive analytical approach, and an interview was used as a study tool to collect data from the members of the study sample, where the study sample consisted of (12) teachers and (4) principals to obtain their opinions on the challenges that hinder the effective integration of ICT in secondary schools. The results showed that both teachers and principals consider the role of technology vital in improving the quality of teaching and learning and the overall performance of the teacher; however, there are many challenges that can hinder the effective integration of ICTs including lack of resources, a limited number of ICT teachers in schools, the lack of the required number of computers in computer classrooms, slow internet speed, teachers' change-resistant approaches to ICT use, and the lack of training.

Methodological procedures for research:

Research Methodology

The current research relied on the use of the descriptive analytical approach in order to identify the reality of the application of modern technological education in mathematics education within the Kingdom of Saudi Arabia, as well as to identify the obstacles to the applications of modern educational technology on the skills of mathematics teachers, and to examine the impact of modern learning technology applications on the skills of mathematics teachers.

Research population and sample:

The study population consisted of a hundred mathematics teachers in the Jazan region in the Kingdom of Saudi Arabia. The selection was random through the electronic application, and the following table shows the characteristics of the participants.

Table 1: Characteristics of participants

Value		No.	%
Gender	Male	65	%65
	Female	35	%35
Age	25 to 30	35	%35
	31 to 40	45	%45
	40 and above	20	%20
Years of Experience	1-5	25	%25
	6-10	45	%45
	11-15	20	%20

	16 and more	10	%10
Education Level	Bachelor	52	%52
	MA	25	%25
	PhD	23	%23
Total		100	%100

Research Tools

A questionnaire consisting of three sections was relied upon, namely:

- The first section measures the reality of the application of modern technological education in mathematics education within the Kingdom of Saudi Arabia, which consisted of (10) items.
- The second section measures the obstacles to the application of modern technological education in mathematics education which consisted of (10) items.
- The third section measures the impact of the applications of modern learning technologies on the skills of mathematics teachers which consisted of (7) items.

The Likert quintet scale was used to answer the questionnaire items, where the score on this questionnaire is calculated according to the following table:

Table 2 Shows response levels on a Likert scale

Response Level	**Very Frequently**	**Frequently**	**Sometimes**	**A little**	**Never**
Value	5	4	3	2	1

Questionnaire Validity

The validity of internal consistency of the questionnaire was relied upon in order to measure the validity of the questionnaire, by using the Pearson correlation coefficient, and the results of the correlation coefficient were as follows:

Table 3 shows the results of the correlation coefficient for the validity of the tool

Section 1			**Section 2**			**Section 3**		
Item No.	Correlation	value	Item No.	Correlation	value	Item No.	correlation	value
1	0.70	0.000	1	0.77	0.000	1	0.75	0.000
2	0.81	0.000	2	0.73	0.000	2	0.81	0.000
3	0.73	0.000	3	0.80	0.000	3	0.88	0.000
4	0.70	0.000	4	0.85	0.000	4	0.90	0.000
5	0.88	0.000	5	0.71	0.000	5	0.83	0.000
6	0.70	0.000	6	0.71	0.000	6	0.79	0.000

7	0.73	0.000	7	0.66	0.000	7	0.87	0.000
8	0.80	0.000	8	0.91	0.000			
9	0.82	0.000	9	0.77	0.000			
10	0.77	0.000	10	0.87	0.000			

From the table above, we can see that the correlation ranged between (0.66: 0.91) and all results show a significance level of less than 0.001, which indicates that this questionnaire has an acceptable level of truthfulness.

Tool stability

In order to calculate the level of stability of the questionnaire, the Cronbach alpha coefficient was relied upon, and the following table shows the stability coefficient.

Table 4 shows the results of the Alpha Crow Nabach coefficient for the stability of the tool

Range	No. of items	stability
Section 1	**10**	**0.70**
Section 1	**10**	**0.87**
Section 1	**7**	**0.70**
The whole Questionnaire	**27**	**0.88**

The table shows that the questionnaire has a coefficient stability, where the value of the Cronbach alpha ranged (0.70: 0.87) and the questionnaire as a whole (0.88), which indicates that the questionnaire can be relied upon as a study tool.

Results:

The results of the first question: What is the reality of the application of modern technological learning in mathematics education in the Kingdom of Saudi Arabia?

Both arithmetic averages and standard deviations were used in order to identify the reality of the application of modern technological learning in mathematics education within the Kingdom of Saudi Arabia, and the results showed the following in Table 5:

م	Item	arithmetic mean	standard deviation	Rank
1	I rely on demonstrations in teaching mathematics to employ them in the educational process	4.39	0.742	3
2	My teaching plan includes employing technology in teaching the prescribed content	4.38	0.767	4
3	I use smart boards and projectors as media in teaching practical content	4.51	0.609	1
4	I Rely on some software to convert data into graphs	4.16	0.975	9
5	I analyze mathematical equations using computer programs.	4.17	0.995	8
6	I encourage students to use technology to solve mathematical problems.	4.30	0.725	6
7	I use blogs to display and organize student accomplishments as an alternative to an achievement portfolio	4.13	0.973	10
8	I use digital libraries to enrich the topics of the developed mathematics curriculum	4.24	0.737	7
9	I assign students to solve some exercises through the software attached to the student's book or teacher's guide.	4.33	0.731	5
10	I Use modern technologies in receiving various assignments and actions from students	4.50	0.669	2
Total		**37.19**	**4.015**	**High**

It is clear from the previous table that the responses of the research sample to the first question which is concerned with measuring "the reality of the application of modern technological learning in mathematics education within the Kingdom of Saudi Arabia". The results show that the reality of its application was high with an arithmetic mean (37.19) and a standard deviation (4.015). Item (3) "I use smart boards and projectors as media in teaching practical content," obtained the highest arithmetic mean with a value of (4.51) and a standard deviation of (0.609), followed by item (10), which stated "Use modern technologies in receiving various assignments and actions from students." with an arithmetic mean value (4.50), and a standard deviation (0.669), followed by item (1), which stated "I rely on demonstrations in teaching mathematics to employ them in the educational process." with an arithmetic mean value (4.39), and a standard deviation (0.742), followed by item (2), which stated "My teaching plan includes employing technology in teaching the prescribed content." with an arithmetic mean value of (4.38), and a standard deviation (0.767).

Therefore, the results of the study indicate that the reality of applying modern technological learning in mathematics education within the Kingdom of Saudi Arabia was high; mathematics teachers use smart boards as media in teaching practical content, as well as the use of modern technologies in receiving various duties and works from students, relying on demonstrations in teaching mathematics to employ them in the educational process, and relying on teaching plans on employing technology in teaching the course.

The results of the second question: What are the obstacles to the application of modern technological education in mathematics education?
Both arithmetic averages and standard deviations were used to identify the obstacles of modern technological education in mathematics education, and the results showed the following:

Table 6: responses to the second Question

م	**Item**	arithmetic mean	standard deviation	**Rank**
1	The lack of suitable electronic devices hinders the use of technology in mathematics.	2.53	1.315	9
2	The poor internet is causing me to rely on traditional methods of teaching mathematics.	2.48	1.308	10
3	Poor knowledge of how to use educational technology and modern technologies hinders teachers' reliance on them in teaching the subject.	4.12	0.877	1
4	The insistence of some teachers to follow traditional methods in the educational process.	4.07	0.903	4
5	Lack of courses related to the use of electronic programs that are suitable for distance education.	3.15	1.391	6
6	Poor search skills for educational resources that can be employed in distance teaching.	2.80	1.414	7
7	Some teachers believe that teaching mathematics depends on interaction and direct communication with the student.	4.11	0.872	2
8	The need for large financial expenditures to subscribe to educational platforms.	2.77	1.400	8
9	Difficulty controlling the educational situation and controlling students' behavior.	4.09	0.966	3
10	Some devices malfunction during the educational process, which causes the completion of the explanation of the subject to stop.	4.03	0.901	5

The previous table shows the results of the responses of the research sample to the second question, which is concerned with measuring "obstacles to the application of modern technological education in mathematics education", where the item (3) which stated, "low

knowledge of how to use educational technology and modern technologies hinders teachers' reliance on them in teaching the subject, obtained the highest arithmetic mean with a value of (4.12) and a standard deviation of (0.877), followed by item (7), which stated "Some teachers believe that teaching mathematics depends on direct interaction and communication with the student" with an arithmetic mean value (4.11), and a standard deviation (0.872), followed by item (9), which stipulated "the difficulty of controlling the educational situation and controlling students' behaviors." with an arithmetic mean value (4.09), and a standard deviation (0.966), then followed by item (4), which stated "the insistence of some teachers to follow traditional methods in the educational process." with an arithmetic mean value (4.07), and a standard deviation (0.903).

Hence, the results of the study indicate that one of the obstacles to the application of modern technological education in mathematics education is the low knowledge of how to use educational technology and modern techniques that hinder teachers' reliance on them in teaching the subject. There is also the belief among some teachers that teaching mathematics depends on direct interaction and communication with the student, the difficulty of controlling the educational situation and controlling students' behaviors, and the insistence of some teachers to follow traditional methods in the educational process.

The results of the third question: Do the applications of modern learning technology affect the skills of mathematics teachers?

To answer this question, the regression coefficient was used to identify the impact of modern learning technologies applications on the calibrations of mathematics teachers, and the results showed the following Table 7:

R	R^2	R^2 Adjusted	F	Sig
0.29	0.09	0.271	5.71	0.000

It is clear from the previous table that there is a statistically significant effect of the applications of modern learning technologies on the skills of mathematics teachers, as the value of F (5.71), which is statistically significant at the level of significance (0.000), and the size of the impact of the applications of modern learning technologies on the skills of mathematics teachers reached (27.1%). The value of the coefficient of determination (R2 adjusted = 0.271), means that learning technology applications are responsible for (27.1%) of improving the skills of mathematics teachers. The results in Table (8) show the relative

impact of the applications of modern learning technology on the skills of mathematics teachers.

Variables	Value Measurement				
	Regression factor	Criteria	Beta value	t value	Level of significance
Value	0.36	0.19	0.62	2.23	0.000

It is clear from the previous table that there is a statistically significant positive impact of the applications of learning technology on the skills of mathematics teachers, as the value of (2.23), which is a statistically significant value at the level of significance (0.000), and the beta value (0.62), which indicates that the applications of modern learning technology have an impact on the skills of mathematics teachers.

The results of the fourth question: What is the proposed vision to improve the skills of mathematics teachers in light of modern technological education?

Based on the above results, the following sections describe the proposed scenario needed to improve the skills of mathematics teachers in light of modern technological education.

First: The philosophy of the proposed plan

The occurrence of many technological changes and the emergence of the Internet led to many changes in various aspects of life, which led to children's interaction with technology in various matters of daily life and the increasing demand for the use of the Internet. Recent periods have witnessed remarkable progress in various fields, including the educational sector, as a result of technological changes that have occurred in various aspects of life, which led to the educational sector trying to develop its various aspects in order to advance the educational and teaching processes and produce a promising generation capable of facing and solving problems.

Hence, it was necessary to pay attention to the introduction of technology in the process of teaching educational subjects in general, especially mathematics, which is one of the subjects that some believe that it is difficult to teach by relying on modern technology. On the other hand, mathematics is one of the basic subjects that the student depends on in various life matters. Hence, this requires taking into account a number of considerations for the skills of mathematics teachers in light of modern technological education which include:

1. Training teachers on how to use educational technology in teaching mathematics.

2. Changing the prevailing belief among some teachers about the difficulty of teaching mathematics through modern technology.
3. Direct teachers that the process of teaching mathematics is not only based on direct communication but can be taught through other technological means.
4. Introduce teachers to the ways in which the educational situation can be controlled and student behaviors controlled.

Second: Objectives of the proposed plan

In order to improve the skills of mathematics teachers in light of modern technological education, this proposed vision serves to achieve the following objectives:

1. Keep abreast of technological developments in working to improve the teaching of mathematics.
2. Improving the performance of mathematics teachers in reducing application obstacles.
3. Identify the reality of the application of modern educational technology in mathematics.
4. Drawing the attention of decision-makers towards the obstacles facing mathematics teachers in the application process.
5. Improving the performance of educational schools in the Kingdom of Saudi Arabia.

Third: The premises of the proposed conception

There is no doubt that schools have a major role in teaching students many skills including the introduction and proper use of modern technology in the student's daily life. Therefore, it can be said that the proposed vision addresses the following premises:

1. The tremendous technological development in various fields led to the tendency of many countries to apply it in the educational sector.
2. The belief that mathematics is difficult to teach through technological learning.
3. Achieving further development and progress in public schools in line with the developments in the Kingdom of Saudi Arabia.
4. The need to train mathematics teachers to practice modern technology in teaching the subject.

Fourth: Procedures for the implementation of the proposed plan

The educational process is one of the most important areas that many countries have increased attention to in recent periods in order to educate children and produce a promising generation capable of facing the rapid developments and changes that occur in the world. Therefore, the study recommends the following procedures for implementing the proposed vision:

1. Holding training courses for mathematics teachers on how to use modern technology in teaching mathematics.
2. Providing workshops for mathematics teachers on a permanent basis to solve the problems they face during the application of the technological system.
3. Conducting seminars for mathematics teachers to change the prevailing belief that mathematics requires a traditional educational system only.
4. Enhancing teachers' abilities to communicate effectively through technology.
5. Develop teachers' ability to control educational situations and control student behaviors.
6. Training teachers to use induction skills and problem-solving ability in their teaching of the subject.
7. Training teachers on the skills and methods of searching for educational resources necessary to employ the process of teaching mathematics remotely.

Fifth: Challenges that may face the application of the proposed vision

There are some challenges that may hinder the implementation of the proposed vision, or limit the effectiveness of its achievement which include:

1. Lack of motivation of teachers in acquiring the skills necessary for the improvement process.
2. Information illiteracy which causes weakness in the learning and development process.
3. Lack of financial resources which is a major obstacle to providing the necessary needs.
4. The teacher's neglect of courses and workshops through which the development process takes place.
5. The school's lack of interest in implementing the necessary requirements for the improvement process.

Research Recommendations and Proposals:

1. Urging teachers on the importance of using and employing technological means in their teaching of mathematics.
2. The Ministry of Education needs to put more focus on developing the teacher's capabilities in technological practices and means of active education.
3. Urging and motivating teachers to employ and use technology along with traditional methods of teaching.
4. Conduct more research on the methods of teaching physics through the use of modern technological means.

References

Arabic References

Olayan, Narges Qasim Marzouk. (2019). The use of modern technology in the educational process, *Journal of the Faculty of Basic Education for Educational Sciences and Humanities*, University of Babylon, Issue (42), pp. 271: 288.

Al-Anzi, Abdul Aziz bin Rawaf, Al-Massad, Ahmed bin Zaid. (2018). The reality of the use of technology in teaching mathematics for the primary stage in the schools of Arar City from the point of view of male and female teachers, *Journal of Educational and Psychological Sciences, Arab Journal of Science and Research Publishing*, Volume (2), Issue (23), pp. 1: 22.

Dweikat, Aya Abbas Jabr. (2022). The Extent to Which Mathematics Teachers Possess Distance Teaching Skills in Palestine and the Obstacles They Face, Master's Thesis, Faculty of Graduate Studies, An-Najah National University.

Zouqan, Ghassan Nayef Talab, Moussa, Zaher Sidqi Mohammed. (2021). Obstacles to the use of e-learning in public schools in Nablus Governorate from the point of view of educational supervisors, *International Journal of Humanities and Social Sciences, Faculty of Humanities and Social Sciences*, Beirut-Lebanon, Issue (23), pp. 142: 162.

Rajab, Riad Abdel Razek. (2021). Competencies of Distance Mathematics Learning among Mathematics Teachers in the Upper Basic Stage in Nablus Governorate, Master's Thesis, Faculty of Graduate Studies, An-Najah National University.

Abdel Hafez, Nidal. (2020). The Role of E-Learning in Improving Mathematics Education at the University Level, Qahlai Zanest Scientific Journal, Lebanese French University, Vol. (5), No. (1), pp. 787: 811.

Othman, Asma Ahmed Ezzat. (2023). Obstacles to the application of blended education in general, secondary education from the teachers' point of view: a field study, *Journal of the Faculty of Education*, Assiut University, Volume (39), Issue (1), Part (2), pp. 207: 228.

Odeh, Ikhlas Abdulhadi. (2019). The Role of E-Learning in Developing the Professional and Achievement Performance of Mathematics, *Arab Journal for Scientific Publishing, Issue* (10).

Malkawi, Osama Suleiman, Rasai, Mohammed Salama. (2021). The reality of employing information and communication technology in teaching mathematics in schools of education directorates in Ma'an Governorate, *Journal of Al-Hussein Bin Talal University,* Volume (7), Appendix (5), pp. 206: 239.

English Resources

Akram, Abdelrady, Al-Adwan& Ramzan. (2022). Teachers' perceptions of technology integration in teaching-learning practices: A systematic review. *Frontiers in Psychology*, 13.

Aladwan. (2020). The use of educational technologies and modern electronic educational media in teaching science subjects to grades (fourth, fifth, and sixth) and their impact on the educational process from the viewpoint of teachers of government schools affiliated with the Jordanian Ministry of Education. *Ilkogretim* Online, 19(2), 1254-1267.

AlAmri& Saleh. (2019). “Challenges Facing the Integration of ICT in Saudi Arabian Secondary Schools” (A Teachers’ and Headmasters’ Perspective). *Journal of the Faculty of Education*, Assiut University, 35(8.2), 1-71.

Aloraini. (2020). Development of mathematics teacher’s preparation programs in the light of STEM education. Journal of Education and Training Studies, 8(4), 10-26.

Alqarni. (2015). Educational Technology in Saudi Arabia: A Historical overview. *International Journal of Education, Learning, and Development*, 3(8), 62-69.

Najim. (2020). E-Learning in Teaching. A Term Paper, Collage of Education, University of Baghdad.