

International Journal of Learning, Teaching and Educational Research
Vol. 20, No. 9, pp. a-b, September 2021
<https://doi.org/10.26803/ijlter.20.9.x>
Received Apr 29, 2021; Revised Jul 12, 2021; Accepted Jul 31, 2021

Virtual Mathematics Education During COVID- 19: An Exploratory Study of Teaching Practices for Teachers in Simultaneous Virtual Classes

Faisal AL- Harbi

Ministry of Education, Bukayriyah Education, Kingdom of Saudi Arabia
<https://orcid.org/0000-0002-2236-5604>

Ibrahim AL-Hussain Khalil

University of Bisha, Kingdom of Saudi Arabia
<https://orcid.org/0000-0002-3103-7549>

Abdelkader Mohamed Abdelkader Elsayed

College of Arts & Applied Sciences, Dhofar University, Oman
<https://orcid.org/0000-0001-6882-4100>

Yousef Wardat

Higher Colleges of Technology, United Arab Emirates University, UAE, Alain
<https://orcid.org/0000-0003-2370-9808>

Ahmed AL-Otaibi,

Ministry of Education, Taif Education, Kingdom of Saudi Arabia
<https://orcid.org/0000-0002-0346-5079>

Abstract. The current study aimed to identify the status of teaching mathematics in simultaneous virtual classes in light of the Covid 19 pandemic by uncovering teaching practices in the fields of (lesson planning, teaching the new mathematical knowledge, classroom management, and raising the level of interaction, and evaluation). The descriptive approach was used in the study, and a random sample which consisted of (385) math teachers in the Qassim Education Department was chosen during the first semester of academic year 2020/21. The questionnaire was the tool used to collect data after confirming its validity and reliability. The results of the study showed that the status of teaching mathematics in simultaneous virtual classes in light of the Covid 19 pandemic was at a high degree (3.80/5) according to the respondents' point of view; results were respectively as follows: (planning "high" 3.87 ", teaching new mathematical knowledge" high "3.81"), evaluation at a high degree "3.80", and class management and raising the level of interaction was at a high degree "3.67". The results of the study revealed that there is a discrepancy in some practices, a matter which requires identifying

the training needs of mathematics male and female teachers in the field of e-learning in virtual classes, such as diversifying the methods of receiving students' responses to activities (chatting - WhatsApp --... etc.), the use of electronic participatory learning strategies in building and organizing the work of cooperative learning groups, employing electronic communication applications in providing reinforcement and feedback to students, employing electronic sports activities in presenting the lesson, and using virtual engineering tools while solving mathematical problems.

Keywords: mathematics education; simultaneous virtual classes; teaching practices, Covid 19 pandemic.

1. Introduction

The teacher is the cornerstone of the educational process and the pillar of every social and educational reform. The quality of education is largely related to the quality of the curriculum and the quality of the teachers who implement them. If a nation wants to progress and keeps abreast of cognitive development, it must pay attention and heighten the level of the teacher and advance the level of the profession, where the roles of the teacher have changed, the requirements of the era, and the aspirations of the future (Jarrah et al., 2020).

Mathematics teacher is considered the main pillar in the teaching and learning process of mathematics, although he is one of its inputs, he has an effective role and even specifies its quality and quality (Abdallah & Wardat, 2021). Once entering the classroom and standing in front of his students, he is the only one able to invest all the available resources, through planning lessons, designing the learning environment of learning and providing Multiple sources and diversification of his teaching methods directing his students to learn a distinctively (Obaid, 2016). Obaid refers to a set of characteristics for a successful mathematics teacher, including being a thinker, mastering his subject matter, objective and educated, can relate mathematics to areas of contemporary life, and being able to use technology in a way that facilitates his students' learning. Mathematics is one of the most important basic scientific subjects; it is known as the key to science so that its use extended to subjects that were believed to have nothing to do with mathematics such as language, social and educational sciences, and literature. Due to the world's tremendous development in all fields and different fields, the different branches of knowledge have overlapped and interrelated and became inseparable from each other. Therefore, the development of mathematics education became in the light of an interdisciplinary approach a necessity imposed by the characteristics of this era to raise the level of mathematics education (Al-Saeed and Al-Gharqi, 2015).

The status of teaching mathematics is linked to a set of mental perceptions about the teaching profession in terms of strategic teaching practices and their impact on the educational process and the evaluation of educational outputs and outcomes. The recent directions in evaluating teachers' performance focus on the link between evaluating students' performance and the status of teaching mathematics to the teacher in light of the

student's acquisition of the knowledge that affects building his personality (Shakman et al., 2012).

Education has changed due to the Corona pandemic; many countries closed schools, including what our country did since the first citizen was infected **with the Coronavirus on the twelfth of March 2021**. Teaching was suspended on the 14th of Rajab of the same year and relied on the virtual school (the unified education system) and Ain TV channels. At the beginning of the next school year, the royal order was issued to continue remote education through the virtual school (my school platform) and Ain TV channels.

1.1 Research Problem

The Ministry of Education in the Kingdom of Saudi Arabia made distinct and continuous efforts during the academic year 1441 AH, to supporting electronic education financially and technically in the circumstances of the Covid 19 pandemic through its provision of the Madrasati platform and television channels. It also provided many training courses for teachers to deal with e-learning in a manner that reflects positively on students' educational levels. In addition to many studies that have been conducted on the effectiveness of hypothetical classes, including (Bodie, 2009; Lu, 2011; Riegel & Kozen, 2016; Shuaib, 2016; AL-Saeede and AL-Abed, 2018; AL-Omari and Ismail, 2019) and also what was recommended by Khalil's study (2021) of conducting evaluation studies of the status of mathematics. In addition to what is mentioned above and given the field experience of the researchers and what they observed of the possibilities for their colleagues to use virtual classes in teaching mathematics, the current study focuses on **identifying** the status of teaching mathematics in virtual classes during Covid 19. And then recognize the level of teaching practices of mathematics teachers in simultaneous virtual classes, and the differences in this practices that might be attributed to gender, academic qualification, and the number of years of experience.

The current study aimed to answer the following questions:

- 1st. What is the level of teaching practices of mathematics' teachers in simultaneous virtual classes during Covid- 19 from the teachers' point of view?
- 2nd. Are there statistically significant differences at the significance level ($\alpha \leq 0.05$) in the level of teaching practices of mathematics' teachers in simultaneous virtual classes during Covid- 19 due to gender, academic qualification, and the number of years of experience?

1.2 Significance of the study

The importance of the study resides in two aspects:

- **The theoretical importance:** the current study may contribute to the cumulative knowledge of the teaching performance of mathematics' teachers in light of the teaching trend in virtual classes, in addition to motivating researchers in the field of

curriculum and methods of teaching mathematics to conduct more research and studies under the conditions of the Covid 19 pandemic and according to the researchers' knowledge, local and Arabic studies are still **few in** this field.

- **The applied importance:** it is expected that the current study will be beneficial for the following categories:
 - 1- Mathematics teachers in terms of using teaching applications and practices to implement the teaching approach in virtual classes.
 - 2- Providing experts and specialists with the standards of the status of mathematics teaching according to the teaching approach in virtual classes to benefit from them when developing curricula to be suitable for teaching processes and practices.
 - 3- It is useful for educators, specifically those responsible for curriculum development, to prepare mathematics teachers during service in coordination with the Faculties of Education in training according to the teaching approach in virtual classes.
 - 4- The results of this study can be beneficial for those responsible for the professional development programs for mathematics teachers to evaluate teaching according to the teaching approach in the virtual classes.

1.3 Definition of terms

1.3.1 The status of mathematics teaching

Abdel Wahab (2007) defines it as a set of behaviors and practices that the teacher performs to motivate the learner's imagination and encourage him to search, discover, deal with data and information, and achieve limited educational goals.

It is procedurally defined here as the set of behaviors and procedures that mathematics male and female teachers intentionally carry out and in planning to achieve the desired educational goals in simultaneous virtual classes.

1.3.2 Simultaneous virtual classes

Khleif (2009) defines it as one of the main methods in evaluating direct lessons and lectures on the Internet which have the basic elements that every teacher and student need, and it depends on the interactive teaching method. It is called smart classes and electronic classes.

It is procedurally defined here as an advanced technical means provided by the Ministry of Education in the Kingdom of Saudi Arabia in cooperation with Microsoft in the name of (Microsoft Teams) for the use of mathematics teachers to provide learning elements that students need in public education schools and achieve their learning goals.

1.3.3 Covid 19 pandemic

The World Health Organization (2020) defines COVID-19 as a disease caused by the emerging coronavirus. The organization discovered this emerging virus for the first time on December 31st, 2019, after a group of viral pneumonia cases was reported in Wuhan in the Republic of China.

2. Literature Review

Several studies have been conducted on education in light of the Corona pandemic (Covid-19). Since it is necessary to define the concept, the literature review starts by description or nature of virtual mathematics education and then studying of virtual mathematics cause and effects education. It then findings of the current study on virtual mathematics education.

2.1 description or nature of virtual mathematics education

Adnan and Anwar (2020) aimed to know the attitudes of Pakistani higher education students towards online education in light of the Corona pandemic. The study concluded that online education cannot achieve its goals in poor countries whose population has difficulties accessing the Internet due to technical and financial problems as the case in Pakistan. The study of O'Keefe et al. (2020) was conducted in cooperation with the Organization for Economic Cooperation and Development (OECD) cooperation with Harvard University. The study aimed to document and study the status of e-learning in public education in light of the Corona pandemic. The study also tried to come up with initiatives to develop and improve its practices in the Kingdom according to the latest global practices and standards related to this field. The results of comparing the responses of the Kingdom of Saudi Arabia to education during the Corona pandemic within 37 member states showed that the Kingdom of Saudi Arabia is advanced in 13 indicators out of 16 indicators on the average of these countries, and revealed that teachers have received significant support to overcome the obstacles of activating e-learning.

Hassan's study (2020), which dealt with teaching and learning mathematics remotely in light of the Corona pandemic. It recommended the necessity of identifying appropriate electronic and interactive software for each school stage and training teachers on it. Khamisi study (2020) aimed to bridge the gap between home and school and recommended some requirements to achieve this, the most important of which are: increasing political and financial support for the Ministry of Education in its initiatives, its digital transformation, and distance education, and legislating the regulations that are compatible with that in regards to the organization of study procedures, its timetable, and evaluation methods. As for Khalil's study (2021), it presented a suggested teaching model in light of the trend of mathematical power to teach mathematics in simultaneous virtual classes, and it recommended conducting evaluation studies to teach mathematics in the current circumstances.

To continue the education process and in light of the technological development in the world, e-learning has been relied on. E-learning is defined by Al-Astal and Al-Farra (2013) as education using computers and its various programs, whether on closed or shared networks or the global Internet. Mubariz and Fakhri (2013) define it as an education that allows

the individual to learn at any time he chooses, wherever he is, in any medium (personal computer, the Internet,) and with a learning speed that suits his abilities. It is based on the principles of Brunner's theory of learning in terms of observing the characteristics of the learners, providing a great deal of freedom in learning situations, taking into account individual differences between the learners, being centered around the learner, and relying on his activity (Kotait, 2015). It also provides different styles of interaction between learners, most notably the simultaneous virtual classroom which is known as online environments that allow students and teachers to communicate simultaneously using audio and video, text chat, interactive whiteboard, application sharing, instant polling, etc. (Martinet al., 2013). Kotait (2015) defines a simultaneous virtual classroom as "the interaction of students with one another and with the teacher at the same time, but in different places and at great distances across the network." It also can be defined as a virtual environment that brings the teacher and the learner together at the same time regardless of where they are to achieve specific learning objectives.

2.2 studying cause and effects of virtual mathematics education

The simultaneous virtual classroom is characterized by the availability of many simultaneous tools working together in an integrated framework to achieve effective communication between students and their teacher through the various tools of communication with a large amount of interaction between them and the curriculum with the ability to provide continuous reinforcement and feedback. However, there are some technical difficulties facing mathematics teachers; the most prominent of which are: a large number of students in the classroom, the lack of a device for every student, the weakness of the Internet in some areas, and the lack of experience of teachers and students in using the techniques (Al-Ruwais, 2011; Khalil and AL-Massad, 2016; AL-Anzi and AL-Massad, 2018; Hamada and AL-Shawahin, 2019).

The teacher has tasks in virtual classes such as designing educational experiences and educational activities commensurate with the learner's experiences, preferences, and interests, preparing appropriate evaluation methods for this, following up on students' attendance and academic progress, creating a comfortable learning environment for students with defining the rules of behavior followed by them, asking questions that develop students' thinking skills and providing feedback constantly and guide them to additional learning resources on the network (AL-Najjar and Abu Shkir, 2014).

2.3 Findings of the previous studies on virtual mathematics education

Several studies were conducted on virtual classes from several perspectives such as Bodie (2009) which aimed to explore the extent to which teacher interacts with learners in the educational process with the means of communication in the virtual classroom. The study of Lu (2011)

aimed to experiment with the virtual classroom in teaching mathematics via the Internet. The results showed that the use of virtual classrooms enhances communication in teaching mathematics via the Internet, while the study of Rigel and Kozen (2016) aimed to teach and learn the skills of the twenty-first century in the virtual classroom. The study concluded that the virtual classroom may have a lot to offer more than traditional classrooms in terms of acquiring and mastering the skills of the twenty-first century. Moreover, the study of Shuaib (2016) aimed to determine the most appropriate type of virtual classroom that helps in providing educational content for kindergarten female pupils. The results found that there were statistically significant differences at the level of ($\alpha \leq 0.05$) between the mean scores of the two experimental groups (simultaneous versus asynchronous). The evaluation card of electronic educational games software produced for the benefit of the group (simultaneous virtual classrooms).

The study of AL-Saeedi and AL-Abed (2018) aimed to know the effectiveness of using virtual classes in mathematics and logical thinking among tenth-grade students. The study found that there are statistically significant differences at the level of significance ($\alpha \leq 0.05$) between the mean scores of the experimental group students and the scores of the control group students in the post-application of the achievement and logical reasoning tests in favor of the experimental group. As for the study of AL-Ahmari (2019), which aimed to give a presentation of the experience of the Saudi Virtual School, the results showed that it relied on concurrent classes and that there is a positive trend for students and teachers to learn by using it, and that their satisfaction is directly affected by the level of technology used.

The study of AL-Omari and Ismail (2019) aimed to uncover the effect of simultaneous virtual classes in achieving professional practices among mathematics teachers in the middle stage. The study concluded that there are statistically significant differences at the level of significance ($\alpha \leq 0.05$) between the mean scores of the experimental group in the pre and post applications to test the cognitive aspect of professional practice skills and note the performance side card for professional practice skills in favor of the post-application. The study by Elzainy et al., (2020) was conducted at the College of Medicine, Qassim University; it aimed to describe the simultaneous procedures for e-learning and evaluation, and the effect of e-learning on students' performance, faculty members, and the challenges facing their sustainability. Results found that there are statistically significant differences in the average grades of students during the electronic sessions of learning based on solving problems. In addition, there was a high satisfaction of faculty members with virtual classes, e-assessment, and e-workshops.

Eddie and José (2020) tried to uncover online math learning activities for teachers in the Covid-19 period (Eddie & José, 2020). Results concluded

that math learning online activities demonstrated that students on the Internet demonstrated excellent performance in acquiring mathematics learning skills in technology-rich settings and the availability of online platforms compared to groups in poor settings (Eddie & José, 2020).

While most of the previous studies tried to study the effect of the virtual classroom on mathematics education, the current study tries to study the status of teaching mathematics through virtual classes in light of the Covid 19 pandemic.

3. Methodology

The descriptive approach was used to answer the study questions and achieve its objectives, by recognizing the status of teaching mathematics in simultaneous virtual classes in light of the Covid 19 pandemic (Wardat et al., 2020), specifically uncovering the degree of teaching practices of mathematics teachers in simultaneous virtual classes in light of the Covid 19 pandemic from teachers' point of view using questionnaires. The descriptive approach is based on describing the phenomenon quantitatively by giving it scores that express the degree of actual practices to describe the studied phenomenon and diagnose reality to reach conclusions and analyses based on quantitative results that contribute to understanding and diagnosing the status (Obaidat, Adas & Abdelhak, 2011).

3.1 Population

The population of the study consisted of all mathematics male and female teachers in all stages of education in the Qassim region in government schools.

3.2 Sample

The sample of the study consisted of (385) male and female teachers who were selected randomly. It consisted of (283) male teachers and (102) female teachers from the entire population. Table 1 shows the characteristics of the sample of the study according to the variables of gender, academic qualification, and years of experience:

Table 1. Distribution of the sample of the study according to its variables

Variable	Type	Number	Percentage %
Gender	Male	283	73.5 %
	Female	102	26.5%
Qualification	Bachelor	326	84.7%
	Higher studies	59	15.3%
Teaching experience	Less than 5 years	45	11.7%
	From (5-10)	142	36.9%
	More than 10	198	1.4%

As shown in table 1 above, the number of the sample of the study is (385) in total. The number of males was (283) teachers, representing (73.5%), while the number of females was (102) presenting (26.5%) of the sample members. Participants with a bachelor's degree were (326), representing (84.7%) of the whole sample, and the number of participants with degrees

higher than the bachelors was (59) representing (15.3%). Concerning the teaching experience variable, the number of participants whose service was less than 5 years was (45) representing (11.7%) of the sample. The number of participants with experience of (5-10) years reached (142) participants, representing (36.9%), while the number of participants with more than 10 years of experience reached (198) participants, representing (51.4%).

3.2 Study Tool

The questionnaire was used as a tool to collect data. The following steps were followed to build the questionnaire:

The authors identified the teaching practices for mathematics teachers that required to be measured in virtual classes. Many previous studies that related to the status of teaching mathematics in virtual classes were analyzed such as Adnan and Anwar (2020), Hassan (2020), Al-Khamisi (2020), Lu's (2011), Shuaib (2016), and AL-Ahmari (2019).

The questionnaire consisted of (29) items distributed on the following fields and dimensions: 1) Teaching planning: It measures the teacher's performance behavior at the beginning of the lesson. It includes the introduction, the activities **the identifies**, the introductory questions, the projects, and the problems according to what has been planned and which he poses to the students at the beginning of the session to suspend the students and link the knowledge and previous experiences of the students to the topic of the lesson. This field consisted of (6) paragraphs with serial numbers from (1-6); 2) Teaching new mathematical knowledge: It measures the teacher's performance behavior during the lesson. It includes Positive mathematical culture in the classroom. Teaching methods and strategies used consisted of (12) paragraphs with serial numbers from (7-18); 3) Classroom management and raising the level of interaction: It measures the teacher's performance behavior during the implementation of the lesson by class interaction, the distribution of activities time, class management, the participation of students in determining the course of the lesson and the diversification of methods of receiving students' responses to activities (chatting - WhatsApp --... etc.), allowing mathematical dialogue among students, and using electronic participatory learning strategies in building and organizing the work of cooperative learning groups. This field consisted of (5) paragraphs that took serial numbers from (19-23), 4) Evaluation: It measures the teacher's performance behavior during and at the end of the lesson. It includes evaluation methods and strategies used based on realistic evaluation, constructive and final evaluation, self-evaluation, and questions that are asked by the teacher to implement the survey. This field consisted of (6) paragraphs that took serial numbers from (24-29).

All the paragraphs of the fields were written positively. The response to the paragraphs was graded by following the five-point grading of the Likert (very high, high, medium, low, very low). The open classes method

was followed to determine the criteria for evaluating the degree of teaching practices of mathematics teachers in simultaneous virtual classes in light of the Covid 19 pandemic in the questionnaire. All the paragraphs of the fields were written positively. A high score indicates a high degree of the practice of the measured characteristic "practices", and a low score indicates a low score according to Likert's five-point grading (Likert) and to reveal the status of mathematics teaching. The range of response levels was calculated, It is = 4, and by dividing the range by the number of levels of estimating the degree of teaching practice, which is equal to 5, the result of the division = 0.80, which represents the length of the category. Thus the criterion for evaluating practices became **as clear as** in Table (2):

Table 2. Criterion for evaluating the status of teaching mathematics in simultaneous virtual classes in light of the Covid-19 pandemic

Interval	Responses	Mathematics teaching
From 1-less than 1.80	Very low	Very low
From 1.80-less than 2.60	low	low
From 2.60-less than 3.40	Medium	Medium
From 3.40-less than 4.20	High	High
From 4.20-5.00	Very high	Very high

3.3 Validity of the questionnaire

To verify the validity of the questionnaire's content, and to make sure that it achieves the objectives of the study, it was presented in its initial form to a group of (11) experts and supervisors experienced and specialized referees from the teaching staff in Saudi universities and educational supervisors to benefit from their observations and experiences aiming to judge the questionnaire to ensure that the indicators of the questionnaire are included and covered in the areas of measuring the status of teaching mathematics and to ensure the integrity, clarity, and non-repetition of the linguistic formulation. In light of the directives given by the referees, linguistic amendments and reformulation were carried out. The percentage of the original paragraphs that achieved an agreement between the referees was 80% or more belonging to the measured field, and the appropriate linguistic adjustments were made.

The validity of the internal consistency of the paragraphs was carried out by applying the questionnaire to a pilot sample from outside the study sample and calculating the correlation coefficients of the degree of each paragraph with the total degree of the field to which the paragraph belongs. All the values of the correlation coefficients came to acceptable values, as they ranged between (0.392-0.866). In light of these results, the internal consistency of the paragraphs of the questionnaire is validated according to its consistency in the field. The validity of the internal consistency of the fields of the questionnaire was verified to evaluate the status of teaching mathematics as well. Its correlation coefficients ranged between (0.89-0.93), a matter which indicates the consistency of the field in the questionnaire; this indicates the validity of the construction of the

questionnaire which all are statistically significant at the level of significance (0.05).

3.4 Reliability of the questionnaire

Checking the reliability of the questionnaire was carried out by calculating the degree of reliability of each field of the questionnaire by applying to the pilot sample from outside the original study sample, using the method of internal homogeneity reliability by applying the Cronbach Alpha method, where the total reached (0.94), while the reliability coefficient of the fields ranged Between (0.74 - 0.92). In light of these results, the questionnaire is reliable and can be applied to the main sample.

3.5 Data analysis

Data were analyzed using mean, standard deviation, t-test, significance levels, and the one-way analysis of variance (ANOVA), employing SPSS version 22. We used mean and standard deviation to calculate the value given by the study sample to each paragraph and the general arithmetic mean for each field. As we used t-tests to check the difference between the averages of two independent samples, to find the differences between the averages of the estimation of the status of teaching Mathematics attributed to academic qualification and gender, and the one-way analysis of variance (ANOVA) to detect differences according to the number of years of experience variable.

4. Results

4.1 The results of the first question: What is the level of teaching practices of mathematics' teachers in simultaneous virtual classes during Covid- 19 from the teachers' point of view? To answer this question, the general mean was calculated for each domain and it has been arranged in descending order according to the mean, as the results show in Table 3.

Table 3. The level of teaching practices of mathematics' teachers in simultaneous virtual classes during Covid- 19 from the teachers' point of view

Sr.	Field	Mean	SD	Level	Rank
1	Teaching planning	3.87	0.75	High	1
2	Teaching new mathematic knowledge	3.81	0.66	High	2
4	Evaluation	3.80	0.69	High	3
3	Class management and raising interaction level	3.67	0.83	High	4
Total		3.80	0.62	High	

It is clear from the previous table that the overall mean grades of teaching practices evaluation in simultaneous virtual classes of mathematics male and female teachers from the point of view of the teachers amounted to (3.80 / 5) which is a high degree and with a standard deviation of (0.62) indicating agreement of grades. The high degree of male and female teachers might be attributed to the technological competencies to plan, implement and evaluate the lesson in the virtual classroom because of the

courses they previously attended, the fact that the developed curricula helped them to apply this type of e-learning, the presence of AL-AIN platform that supports the professional development of mathematics male and female teachers, and for the cooperation of all school elements school leaders, teachers, and students.

The skills that measure the status of teaching in the field of planning came in the first rank with a high degree with mean value of (3.87 / 5) and with a standard deviation (0.75). The results indicate the similarity of the evaluation of practices from the viewpoint of the study members on the paragraphs of this field. The reason for their appearance in the first rank is due to planning the lesson in which the subject of the lesson and the prior learning can be linked to the students' previous experiences related to the lesson and the linkage with practical life situations. The reason for the emergence of the result which is related to planning with practical reality is highly justified by the fact that the teacher links the students' previous experiences related to the concepts of the lesson as an entry point to prepare for teaching practices. The field of "teaching new mathematical knowledge" came in the second rank and also with a high degree; the value of its mean was (3.81) with a standard deviation of (0.66) indicating the agreement of the estimates. The field of evaluation came in the third rank with a mean of (3.80) with a high degree and with a standard deviation of (0.69) indicating the agreement of the estimates. This may be explained by the fact that mathematics male and female teachers possess the skills related to the electronic evaluation required for teaching in virtual classes in teaching mathematics such as using the electronic achievement file and sending assignments and Home works through the electronic platform.

While the level of teaching practices in simultaneous virtual classes came in the last rank in the field of classroom management and raising the level of interaction with a high degree. The value of its mean was (3.67) with a standard deviation (0.83) indicating agreement of estimates. The reason for the emergence of the field in the last rank might be attributed to teaching mathematics in virtual classes requires teachers with special skills in electronic interaction. Moreover, technical and skill factors related to students and the conditions of the state of communication between the teacher and students may affect it; but its appearance in a high degree might be related to the participation of students in determining the course of the lesson, the ability of teachers and teachers to diversify methods of receiving students' responses to activities (chatting - WhatsApp --... etc.), the potential provided by the platform in terms of providing an opportunity for mathematical dialogue between students, and the use of electronic participatory learning strategies in building and organizing the work of cooperative learning groups.

For more details in answering the first question, the mean and standard deviation were calculated for all the paragraphs of each field. They were also arranged according to the mean in descending order. In the case of equal mean, they were arranged according to the value of the lowest standard deviation, as follows:

The first field: Lesson planning skills

Table 4. The level of teaching practices of mathematics' teachers in the field of lesson planning

Sr.	Paragraph	Mean	SD	Sequence	Level
1	I identify the applications and programs appropriate to the topic of the lesson	3.96	0.92	3	High
2	I specify previous experiences related to the lesson to compensate for the educational losses	3.92	0.94	4	High
3	I design (visual diagrams - videos ...) around the most prominent ideas of the lesson	3.22	1.24	6	Middle
4	I discuss with my fellow teachers the proper way to communicate mathematical ideas in the Virtual Class	3.52	1.35	5	High
5	I take into account the distribution of class time to ensure the lesson is presented in an integrated manner	4.25	0.87	1	Very High
6	I use the internet to get references, enrichments, and various lesson formats	4.22	0.93	2	Very High
Total		3.78	0.75		High

It is evident from the results of Table 4 that the general mean of the grades of the study members of mathematics male and female teachers of the practices of teaching mathematics in simultaneous virtual classes in light of the Covid-19 pandemic in the field of lesson planning was of a high degree; Where the value of the mean was (3.87) with a standard deviation (0.75) indicating the agreement of the estimates of practices, and the values of the standard deviations of the paragraphs ranged from (0.87-1.35). These values indicate the agreement of the estimates of practices.

Through the results of the arrangement of the paragraphs that measure the teaching practices in the field of planning the lesson, two paragraphs came to a very high degree, the paragraph "I take into account the distribution of class time to ensure the lesson is presented in an integrated manner" in the first rank with a mean value reached (4.25). The reason for this result is that the nature of teaching in virtual classes is related to a time program and the teacher tries to manage class time and overcome communication and technical communication problems as a result of emergency malfunctions or defects in the network.

The teacher is keen to invest the time of learning and teaching by taking advantage of the technical features provided by distance education in a planned way and enriching the share with interactive exercises. The paragraph "Use the Internet to obtain references, enrichment and different models for the lesson" came in the second rank with a very high degree in terms of practice. Its mean (4.22) and a standard deviation (0.93), as the

educational platform, contributed through the ease of linking the lesson to the rich activities via the Internet.

As for the paragraphs "I identify the appropriate applications and programs for the subject of the lesson", "specify the previous experiences related to the lesson to compensate for the educational loss", and "I discuss with my classmates about the appropriate method for communicating mathematical ideas in the virtual classroom", they came with high degrees of practice. The values of their means ranged from (3.52-3.96). It is noticed that the value of the standard deviation for the paragraph "I discuss with my fellow teachers about the appropriate method for communicating mathematical ideas in the virtual classroom" amounted to (1.35) indicating the existence of a large difference and variation in its practice and possibly differences in the interests of male and female teachers and conditions related to teacher professional development activities, which may have contributed to the existence of variation in practice.

For the paragraph "I design (visual diagrams - video clips ...) about the most prominent ideas of the lesson", it came in the last rank with a middle degree with a mean of (3.32) with a large standard deviation of (1.24) indicating the different levels of its practice. The reason for this may be explained by the lack of interest in applying this approach to elementary school students and perhaps because teachers lack the skills to design (visual diagrams - video clips ...) about the most prominent ideas of the lesson for the adoption of the majority of male and female teachers on the electronic content in the educational platform, a matter which requires training teachers to employ electronic mental maps and being prepared for the preparation and design of an interactive video to display lesson ideas.

The second field: Teaching the new mathematical knowledge

Table 5. The level of teaching practices of mathematics' teachers in the field of teaching new mathematical knowledge

Sr	Paragraph	Mean	SD	Sequence	Level
7	I take into account the time spent using in-class technology.	4.15	0.79	2	High
8	I use visual presentations and multimedia programs to explain the lesson.	3.89	1.06	7	High
9	I link new mathematical experiences with previous experiences to compensate for educational losses.	4.14	0.88	3	High
10	I relate the different lesson ideas	4.38	0.72	1	Very High
11	I refer to the relationship of the lesson to the applications in life.	4.10	0.85	4	High
12	I balance the conceptual and procedural knowledge of the lesson.	3.99	0.76	5	High
13	I use virtual engineering tools while solving math problems.	3.61	1.09	10	High

14	I use electronic mathematical activities in the presentation of the lesson.	3.63	1.02	9	High
15	I use electronic communication applications to provide reinforcement and feedback to students.	3.79	1.19	8	High
16	I use 3D models to display mathematical shapes and symbols.	3.24	1.12	11	Middle
17	I employ electronic games to develop various mathematical skills.	2.89	1.21	12	Middle
18	I use a variety of teaching methods and strategies.	3.94	0.83	6	High
Total		3.81	0.66		High

The results of Table 5 show that the general mean of the practices of teaching mathematics in virtual classes in the field of teaching new mathematical knowledge was at a high degree. The value of the mean was (3.81) with a standard deviation (0.66) indicating the agreement of the estimates of practices, and the values of the standard deviations of the paragraphs ranged from (0.72-1.21). Most of these values indicate the agreement of the estimates of practices. Through the results of the arrangement of the paragraphs, the paragraph "I connect between the different ideas of the lesson." Came in the first order, where the value of its mean was very high (4.38). The reason for this result is that the nature of the mathematics lessons depends on each other and it is necessary to emphasize the complementarity of the content. When presenting the electronic content of the new lesson and linking the students' previous experiences with their experiences gained from previous lessons and linking the ideas of one lesson so that a smooth transition is made to organize the ideas.

Some other paragraphs came with high degrees of practice, where the means ranged from (3.61-4.15) and they are arranged respectively: "I take into account the time allocated for the use of techniques within the class and link new mathematical experiences with previous experiences to compensate for educational losses", "I refer to the relationship of the lesson with life applications", "I balance between conceptual and procedural knowledge for the lesson", "I use various teaching methods and strategies", "I use visual presentations and multimedia programs to explain the lesson", "I use electronic communication applications to provide reinforcement and feedback to students", "I employ electronic mathematical activities in presenting the lesson", and "I use virtual engineering tools while solving mathematical problems" exhibit high practices. However, there is a difference between male and female teachers in four paragraphs, including the use of visual presentations and multimedia programs in explaining the lesson, the use of electronic communication applications in providing reinforcement and feedback to students, the use of electronic mathematical activities in the presentation of the lesson, and the use of virtual engineering tools while solving

mathematical problems. Their standard deviations ranged from (1.02-1.19) indicating the difference in degrees of practice. This may be due to the existence of individual differences related to electronic skills in teaching new mathematical knowledge and the different interests of male and female teachers in employing them, and some teachers may need training on them and developing their level of skill knowledge of them.

As for the paragraph "I use 3D models in displaying mathematical figures and symbols," it came in the next-to-last rank, with a mean score of (3.24), and with a large standard deviation of (1.12). This indicates the difference in the level of practice. The reason for this may be explained by the lack of some teachers possessing the related skills in mathematical modeling. 3D models are used to display mathematical shapes and symbols, a matter which requires sufficient training and experience for the teacher in the field of information technology and educational techniques.

As for the paragraph "I employ electronic games to develop various mathematical skills", it came in the last rank with a medium degree with a mean of (2.89), and with a large standard deviation of (1.21). This indicates the difference in the level of practice. The reason behind this may be explained by the lack of some teachers possessing the skills to employ electronic games to develop mathematical skills, the lack of teachers' knowledge of methods of manipulation in teaching, and the lack of programs that support the employment of educational games in teaching, a matter which requires the development of teachers' skills in this aspect.

The third field: Classroom management and raising the level of interaction

Table 6. The level of teaching practices of mathematics' teachers in the field of classroom management and raising the level of interaction

Sr.	Paragraph	Mean	SD	Sequence	Level
19	I share the responsibility of setting the course of the lesson with the students	4.03	0.91	1	High
20	I vary the ways to receive students' answers to activities (chatting - WhatsApp - ... etc.)	3.75	1.25	2	High
21	I allow a mathematical dialogue between the students	3.78	1.05	3	High
22	I use the e-participatory learning strategies in building and organizing the work of the collaborative learning groups	3.46	1.11	4	High
23	I use electronic means to communicate with parents	3.34	1.26	5	Middle
Total		3.67	0.83		High

Results of table 6 show that the general mean of the scores for teaching mathematics practices in virtual classes in the field of classroom management and raising the level of interaction was high. Where the value

of the mean was (3.67), the standard deviation was (0.83) indicating the agreement of the estimates of practices.

The paragraph "I share the responsibility in setting the course of the lesson with the students" came in the first rank, where its mean was (4.03). The reason for this result is the awareness of mathematics male and female teachers of the importance of taking into account the interactive element in implementing virtual classroom lessons and motivating students to participate by adapting learning methods and taking into account the learner's styles. Then, most of the other paragraphs came with high scores, their means ranged from (3.46-3.78). They are ordered respectively as follows: "I allow a mathematical dialogue between the students, "I vary the ways to receive students' answers to activities (chatting - WhatsApp - ... etc.)", and "I use the e-participatory learning strategies in building and organizing the work of the collaborative learning groups".

As for the paragraph "I use electronic means to communicate with parents", it came in the last rank with a medium degree with a mean of (3.34) with a large standard deviation of (1.26). The reason for this may be attributed to the lack of communication with the students' parents to the increase of their work duties related to preparing for the lesson and the lack of their time in their time program, a matter which may not contribute to allowing the teacher to communicate with parents of students, especially since the quorum is large for most teachers and a large number of students in virtual classes.

The fourth field: Evaluation

Table 7. The level of teaching practices of mathematics' teachers in the field of evaluation

Sr.	Paragraph	Mean	SD	Sequence	Level
24	I use electronic tests to assess students' levels.	4.28	0.87	1	Very High
25	I keep electronic achievement files for each student.	3.42	1.12	5	High
26	I direct students to perform tasks with a variety of ideas.	3.57	1.01	4	High
27	I vary in evaluation paragraphs (multiple choice - true and false ...).	4.18	0.95	2	High
28	I direct students to make reflective summaries to relate lesson ideas.	3.21	1.14	6	Middle
29	I provide feedback after evaluation.	4.04	0.93	3	High
Total		3.80	0.69		High

As shown in the results of Table 7, the general mean of the grades of the assessment of the level of mathematics teaching practices in the virtual classes in the field of the evaluation was high. Where the value of its mean (3.80) was very high, with a standard deviation (0.69) indicating the agreement of the estimates of practices. The values of the standard

deviations of the paragraphs ranged from (0.87-1.14). The emergence of practices related to evaluation to a high degree due to the presence of high competencies among mathematics teachers in using electronic tests to assess the level of their students, the ability to diversify questions, provide feedback and make achievement files.

Through the results of the ranking of the paragraphs that measure the teaching practices in the field of evaluation, the paragraph "I use electronic tests to evaluate the level of students" came first, as its mean value reached (4.38). The reason for this result is related to the digital platform and communication forums between teachers provided opportunities for the improvement and development of the professional performance of mathematics male and female teachers in the field of building electronic tests.

Most of the other paragraphs came with high scores. Their means ranged from (3.42-4.18) and they are arranged in order "I vary in the evaluation paragraphs (multiple choice - true and false...)", "I provide feedback after evaluation", and "I instruct students to perform performance tasks with ideas". It is noticed that there is a difference in the practices of male and female teachers in directing their students to perform performance tasks with various ideas and to keep electronic files of achievement for each student. The value of their two standard deviations, respectively, (1.01, 1.12) indicates the different levels of practice. This is due to the difference in the skill level, as not all mathematics teachers can provide various tasks for the evaluation or design of electronic files of achievement (electronic portfolio) due to the difference in the level of teachers' ability to master the skills associated with them.

The paragraph "I ask students to make reflective summaries to link the ideas of the lesson", came in the last rank with a medium degree with an mean of (3.21), and with a large standard deviation of (1.14) indicating the difference in the estimates. The reason for this may be explained by the lack of sufficient time to implement such tasks. Perhaps the lack of support for the implementation of this practice due to the lack of consideration for making summaries to link the lesson ideas with the educational platform.

4.2 The results of answering the second question: Are there statistically significant differences at the significance level ($\alpha \leq 0.05$) in the level of teaching practices of mathematics' teachers in simultaneous virtual classes during Covid- 19 due to gender, academic qualification, and the number of years of experience? Two independent samples (Independent sample t-test) were used to reveal the significance of differences attributed to gender and academic qualification, while the one-way analysis of variance (ANOVA) was used to reveal the significant differences attributed to experience as follows:

A. Gender

To reveal the statistical significant differences in the degrees of estimating the status of mathematics teaching in simultaneous virtual classes in light of the Covid 19 pandemic attributed to (gender), the (T) test was used for two independent samples as the results are shown in Table 8.

Table 8. Difference between the means of the male teachers and female on the teaching practices in simultaneous virtual classes during Covid- 19

Field	Gender	N	Mean	SD	t-value	value-p
Teaching planning	Male	283	3.83	0.76	-1.743	0.082
	Female	102	3.98	0.73		
Teaching new mathematic knowledge	Male	283	3.77	0.65	-1.950	0.052
	Female	102	3.92	0.67		
Class management and raising interaction level	Male	283	3.63	0.87	-1.891	0.059
	Female	102	3.81	0.70		
Evaluation	Male	283	3.76	0.68	-2.167	0.031
	Female	102	3.93	0.70		
Total	Male	283	3.75	0.62	-2.222	0.027
	Female	102	3.91	0.62		

Table 8 shows that there are statistically significant differences at the level of significance ($\alpha \leq 0.05$) between the averages of estimating teaching practices in simultaneous virtual classes for mathematics teachers due to the gender variable as the value of (T) on the total score was (-2.222) and its statistical significance was less than the level of Significance (0.05). This indicates the existence of differences in the evaluation of teaching practices in simultaneous virtual classes of mathematics male and female teachers attributed to gender and was in favor of female teachers. There also were differences in the evaluation field, where the value of T (-2.167) was less than the level of significance (0.05). The differences were in favor of females. This may be explained by the fact that female teachers show a higher interest in documenting evaluation procedures in virtual classes due to the high competitiveness of female students. This leads directly to interest in evidence of evaluation.

(B) Academic Qualification

To reveal the statistical significant differences in the degrees of estimating the status of teaching mathematics in simultaneous virtual classes in light of the Covid 19 pandemic which is attributed to (*academic qualification*), the (T) test was used for two independent samples as the results are shown in Table 9.

Table 9. Difference between the means of the teachers on the teaching practices in simultaneous virtual classes during Covid- 19 due to the academic qualification

Field	Academic Qualification	N	Mean	SD	t-value	-p value
Teaching planning	BA	326	3.89	0.79	1.771	0.077
	Higher than BA	59	3.71	0.48		
Teaching new mathematic knowledge	BA	326	3.82	0.68	0.701	0.484
	Higher than BA	59	3.76	0.48		

Class management and raising interaction level	BA	326	3.76	0.85	0.021	0.983
	Higher than BA	59	3.76	0.71		
Evaluation	BA	326	3.84	0.70	2.776	0.006
	Higher than BA	59	3.57	0.58		
Total	BA	326	3.82	0.65	1.385	0.167
	Higher than BA	59	3.69	0.40		
	BA					

It is evident from Table 9 that there are no statistically significant differences at the level of significance ($\alpha \leq 0.05$) between the averages of estimating teaching practices in simultaneous virtual classes for mathematics teachers due to the academic qualification variable. The value of (t) on the overall degree was (1.385) and its statistical significance exceeds the level of significance (0.05), a matter which indicates that there are no differences in the evaluation of teaching practices in simultaneous virtual classes for mathematics teachers attributed to scientific qualification. This result is attributed to the similar perception of mathematics teachers in evaluating teaching practices in simultaneous virtual classes of mathematics, as they are similar in their use of teaching strategies, which appeared to be high as evidenced by the results of table (9) that there are no statistically significant differences at the level of significance ($\alpha \leq 0.05$) in the fields (planning the lesson, teaching new mathematical knowledge, classroom management and raising the level of interaction) due to scientific qualification. There the (T) value ranged from (0.021-1.771) and its statistical significance was greater than (0.05). This indicates that there are no statistically significant differences in estimating the degrees of teaching practices in simultaneous virtual classes. This result is a sign of similarity of practices in the field of lesson planning, teaching practices of new mathematical knowledge, classroom management practices, and raising the level of interaction for mathematics teachers regardless of academic qualification.

On the other hand, it was found that there are differences in the field of "evaluation" where the (T) value reached (2.776) and its statistical significance was less than the level of significance specified in the study (0.05). This means that there are statistically significant differences in favor of bachelor's degree holders since they enrolled in training and acquired skills that were reflected in their teaching practices, especially as they do not possess higher educational qualifications, a matter which contributed to their practice with a higher degree than those with higher qualifications, and most of the male and female teachers and school members have obtained a bachelor's degree, which contributed to the similarity of their estimate for teaching practices of mathematics.

(C) Years of Experience

To reveal the statistically significant differences in the degrees of estimating the status of teaching mathematics in simultaneous virtual

classes in light of the Covid 19 pandemic, which is attributed to (number of years of experience), the one-way ANOVA test was used. As in Table 10.

Table 10. Descriptive Differences between the levels of the teachers on the teaching practices in simultaneous virtual classes during Covid- 19 due to the years of experience

Field	Years of experience	N	Mean	SD
Teaching planning	Less than 5 years	45	2.70	0.48
	From (5-10) years	142	3.50	0.49
	More than 10 years	198	4.39	0.44
Teaching new mathematic knowledge	Less than 5 years	45	2.77	0.39
	From (5-10) years	142	3.42	0.30
	More than 10 years	198	4.33	0.34
Class management and raising interaction level	Less than 5 years	45	2.58	0.56
	From (5-10) years	142	3.37	0.66
	More than 10 years	198	4.14	0.63
Evaluation	Less than 5 years	45	2.80	0.32
	From (5-10) years	142	3.46	0.43
	More than 10 years	198	4.27	0.49
Total	Less than 5 years	45	2.73	0.28
	From (5-10) years	142	3.44	0.22
	More than 10 years	198	4.30	0.31

The results of Table 10 show that there are apparent differences between the arithmetic averages of the practices in teaching mathematics in virtual classes according to the levels of the number of years of experience. To reveal the statistically significant differences between these averages, a one-way analysis of variance (ANOVA) was used as shown in Table 11.

Table 11. Inferential Difference (ANOVA) between the levels of the teachers on the teaching practices in simultaneous virtual classes during Covid- 19 due to the years of experience

Field	Sources of variance	Sum of squares	Degrees of freedom	Mean of squares	F-value	-p value
Teaching planning	Between groups	135.778	2	67.889	313.881	0.000
	Within groups	82.622	382	0.216		
	Total	218.400	384			
Teaching new mathematic knowledge	Between groups	123.486	2	61.743	554.909	0.000
	Within groups	42.504	382	0.111		
	Total	165.990	384			
Class management and raising interaction level	Between groups	110.665	2	55.333	138.016	0.000
	Within groups	153.149	382	0.401		
	Total	263.814	384			
Evaluation	Between groups	104.419	2	52.209	257.165	0.000

	Within groups	77.553	382	0.203		
	Total	181.972	384			
Total	Between groups	119.444	2	59.722	775.971	0.000
	Within groups	29.400	382	0.077		
	Total	148.884	384			

Table 11 shows that there are statistically significant differences at the level of significance ($\alpha \leq 0.05$) between the averages of estimating teaching practices in simultaneous virtual classes for mathematics teachers due to the variable number of years of experience. The value of (F) on the overall practices was (775.971), and its statistical significance was less than the level of Significance (0.05). This indicates the existence of differences in the evaluation of teaching practices in simultaneous virtual classes for mathematics teachers attributed to experience.

The results of Table 11 also show that there are statistically significant differences at the level of significance ($\alpha \leq 0.05$) in the fields (planning the lesson, teaching new mathematical knowledge, class management and raising the level of interaction, and evaluation) due to the number of years of experience. The (F) value ranged from (138.016-554.909) and its statistical significance was less than (0.05), a matter which indicates the existence of statistically significant differences in estimating the degrees of teaching practices in simultaneous virtual classes. To determine the direction of these differences, the Scheffe test was used for dimensional comparisons as the results are shown in Table 12.

Table 12. Scheffe test results for averages comparison of mathematics teaching practices in virtual classes according to levels of experience

Field	Years of experience	Mean	Less than 5 years	From (5-10) years	More than 10 years
Teaching planning	Less than 5 years	2.70	--	--	--
	From (5-10) years	3.50	*0.803	--	--
	More than 10 years	4.39	*1.69	*0.89	--
Teaching new mathematic knowledge	Less than 5 years	2.77	---	--	--
	From (5-10) years	3.42	*0.65	--	--
	More than 10 years	4.33	*1.56	*0.95	--
Class management and raising	Less than 5 years	2.58	---	--	--
	From (5-10) years	3.37	*0.78	--	--

interaction level	More than 10 years	4.14	*1.56	*0.77	--
Evaluation	Less than 5 years	2.80	---	--	--
	From (5-10) years	3.46	*0.66	--	--
	More than 10 years	4.27	*1.47	*0.804	--
Total	Less than 5 years	2.73	---	---	--
	From (5-10) years	3.44	*0.71	---	--
	More than 10 years	4.30	*1.57	*0.86	--

The results of Table 12 show that there are statistically significant differences at the level of significance ($\alpha \leq 0.05$) in the overall degree and in the fields (lesson planning, teaching new mathematical knowledge, classroom management and raising the level of interaction, and evaluation) attributed to the number of years of experience in favor of male and female teachers whose experience is more than (10) years compared to those less than five years and compared to those whose years of experience ranged from (5-10) years. There also were differences in favor of the category of (5-10) years compared to those who are less than five years. These results may be attributed to the impact of the experience factor as the male and female teachers pass the experiences in the years of teaching service, they gain knowledge and skill in teaching mathematics through virtual classes, where they have had opportunities to apply during their years of teaching experience in exchange for newly experienced male and female teachers.

3. Discussion

The Saudi Arabia kingdom Ministry of Education has taken careful steps to apply distance learning to help limit the spread of COVID-19 by employing both synchronous and asynchronous learning in schools. However, the current study revealed a high degree in the status of teaching mathematics, from the point of view of male and female teachers, on the total score with the other studies. The reason for the appearance of the general result with a high degree may be attributed to the technical features that characterize the educational platform that supports the interactive teaching approach in virtual classes. This study has implicitly agreed with the results of many studies that emphasized the impact of technological technical preparations on the success of teaching through virtual classes in light of the Covid 19 pandemic, such as the study of Adnan and Anwar (Adnan & Anwar, 2020) which confirmed that online education cannot achieve its goals in poor countries in which it is difficult for the citizens to access the Internet due to technical and financial problems, as is the case in Pakistan. Moreover, the study of O'Keefe et al., (2020) showed the progress of Saudi Arabia in 13 indicators out of 16 indicators on average of these countries. The study also revealed that

teachers received great support to overcome obstacles in activating e-learning. The study also agreed with the results of Hassan's study (2020), which emphasized the role of electronic and interactive software in activating the educational platform. The study also agreed with the study of Al-Khamisi (2020), which emphasized the role of organizing teaching procedures in virtual classes, their schedule, and evaluation methods. This study also implicitly agreed with the results of Bodie (2009) found that there is a high level of interactivity and a correlation between the teacher's behaviors and the educational method, a matter which contributed to increasing learners' satisfaction. It also agreed with the results of Lu's study (2011) which found that the use of virtual classes enhances communication in online mathematics teaching. It also tacitly agreed with the results of the Rigel and Kozen study (2016) which found that virtual classes may have many benefits to offer more than traditional ones in terms of acquiring and mastering the skills of the twenty-first century. Moreover, the study agreed with the results of the Shoaib (2016) which revealed the existence of an effect of simultaneous versus asynchronous teaching in favor of (simultaneous virtual class). It also tacitly agreed with the result of AL-Ahmari (2019), which revealed the success of the Saudi Virtual School experience, and the results showed its reliance on simultaneous classes and that there is a positive trend for students and teachers to learn by using such classes.

The results of the study of Al-Saeedi and Al-Abed (2018) and the study of Al-Omari and Ismail (2019) confirmed the effectiveness of using virtual classes in mathematics achievement and in achieving professional practices among mathematics female teachers.

Based on the previous results and in light of the researchers' experience in the field of teaching mathematics and their use of the educational platform in light of the Covid 19 pandemic, the preparedness and awareness of the Kingdom of Saudi Arabia's since before the Covid 19 pandemic of the importance of educational platforms and virtual learning parallel to traditional learning and the readiness of the educational environment for the transmission of distance teaching contributed to the success of the idea of distance education, a matter which was reflected positively on their teaching experiences as revealed by the results of the current study. It also confirmed the results of many studies that revealed the role of virtual class readiness in the success of distance education in various educational institutions. A good example is a study by Elzainy et al., (2020) which confirmed its effectiveness of the virtual classes and online assessment as confirmed by the results of the study of Eddie and José (2020) that revealed the effectiveness of online math learning activities for teachers in the COVID-19 time and that students demonstrated excellent online performance in acquiring mathematics learning skills in technology-rich environments.

The results of the study in this area differences at the significance level ($\alpha \leq 0.05$) in the level of teaching practices of mathematics' teachers in simultaneous virtual classes during Covid- 19 due to gender, academic qualification, and the number of years of experience agreed with the results in the study of Elzainy et al. (2020), in which it was found that there was a statistically significant increase in the average scores of female students during the electronic sessions for problem-based learning compared to males. While at the level of practices in other fields (lesson planning, teaching new mathematical knowledge, classroom management, and raising the level of interaction) there were no differences appeared in the degree of practice, as the values of T ranged from (1.743 - 1.950) and its statistical significance exceeded the level of significance (0.05), a matter which indicates the similarity of practices between male and female teachers in the three fields. The reason for this may be attributed to the similar perception of mathematics teachers and the similarity of teaching practices in simultaneous virtual classes of mathematics, regardless of gender, because of the similarity of conditions, school infrastructure and equipment, and the similarity of teaching strategies and evaluation and teaching practices.

4. Conclusion

Mathematics education has changed due to the Covid-19 pandemic. Most countries in the world including Saudi Arabia turned to teaching Mathematics through virtual education after schools were closed in the countries. Thus, the current study aimed to identify the status of teaching Mathematics in simultaneous virtual classes in light of the Covid-19 pandemic by uncovering teaching practices in the fields of: - lesson planning, teaching the new mathematical knowledge, classroom management and raising the level of interaction and evaluation. The descriptive approach was used in the study and involved a random sample of (385) teachers of Mathematics in the Qassim Education Department which was chosen during the first semester of AY 2020/21. A questionnaire was used to collect data after confirming its validity and reliability. The results of the study showed that the status of teaching Mathematics in simultaneous virtual classes in light of the Covid-19 pandemic was at a high degree (3.80/5) according to the respondents' point of view; results were as follows: - Planning "high"3.87", teaching new mathematical knowledge "high"3.81" and class management and raising the level of interaction was at a high degree "3.67".

5. Recommendations

In light of the results of the current study, the following recommendations can be made:

- The results of the study revealed that there is a discrepancy in some practices, a matter which requires identifying the training needs of mathematics male and female teachers in the field of e-learning in virtual classes, such as diversifying the methods of receiving students' responses to activities (chatting - WhatsApp ---- etc.), the use of

electronic participatory learning strategies in building and organizing the work of cooperative learning groups, employing electronic communication applications in providing reinforcement and feedback to students, employing electronic sports activities in presenting the lesson, and using virtual engineering tools while solving mathematical problems.

- Emphasizing the importance of continuing to maintain the level of practices that appeared to a high and very high degree in aspects related to teaching mathematics through virtual classes in the levels of planning the lesson, knowledge of new mathematical knowledge, classroom management, interaction, and evaluation.
- Improving the practices of teaching mathematics in virtual classes that showed a moderate degree of practice, such as using three-dimensional models in displaying mathematical shapes and symbols, employing electronic games to develop various mathematical skills, using electronic means to communicate with parents, and directing students to make reflective summaries to link the ideas of the lesson.
- Developing the skills of mathematics male and female teachers in the field of electronic design, such as mind maps and interactive videos, through the use of the educational platform.
- Enabling teachers of gaining gaming skills and designing electronic games that enhance mathematics learning.

6. Limitation

The limitation of this study focused of (385) male and female teachers who were selected randomly. It consisted of (283) male teachers and (102) female teachers from the entire population. Table 1 shows the characteristics of the sample of the study according to the variables of gender, academic qualification, and years of experience.

7. References

- Abbas, M. & Al-Absi, Muhammad. (2009). *Curricula and Methods of Teaching Mathematics for the Lower Elementary Stage*. Dar Al-Masirah for Publication and Distribution.
- Abdel Wahab, F. (2007). The Effectiveness of a Proposed Program in Developing Self-efficacy and the Status of Mathematics Teaching Among Science Female Teachers before Service in the Sultanate of Oman. *Journal of Scientific Education*, 3(10), 215-263.
- Abdallah, R., & Wardat, Y. (2021). Teachers' perceptions on the effectiveness of professional development programs in improving the curriculum implementation at Jordanian schools. *Elementary Education Online*, 20(5), 4438-4449. <https://doi.org/10.17051/ilkonline.2021.01.126>
- Adnan, M. & Anwar, K. (2020). Online learning Amid the COVID-19 Pandemic: Students' Perspectives, *Journal of Pedagogical Sociology and Psychology*, 2(1), 45-51.

- Alarabi, K. & Wardat, Y. (2021). UAE-based Teachers' Hindsight Judgments on Physics Education during the COVID-19 Pandemic. *Psychology and Education Journal*, 58(3), 2497-2511.
- AL-Ahmari, A. (2019). Virtual Classes between Theory and Practice: A Study of the Experience of the Saudi Virtual School. *Arab Journal of Literature and Human Studies*, 6, 311-338.
- AL-Anzi, A. & Al-Massad, A. (2018). The Status of Using Technology in Teaching Mathematics for the Primary Stage in the Schools of the City of Ar'ar from the Point of View of Male and Female Teachers. *The Arab Journal of Science and Research Publishing*, (2)23, 1-22.
- AL-Astal, O. & AL-Farra, I. (2013). "The Status of Using Virtual Classroom Technology in Teaching Educational Courses at Al-Quds Open University and the Ways to develop Them". Unpublished M.A. thesis, College of Education, Al-Azhar University.
- AL-Healeh, M. (2016). *Learning Design Theory and Practice*. (6) th ed, Dar Al Masirah for Publishing and Distribution.
- Al-Khamisi, A. (2020). Education in the Time of Coronavirus (COVID-19): Bridging the Gap between Home and School. *International Journal of Research in Educational Sciences*, 4(3), 52-73.
- Al-Khoweildy, H. (2014). "A proposed Training Program in Light of Quality Standards to Develop the Status of Teaching Mathematics to High School Computer Female Teachers in Qassim Region". Unpublished M.A. Thesis, College of Education, Qassim University.
- AL-Laqani, A. (2009). *A Dictionary of Educational Terms Known in Curricula and Teaching Methods*. (3) rd ed, World of Books.
- Al-Najjar, T. & Abu Shqair, M. (2014). "The Effect of Employing Virtual Classes on Developing Computer and Internet Usage Skills Among Students of the College of Islamic Call". Unpublished M.A. thesis, College of Education, Islamic University.
- Al-Omari, K. & Ismail, Z. (2019). The effectiveness of virtual classes in achieving professional practices among mathematics female teachers in intermediate level. *Journal of Reading and Knowledge*, 207, 286-314.
- Alotaibi, A., Khalil, I., & Wardat, Y. (2021). Teaching practices of the mathematics male and female teachers according to the PISA framework and its relation to their beliefs towards their students. *Elementary Education Online*, 20(1), 1247-1265. <https://doi.org/10.17051/ilkonline.2021.01.126>
- Al-Ruwais, A. (2011). The status of using technology in teaching mathematics from the point of view of its middle school teachers in the Kingdom of Saudi Arabia. *Arab Gulf Resala Journal*, 121, 15-56.

- AL-Saeed, R. & Al-Gharqi, W. (2015). "STEM": An Approach Based on Creative Projects to Develop Mathematics Education in Egypt and the Arab World. *In the Fifteenth Annual Scientific Conference of the Egyptian Society for Mathematics Education Entitled: Teaching and Learning Mathematics and Developing Skills of the Twenty-First Century*, 133-149.
- Al-Saeed, S. & Al-Abed, A. (2018). "The Effectiveness of Using Virtual Classes in Mathematics Achievement and Logical Thinking for Basic Tenth Grade Students". Unpublished M.A. Thesis, College of Education, Sultan Qaboos University.
- AL-Tantawi, E. (2013). *Effective Teaching*. AL-Maseera House for Publication and Distribution.
- Badawi, R. (2003). *Strategies in Teaching and Evaluating Mathematics Learning*. Dar Al-Fikr.
- Bodie, L. (2009). "An Experimental Study of Instructor in the Wimba Virtual Classroom". Unpublished doctoral dissertation, San Diego.
- Eddie M. & José M. (2020) Prospective Teachers' Online Learning Mathematics Activities in The Age of COVID-19: A Cluster Analysis Approach. *EURASIA Journal of Mathematics, Science and Technology Education*, 16(9), 15- 29.
- Elzainy, A., et al. (2020) Experience of E-Learning and Online Assessment During the COVID-19 Pandemic at the College of Medicine, Qassim University. *Journal of Taibah University Medical Sciences*, 15(6), 456-462
- Hammadena, S. & Al Shawahin, S. (2019). Attitudes of Mathematics Teachers towards E-learning in the Northeastern Badia Education Directorate. *Journal of Educational and Psychological Studies, The Islamic University*, (4)27, 457-471.
- Hassan, I. (2020). Distance Learning and Teaching of Mathematics in Light of the Corona pandemic. *International Journal of Research in Educational Sciences*, 3(4), 337-355.
- Jarrah, A. M., Khasawneh, O. M., & Wardat, Y. (2020). Implementing pragmatism and John Dewey's educational philosophy in Emirati elementary schools: case of mathematics and science teachers. *International Journal of Education Economics and Development*, 11(1), 58. <https://doi.org/10.1504/ijeed.2020.104287>
- Khalil, I. A. (2021, March). TEACHING MATHEMATICS IN SYNCHRONIZED VIRTUAL CLASSES: A PROPOSED MODEL IN LIGHT OF THE MATHEMATICAL POWER. In *Proceedings of INTED2021 Conference* (Vol. 8, p. 9th).
- Khalil, I. & AL-Massad, A. (2016). Barriers to Mathematics Teachers When Using Sketchpad Interactive Software When Teaching Engineering Subjects

- Included in Middle School Courses. *The International Journal of Specialized Education*, 5(5), 83-97.
- Kotait, G. (2015). *Modern Teaching and Learning Techniques*. House of Culture for Publishing and Distribution.
- Lu, Y. (2011). *Using a Virtual Classroom to Teach Online Mathematics*. <https://eric.ed.gov/ED519767>.
- Martin, F., et al. (2013). A Case Study on the Adoption and Use of Synchronous Virtual Classroom. *The Electronic Journal of E-learning*, 11(2), 124-138.
- Mubarez, M. & Fakhry, A. (2013). *E-Learning*. Dar Al-Zahra.
- O'Keefe, L., et al. (2020). The State of Online Learning in the Kingdom of Saudi Arabia: A COVID-19 Impact Study for K12. *Online Learning Consortium*, <https://onlinelearningconsortium.org>.
- Obaid, W. (2016). *Teaching Mathematics to all Children in Light of the Requirements of Standards and the Culture of Thinking*. Dar Al-Masirah.
- Obeidat, T., et al. (2011). *Scientific Research: Its Concept - Its Tools - Its Methods*. Dar Al-Fikr for Publishing and Distribution.
- Riegel, C. & Kozen, A. (2016). Attaining 21st Century Skills in a Virtual Classroom. *Educational Planning*, 23(3), 41-55.
- Saeed, S & Al-Harbi, H. (2013). Evaluating the Teaching Practices of Science Teachers in the Elementary Stage in Al-Rass Governorate in Light of the Requirements of Teaching Modern Science Curricula. *Journal of Studies in Curricula and Teaching Methods, Egyptian Curricula and Teaching Methods*, 199, 15-37.
- Shakman, K., et al. (2012). An Examination of Performance-Based Teacher Evaluation Systems in Five States. *Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Northeast and Islands*.
- Shoaib, I. M. (2016). The Effect of Different Types of Simultaneous / Asynchronous Virtual Classes on the Achievement and Development of the Skills of Producing Electronic Educational Games Among Female Kindergarten Students. *Journal of Educational Sciences, Faculty of Graduate Studies, Cairo University*, 24(1), 467-508.
- Wardat, Y., Jarrah, A. M., & Stoica, G. (2021). Understanding the meaning of the equal sign: a case study of middle school students in the United Arab Emirates. *European Journal of Educational Research*, 10(3), 1505-1514. <https://doi.org/10.12973/eu-jer.10.3.1505>
- World Health Organization. (2020). Coronavirus Disease (Covid-19). <https://www.who.int>.

Zaitoun, A. (2007). *Constructivist Theory and Science Teaching Strategies*. Dar Al Shorouk for Publishing and Distribution.

Zaitoun, H. & Zaitoun, K. (2003). *Learning and Teaching from the Perspective of Constructivist Theory*. The World of Books.

Zaitoun, H. (2006). *Teaching Skills: A Vision in the Implementation of the Lesson*. (3) re ed. The World of Books.

Zaitoun, K. (2005). *Teaching Models and Skills*. (2) nd ed, The World of Books.

Zaitoun, K. (2008). *Teaching Science to Understand Constructivist Vision*. The World of Books.