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Difficulties of Electronic Assessment In Light of the Corona Pandemic from the Viewpoint of Science Teachers for the Higher Basic Stage in Amman

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Abstract- This study aimed to identify difficulties of electronic assessment in light of the Corona Pandemic from the viewpoint of science teachers for the higher basic stage in Amman. The study used the descriptive survey approach, and to collect data, a questionnaire was developed on difficulties of electronic assessment in light of the Corona Pandemic from the viewpoint of science teachers for the higher basic stage in Amman, it's consisted of (43) items, and their validity and reliability were confirmed. The questionnaire was distributed to a sample of (158) male and female Science Teachers for the Higher Basic Stage in Amman Governorate. The results of the study showed that the responses of the study sample were in agreement with a medium degree to difficulties of electronic assessment in light of the Corona Pandemic from the viewpoint of science teachers for the higher basic stage in Amman. The most important recommendations of the study was to Raising awareness of students and teachers of the importance and necessity of electronic assessment and distance learning.

Keywords: Difficulties, Electronic Assessment, Corona Pandemic.

I. INTRODUCTION

The world is witnessing at the present time rapid developments in all areas of life and the explosion of knowledge and digital, and health crises that the whole world is going through. Perhaps the institutions most affected by the current situation are the educational institutions.

Distance learning is a type of learning in which the learner is far from the teacher, so that needs to be used by various means of communication, such as audio, print, visual, etc. (Kassem, Falcone, & Lafourcade, 2015). In order to deliver the educational material to the student, and bring closer the spatial and temporal distance that separates the student from his teacher (Willis, 2002).

To assess learning, especially at the present time, and in light of the Corona pandemic, electronic assessment can be used to assess cognitive and skill abilities through what is known as the electronic test, which is one of the most popular forms of online assessment, as it is based on formulating various assessments (Kuikka, Kitolab, & Laakso, 2014). And other short questions, and this is done by using some of the previous programs for the purpose of evaluating learning and monitoring students' grades, but if students are required to have other assessment methods such as presentation or memorization, then students are asked to present or recite directly or record their performance in audio or video (Davies, 2010). If it is required to evaluate students' practical and experimental knowledge, simulation software can be used, where learners should use all their resources and skills to complete the task in a safe virtual environment over the Internet (Adebayo & Abdulhamid, 2014). Thus, the efficiency can be assessed without incurring any risks in the real world, keeping in mind that the simulation is as realistic as possible to obtain accurate results (Al-Zaid, 2019).

And (Singh & Tiwari, 2016) pointed out that the assessment is a measure of the student's ability to perform certain roles and master certain skills, and it is not a judgment of the student's success or failure, nor is it a challenge to the student, but rather a means of developing content and elevating the student to the level of that content (Jordan, 2013). The assessment process should not necessarily lead to quantitative numbers or percentages, but even that achievement tests are not sufficient to judge the level of the student, as they measure the level of the student in a specific time situation and are not cumulative for the entire learning period (Qureshi, 2015). While (Stowell & Bennett, 2010) showed that there are many variables that are

expected to be extraneous that may affect the assessment process, such as mood, health, anxiety level, etc. The formative assessment process throughout the learning period is strengthened by providing students with feedback on their progress towards the set goals.

Qureshi (2015) defines electronic assessment that is achieved through computer programs and Internet networks, starting with formulating questions, assignments, or questionnaires, and then presenting them to students to solve and deliver them electronically to their teachers, and then teachers evaluate those answers and make sure Validity and appropriate assessment of students in the form of grades and results while preserving their confidentiality and student privacy, the electronic assessment is considered. (Dermo, 2009) defines electronic assessment as a general term to describe the use of computers or smart devices in the context of the assessment process. And the use of information technology in conducting any assessment related to a specific activity. And assessment of cognitive and practical capabilities.

The electronic assessment is an assessment of various cognitive and skill activities using computer technologies and the Internet. The electronic assessment is the automation process of the paper assessment process, which is applied in the assessment process mainly, and with the spread of electronic learning and the application of learning in digital environments in educational fields from schools, the assessment process began to shift from the use of paper and pen to paperless assessment, which is widely used in centers (Muhanna, 2009).

Lieberman (2020) believes that it must be recognized that the Corona pandemic has placed the educational learning process in an unusual new position, so it is no longer possible to practice the same educational habits as was the case in the regular classroom, and in light of these exceptional circumstances in which the Corona virus has dominated life Every day, all countries have taken many precautionary measures to maintain the continuity of the educational process at a distance, Since education in the context of the pandemic was remote, the assessment should also be remote, so that the science teacher carefully determines what you teach and what needs to be evaluated according to specific standards, taking into account the educational procedures that he performs to lead to permanent learning, in addition to the teacher's acquaintance with Students and what they need to learn and then look at the assessment from their learning (UNESCO, 2020).

Ko & Rossen (2017) notes the need to involve students in their learning and try to make education relevant to life while providing students with options on how to demonstrate their learning outcomes. And then effective feedback by giving students learning objectives and that the feedback is specific to the task. Assessment is a vital part of the teaching process. Here, the teacher should make an effort to determine the appropriate means to evaluate goals; So that it should be well planned and given sufficient time to prepare its tools. The true standard for any new approaches or methods must be based on making students work on performing tasks that are meaningful and valuable to them and appear as learning activities in which students practice higher thinking skills (Klerk, & Eggen, & Veldkamp, 2016).

Many educators point out that one of the most prominent principles of effective assessment in distance learning is that Assessment activities be authentic by being relevant and meaningful to the real-life situations and experiences of the learner, and seamlessly integrated into the teaching and learning processes, and that learners are engaged and provided with opportunities to build knowledge collaboratively (Gogno, 2014). Assessment activities are accompanied by opportunities to provide timely, continuous and useful, continuous coordination, for teachers to be more explicit in stimulating the common purpose and meaning of learning and assessment activities, to involve learners in multiple roles, and for assessment activities to be flexible and provide space for multiple approaches and solutions. The assessment activities should be accompanied by analytical and transparent models that help the learner to clearly understand the level of expected accomplishments, create opportunities to engage learners in meaningful thinking, and provide opportunities for continuous documentation and monitoring of the learner's achievements and progress over time (Oakley et al, 2014).

To activate the assessment component and increase its credibility, as it is considered one of the most important elements of the educational process on which subsequent steps are based on developing and updating academic curricula and contents, it was necessary to try to be creative among teachers in the assessment process. Merely having tools is not enough (Chen & Martin, 2000). Perhaps some people are

concerned about the ability of the remote assessment to show the true level of the student, invoking the ease of cheating in such tests; The fact that the teacher does not see his students, and does not surround the test environment, which may help the students to seek the help of those around them in solving all or most or some of the tests, and therefore it is necessary not to rely on the student's sincerity or relying on his honesty (Alyahya & Almutairi, 2019).

A number of specialists indicate the need for the teacher or evaluator to move away from direct questions or tests with one-answer consensus among students, for example, using open-book options that measure higher intellectual skills on Bloom's model for tests such as analysis and design (Qureshi, 2015), The teacher can also use comprehension questions that have a specific answer and different ways to answer while avoiding the student's opinion questions, in addition to project-based assessment such as for the student to make a poster about what he has learned or a short video clip or the like about the assessment presentation mechanism, and to make the assessment direct With sound and image using the front and back cameras, students may also give presentations in which they are required to present something different from others, which requires direct change in the event of similarity with others (Parker et al, 2012).

The electronic tools that may assist the teacher in the measurement and assessment processes, which include quantitative and qualitative tests, as well as objective and essays, are characterized by automatic correction and immediate feedback. Qualitative tools such as an electronic surveillance camera may suit some studies that require hidden observation, and advanced tests that the computer can perform automatic correction for are those that rely on artificial intelligence to analyze behavior instead of analyzing answers, such as analyzing clicks and mouse movement, and analyzing student performance inside the computer (Adebayo & Abdulhamid, 2014).

Among the most popular methods used for electronic assessment is what (Lee, 2006) referred to in evaluating distance learning programs, namely: questionnaires and surveys in which students are asked to answer the studied matter, and personal interviews (audio and picture), from which we can judge the student's level in light of his answers. As for the electronic achievement tests, they are concerned with the student's performance as a behavior resulting from a knowledge or skill gain achieved after a learning period. Algshami (2010) believes that assessment can be done remotely through short exams that measure the learner's ability to quickly recall and understand knowledge, and essay exams that measure a high level of cognitive abilities, especially those related to critical thinking, creative thinking, decision-making, and the scientific method for solving problems. As well as achievement files, the presentation of these works depends on multimedia, including audio, text, video clips, still images, graphs and presentations, and it can be published on the Internet situations.

Among the most prominent electronic measurement and assessment methods are common, which do not require any programming background or even advanced computer skills, which can be classified into three categories: The first is Internet-based tools that do not require downloading programs, but they are independent tools. To create electronic tests such as (Google forms, ClassMarker), which are tools that are not integrated with the integrated learning management systems in themselves (virtual classes, discussion forums, question bank, electronic tests, student lists, additional tools) and integrated with other systems in the educational institution such as students and teachers databases Tables, etc. The second is partial tools from the professional digital content industry software such as (Storyline Articulate, CourseLab), which are in a simplified form, the electronic format for digital courses through which the parts of the digital course are packed and assembled (tests, video, pictures, audio, activities), In a format that can be exported to all learning management systems, this does not stop by opening these files from within the learning management systems, but even extracting the results of students for those activities and feeding the system directly to the students' records, according to their answers, and the third is the tests that are inside the learning management systems, which can be used for educational purposes Serious (Dreier, et al. 2014; Alsuqayh, 2013; Osang, 2012).

Alhadhoud (2020) study aimed to identify the reality of using the electronic achievement file to evaluate students of the Accounting Department at the College of Business in the State of Kuwait, and the descriptive approach was used, and the research community included computer trainers in the Accounting Department of the College of Business Studies in the Public Authority for Applied Education and Training in the State of

Kuwait. And was done selecting The sample of the research by the intentional method from computer trainers at the College of Business Studies at the Public Authority for Applied Education and Training in the State of Kuwait, and the research sample number reached (20) teachers, and the results provided the necessary requirements in the educational environment, which the computer trainer assists to use in the electronic achievement file in the (E-Portfolio).

Al-Anzi (2019) study aimed to identify the degree to which the teachers of social and national studies at the intermediate level in Hafr Al-Batin governorate used electronic assessment tools, the analytical descriptive approach was used. The study tool consisted of a questionnaire consisting of three tools. The study community was the teachers of social and national studies in Hafr Al-Batin governorate. A random sample of (34) teachers was selected, and data was analyzed with SPSS, the study revealed a number of results, the most important of them are that the degree of the teachers of social and national studies in the intermediate stage in Hafr Al-Batin governorate for using e-assessment tools in general get (3.36).

The study of Al-Masoudi (2018) aimed at identifying the effectiveness of using the electronic achievement file in the developed jurisprudence curriculum on the achievement of female students, and the study sample consisted of (61) female students from the secondary stage divided into two control and experimental groups, and among the most prominent results that were reached were the presence of statistically significant differences In academic achievement for the benefit of the experimental group to which the electronic assessment was applied.

Al-Manea (2018) conducted a study aimed at identifying the level of academic fraud in e-learning from the viewpoint of faculty members at King Saud University. The study used the questionnaire as a study tool that was applied to a sample of faculty members. To collect data, the descriptive survey approach was applied. The study showed that the level of academic fraud in e-learning is high, and the most prominent of which is the quotation of study assignments from the Internet without specifying the source, followed by copying the phrases from the Internet and placing them side by side without additions from the student.

Al-Ganzouri (2017) conducted a study aimed at identifying the trends of faculty members towards employing electronic assessment tools using the blackboard system, and the study sample consisted of (86) members of the faculty, and the results of the study indicated that there are positive trends towards using the electronic calendar.

Al-Roqi (2017) conducted a study to find out the degree to which natural sciences teachers practice electronic assessment methods in the intermediate stage in Riyadh. The sample of the study consisted of (249) middle school teachers. Among the most prominent results that were reached was the low level of use of electronic calendar among the study sample.

Atallah's study (2016) sought to identify the attitudes of students and faculty members towards electronic assessment and the obstacles to its implementation. The study sample consisted of (350) male and female students at the university level, and (150) university professors, on whom two measures were applied (trends towards electronic calendar, obstacles to electronic assessment). And female students, while I found negative trends towards the use of the electronic calendar among faculty members, as well as the presence of some obstacles to using the electronic calendar.

The previous studies varied in terms of the goal, some of them referred to the investigation of the reality of using the electronic achievement file, such as the study of Alhadhoud (2020) and Al-Masoudi (2018), while other studies, such as the study of Atallah (2016) and the study of Al-Ganzouri (2017), indicated the identification of students and faculty attitudes towards Electronic calendar and the obstacles to its application. Al-Roqi study (2017) is a study that aimed to know the degree to which natural science teachers practice electronic assessment methods. As for the current study, it aimed to identify the difficulties of evaluating students electronically in light of the Corona pandemic from the viewpoint of science teachers for the higher basic stage in the capital, Amman. It also varied in terms of the tool used, as the current study agreed in terms of using the questionnaire as a tool with the study of Alhadhoud (2020), Al-Masoudi (2018), Atallah (2016), Al-Ganzouri (2017) and Al-Roqi study (2017).

The current study has benefited from previous studies in presenting and enriching theoretical literature as it was reported in preparing a tool for the difficulties of evaluating students electronically in light of the Corona pandemic from the viewpoint of science teachers for the higher basic stage in the capital Amman governorate in the current study to achieve its objectives, and in determining the methodology used, interpretation and discussion of the results. The current study was distinguished from related studies as it was the first study - within the limits of researchers' knowledge- which aimed to identify the difficulties of evaluating students electronically in light of the Corona pandemic from the viewpoint of science teachers for the higher basic stage in the governorate of the capital, Amman.

The study Problem

In light of technological progress and the tremendous technological revolution that the world is witnessing in various fields of life, especially the educational process. Modern theories have changed many trends in the educational process, and changed the traditional pattern of interaction that prevailed for long periods of time, so the educational process requires the spatial dimension between the teacher and students. Especially in light of the Corona pandemic, which imposed on students to study behind electronic screens, which also imposed on the teacher to follow up the students' work and the level of their semester experiences that they received through e-learning, in an electronic manner and to evaluate students electronically.

The electronic calendar conference in educational institutions held in Cairo in 2015 recommended the importance of using computers in measurement, in addition to what was recommended by the International Conference on Education Assessment 2018 held in Riyadh, Saudi Arabia, the necessity of digital transformation to develop future skills and take care of designing standards, tools and indicators. Especially with different educational skills.

Through the experience of researchers in distance teaching, many difficulties were observed in electronic assessment of students, for example the absence of a science teacher behind these tools may lead to cheating and the like, in addition to quoting assignments from the Internet without specifying the source, and copying phrases from the Internet and placing them side by side. Without additions from the student.

Today, the primary school teacher is required to be of quality and efficiency, to be in line with the great technological renaissance the world is witnessing in the field of teaching, knowledge transfer and culture, and to realize that one of his new tasks is to follow up all students' work in an electronic way that does not require the necessity of simultaneous direct assessment. Therefore, the researchers decided to study this topic. The study problem is determined by answering the following questions:

1- The first question: What are the difficulties of difficulties of electronic assessment in light of the Corona Pandemic from the viewpoint of science teachers for the higher basic stage in Amman?
2- The second question: Are there statistically significant differences in the degree of difficulties of electronic assessment in light of the Corona Pandemic from the viewpoint of science teachers for the higher basic stage in Amman, according to gender, years of experience, subject teacher teaches?

Objectives of the study

The study aimed to know the degree of difficulties of electronic assessment in light of the Corona Pandemic from the viewpoint of science teachers for the higher basic stage in Amman And its relationship to gender variables, years of service, and the branch of science that the teacher studies.

Significance of the study

It is hoped that this study will direct attention to the difficulties of evaluating students electronically in light of the Corona pandemic from the viewpoint of science teachers for the higher basic stage in the governorate of the capital, Amman. In the educational-learning process, and helping to provide a list of difficulties in using electronic assessment methods, which can be used to improve the process of evaluating students electronically, and this study can also benefit decision-makers to hold training courses for teachers on how to deal with the electronic calendar.

Definition of terms

The following terms were defined conceptually and operationally:

Difficulties: Procedurally, it is defined as the total degree of the obstacles facing science teachers of the higher basic stage due to their absence on the study tool related to the difficulties of evaluating students electronically in light of the Corona pandemic from the viewpoint of science teachers for the higher primary stage in the governorate of the capital, Amman.

Electronic assessment: It is the process of employing computer equipment, information network, educational software, and educational materials of multiple sources through assessment tools to analyze and collect students' responses, which contributes to helping the teacher identify and discuss the effects of activities and programs on the educational process in order to reach codified judgments based on Qualitative or quantitative data related to academic achievement.

II. METHODOLOGY

Research Methodology

A quantitative (descriptive surveying one) research method was used as the appropriate method for this study, and a questionnaire was used applied to collect data, after assuring their validity and reliability.

The population of the study

The study population consisted of all science male and female teachers in public schools in the capital Amman for the academic year (2020/2021), and their number (1531) male and female teachers, according to statistics issued by the Ministry of Education.

The sample of the study

The sample subjects were (158) male and female teachers were selected through a random sample. The size of the sample was determined after returning to the table of determining the sample size of the population that was prepared by Krejcie and Morgan (1970).

Table (1) the distribution of the sample subjects according to the variables

		Frequency	Percent
Sex	Male	55	34.8
	Female	103	65.2
Experience	less than 5 years	51	32.3
	5-10 years	51	32.3
	more than 10 years	56	35.4
Subject	Biology	36	22.8
	Physics	42	26.6
	Chemistry	36	22.8
	Geology	44	27.8
	Total	158	100.0

The instrument of the study

The researchers adopted one instrument to collect data which is a self-administered questionnaire and it consisted of (43) questions to identify the difficulties of evaluating students electronically in light of the Corona pandemic from the viewpoint of science teachers for the higher basic stage in Amman Governorate consists of four parts: (Difficulties related to implementation, Difficulties related to the teacher's awareness of electronic assessment strategies, Difficulties related to educational content and Difficulties related to students), This is after reviewing the opinions of educational experts, supervisors and school directors, and

using some literature and previous studies related to the subject of the study conducted in this field, such as the Alhadhoud (2020), By applying Likert's five-step ladder: (very high, high, medium, low, very low).

The validity of the instrument

Validity refers to the ability of the instrument to measure what was, To make sure of the validity of the instrument, the researchers distributed copies of the questionnaire to arbitrators, to judge the face and content validity of the items, to identify the difficulties of evaluating students electronically in light of the Corona pandemic from the viewpoint of science teachers for the higher basic stage in Amman Governorate.

The stability of the study tool

To ensure the stability of the study tool the test-retest method was checked by applying the scale, and re-applying it after two weeks to a group outside the study sample consisting of (30), and then the Pearson correlation coefficient was calculated between their estimates both times it was (0.85-0.91).

The stability coefficient was also calculated by the method of internal consistency according to the Cronbach alpha equation it was (0.77-0.85), and the stability of the tool and all the standards after distributed it again, and these values were considered appropriate for the purposes of this study.

Table (2) the stability of the study tool

N	Domain	Cronbach alpha	test retest Pearson R
1	Difficulties related to implementation	0.77	0.85
2	Difficulties related to the teacher's awareness of electronic assessment strategies	0.85	0.91
3	Difficulties related to educational content	0.79	0.90
4	Difficulties related to students	0.77	0.89
	Total score	0.93	0.94

III. Study Results and Discussion

This part presents the findings of the study, in light of its questions, as the following:

The first question: What are the difficulties of electronic assessment in light of the Corona Pandemic from the viewpoint of science teachers for the higher basic stage in Amman?

To answer the first question of the study, means and standard deviations of are the difficulties of assessment students electronically in light of the Corona pandemic from the viewpoint of science teachers for the higher basic stage in Amman Governorate were computed as presented in table (3).

Table (3) Means and standard deviations the difficulties of assessment students electronically in light of the Corona pandemic ranked in a descending order

Rank	N	Domain	Mean	Std. Deviation
1	2	Difficulties related to the teacher's awareness of electronic assessment strategies	3.69	.611
2	1	Difficulties related to implementation	3.65	.553
3	4	Difficulties related to students	3.64	.625
4	3	Difficulties related to educational content	3.55	.570
		Total score	3.63	.526

Table (3) shows that "Difficulties related to the teacher's awareness of electronic assessment strategies "receives the highest mean (3.69) regarding the degree of agreement followed by "Difficulties related to

implementation" with mean (3.65) while "Difficulties related to educational content" was ranked last with mean (3.55). This table also shows that the total mean is (3.63).

This result can be attributed to the opinion of the lack actual practice of the calendar They are not accustomed to it, and the environment for the electronic calendar is based on the technical side The technical and computer system, the weakness of the technical system and networks (the Internet), and the limited breadth, contributed In the presence of direct challenges, and delays in electronic implementation in educational institutions, It was similar to the result of the study of Alhadhoud (2020).

Mean and standard deviation of each item in each domain were calculated as shown in the following tables.

- **Difficulties related to implementation**

Table (4) Means and standard deviations of Vocabulary items, ranked in a descending order

Rank	N	Item	Mean	Std. Deviation
1	9	Science teachers directed towards the use of objective tests during the electronic calendar in light of the Corona crisis	3.85	1.107
2	8	The difficulty of obtaining opportunities for science teachers to communicate during scientific visits and seminars with students in light of the Corona crisis	3.84	.934
3	11	Lack of credibility in evaluating students online in light of the Corona crisis	3.75	1.058
4	1	I find it difficult to apply assessment strategies electronically	3.74	.904
4	10	I believe that assessing students electronically is not a correct way to evaluate student learning	3.74	.979
6	2	Online calendar strategies need a lot of effort and time	3.70	.974
7	4	The difficulty for parents to understand the nature of the electronic calendar, which is reflected in the degree of reliability	3.66	.921
8	6	The difficulty of applying electronic exams simultaneously between the teacher and students in light of the Corona crisis	3.53	.922
8	7	Weakness in the internet and its exposure to interruption in a way that does not allow students to return to continue the exam	3.53	1.081
10	5	The lack of sufficient templates for e-calendar tools to be used	3.49	.995
11	3	The difficulty of following the educational supervisor to assess students electronically	3.22	1.119
		Difficulties related to implementation	3.65	.553

Table (4) shows that Item 9 "Science teachers directed towards the use of objective tests during the electronic calendar in light of the Corona crisis" receives the highest mean (3.85) This result can be attributed to the opinion of the availability of many templates for exams models from a multiple-choice format in many sites that are freely available, which helped teachers to go to them without others, regarding the degree of agreement followed by item 8 "The difficulty of obtaining opportunities for science teachers to communicate during scientific visits and seminars with students in light of the Corona crisis" with mean (3.84) this result can be attributed to the Corona pandemic, which imposed a lack of direct communication between individuals, while item 3 "The difficulty of following the educational supervisor to assess students electronically" was ranked last with mean (3.22). This table also shows that the Difficulties related to

implementation mean as a whole is (3.65), this result can be attributed to the training programs are inadequate and lack durability and quality.

- **Difficulties related to the teacher's awareness of electronic assessment strategies**

Table (5) Means and standard deviations of Vocabulary items, ranked in a descending order

Rank	N	Item	Mean	Std. Deviation
1	12	Dramatically reducing the teacher's role in determining the actual levels of students	3.91	.862
2	20	Difficulty employing assessment strategies based on observed behavior and interviews	3.87	.966
3	13	Lack of competence in using electronic assessment strategies	3.86	.885
4	24	Difficulty reaching students with critical and creative thinking	3.82	.873
5	18	It is difficult for the teacher to provide reinforcement and encouragement means to students when applying the electronic calendar	3.75	.995
6	21	The difficulty of employing practical testing strategies in the science subject	3.72	1.004
7	14	Lack of ability to build appropriate tools for electronic assessment with regard to laboratory experiments	3.68	1.077
8	16	It is difficult for the teacher to know how to calculate the student's mark for many skills from the science subject	3.65	1.003
9	15	Lack of teacher training on how to use the electronic calendar	3.59	.991
10	23	The difficulty of using research projects in the electronic calendar	3.58	1.072
11	19	Difficulty focusing on the cognitive, skill and emotional aspects of students' online assessment	3.56	.954
11	22	Difficulty enabling the teacher to review model answers with students to correct their mistakes	3.56	1.159
13	17	Difficulty enabling the teacher to banish his mood when evaluating students electronically	3.35	1.003
		Difficulties related to the teacher's awareness of electronic assessment strategies	3.69	.611

Table (5) shows that Item 12 "Dramatically reducing the teacher's role in determining the actual levels of students" receives the highest mean (3.91) this result can be attributed to the there is a segment of teachers who lack the skill to take electronic tests, because most programs focus on the cognitive side, not the practical side, regarding the degree of agreement followed by item 20 "Difficulty employing assessment strategies based on observed behavior and interviews" with mean (3.87) this result can be attributed to the teacher who corrects students' answers is not the same teacher who explains lessons on the educational platform, while item 17 "Difficulty enabling the teacher to banish his mood when assessment students electronically" was ranked last with mean (3.35) this result can be attributed to the exam exhibits a single pattern. This table also shows that the Difficulties related to the teacher's awareness of electronic assessment strategies mean as a whole is (3.69), this result can be attributed to the calendar tools have their own peculiarities and differ from one subject to another, some require applied assessment and some of them theoretical assessment.

- **Difficulties related to educational content**

Table (6) Means and standard deviations of Vocabulary items, ranked in a descending order

Rank	N	Item	Mean	Std. Deviation
1	25	Lack of including school science textbooks in their branches of electronic assessment strategies	3.69	.975
2	33	Lack of motivation among students in studying before taking the test in the electronic calendar	3.64	1.033
3	35	Difficulty evaluating exercises and assignments in educational content	3.63	.947
4	34	Difficulty completing the exercises in science books in line with the electronic calendar	3.62	.868
5	27	The electronic calendar was not able to comprehend the educational content	3.59	.978
6	29	Students' reluctance to communicate with the teacher during the oral tests in the electronic calendar	3.52	.917
6	30	The difficulty of cooperation between students in the activities of the electronic calendar	3.52	.917
6	32	The reluctance of students to participate in the emotional and social assessment activities	3.52	1.169
9	26	The nature of science subject, with its branches, does not require the use of electronic calendar to cover its details	3.50	.982
11	31	Students neglecting a lot of homework and self-activities	3.43	1.116
11	28	Increase the inclusion of science books in activities and experiences that are difficult to evaluate students in electronically	3.42	.921
		Difficulties related to educational content	3.55	.570

Table (6) shows that Item 25 "Lack of including school science textbooks in their branches of electronic assessment strategies" receives the highest mean (3.69) this result can be attributed to the difficulty of applying practical tests in distance learning, regarding the degree of agreement followed by item 33 "Lack of motivation among students in studying before taking the test in the electronic calendar" with mean (3.64) this result can be attributed to the lack of interaction between the teacher and students and between the students themselves, while item 28 "Increase the inclusion of science books in activities and experiences that are difficult to evaluate students in electronically" was ranked last with mean (3.42). This table also shows that the Difficulties related to educational content mean as a whole is (3.55), this result can be attributed to the science subject in particular needs assessment methods and tools that differ from other subjects.

- **Difficulties related to students**

Table (7) Means and standard deviations of Vocabulary items, ranked in a descending order

Rank	N	Item	Mean	Std. Deviation
1	36	Lack of students' tendency to take electronic exams	3.75	.964
1	40	Difficulty controlling students from using the electronic calendar	3.75	.988
3	39	The difficulty of properly evaluating all students and obtaining the grade they deserve online	3.68	.959
3	43	Difficulty in evaluating students continuously during the distance learning process	3.68	1.092

5	41	Textbooks contain questions that are difficult to evaluate electronically	3.65	.937
6	37	Not covering the electronic calendar tools for all age groups of students	3.60	.964
7	42	The nature of science subjects for the primary stage does not fit the electronic calendar	3.54	.971
8	38	Students' achievement levels in the subject of science in its branches are not encouraged to follow the electronic calendar	3.43	.999
		Difficulties related to students	3.64	.625

Table (7) shows that Items 36, 40 "Lack of students' tendency to take electronic exams" and "Difficulty controlling students from using the electronic calendar" receive the highest mean (3.75) regarding the degree of agreement this result can be attributed to the difficulty of ascertaining the identity of the examinee, whether the student or someone else, while item 38 "Students' achievement levels in the subject of science in its branches are not encouraged to follow the electronic calendar" was ranked last with mean (3.43). This table also shows that the Difficulties related to students mean as a whole is (3.64), this result can be attributed to the science is one of the subjects that helps students build their self-confidence.

The second question: Are there statistically significant differences in the degree of difficulties of electronic assessment in light of the Corona Pandemic from the viewpoint of science teachers for the higher basic stage in Amman, according to gender, years of experience, subject teacher teaches?

To find out whether there are statistical significant differences (α=0.05) in the degree of difficulties in evaluating students electronically in light of the Corona pandemic from the point of view of science teachers for the higher basic stage in Amman, according to gender, years of service, years of experience, subject teacher teaches, t-test analysis was conducted for Gender variable while One way ANOVA was conducted for **years of experience and subject teacher teaches** variables and the results are shown in tables 10.

1. Gender

Table (8) t-test results due Gender variable

	Gender	N	Mean	Std. Deviation	t	Sig.
Difficulties related to implementation	Male	55	3.49	.581	-2.654	.009
	Female	103	3.73	.522		
Difficulties related to the teacher's awareness of electronic assessment strategies	Male	55	3.57	.615	-1.754	.081
	Female	103	3.75	.602		
Difficulties related to educational content	Male	55	3.46	.574	-1.488	.139
	Female	103	3.60	.564		
Difficulties related to students	Male	55	3.52	.633	-1.749	.082
	Female	103	3.70	.614		
Total score	Male	55	3.51	.545	-2.135	.034
	Female	103	3.70	.506		

Table (8) shows: There are statistically significant differences at (α= 0.05) in Difficulties related to implementation and Total score due to Gender in favor of females, this result can be attributed to the Females' constant and continuous pursuit of preference, so they do not easily accept the challenges they face in teaching, and females try to communicate with students more often than males, which increases these challenges in their application of electronic assessment

There are no statistically significant differences at (α= 0.05) in Difficulties related to the teacher's awareness of electronic assessment strategies, Difficulties related to educational content and Difficulties related to students due to Gender.

2-Years of Experience variable

Table (9) One-way ANOVA results due Years of Experience variable

		N	Mean	Std. Deviation	F	Sig.
Difficulties related to implementation	less than 5 years	51	3.69	.571	.440	.645
	5-10 years	51	3.59	.584		
	more than 10 years	56	3.66	.513		
	Total	158	3.65	.553		
Difficulties related to the teacher's awareness of electronic assessment strategies	less than 5 years	51	3.66	.556	.215	.807
	5-10 years	51	3.66	.646		
	more than 10 years	56	3.73	.633		
	Total	158	3.69	.611		
Difficulties related to educational content	less than 5 years	51	3.54	.581	.042	.959
	5-10 years	51	3.56	.584		
	more than 10 years	56	3.57	.556		
	Total	158	3.55	.570		
Difficulties related to students	less than 5 years	51	3.66	.618	.574	.564
	5-10 years	51	3.56	.630		
	more than 10 years	56	3.68	.630		
	Total	158	3.64	.625		
Total score	less than 5 years	51	3.64	.507	.194	.824
	5-10 years	51	3.60	.552		
	more than 10 years	56	3.66	.526		
	Total	158	3.63	.526		

Table (9) shows there are no statistically significant differences at (α= 0.05) due to Years of Experience variable in all difficulties, this result can be attributed to the all teachers with different experiences started electronic assessment during the Corona pandemic in the same period of time

3- **Subject Teacher Teaches variable**

Table (10) One-way ANOVA results due to Subject Teacher Teaches variable

		N	Mean	Std. Deviation	F	Sig.
Difficulties related to implementation	Biology	36	3.62	.600	.258	.855
	Physics	42	3.60	.535		
	Chemistry	36	3.69	.513		
	Geology	44	3.68	.577		
	Total	158	3.65	.553		
Difficulties related to	Biology	36	3.74	.695	.249	.862

the teacher's awareness of electronic assessment strategies	Physics	42	3.62	.603		
	Chemistry	36	3.70	.576		
	Geology	44	3.69	.588		
	Total	158	3.69	.611		
Difficulties related to educational content	Biology	36	3.69	.613	1.021	.385
	Physics	42	3.47	.529		
	Chemistry	36	3.55	.505		
	Geology	44	3.52	.618		
	Total	158	3.55	.570		
Difficulties related to students	Biology	36	3.65	.723	.054	.983
	Physics	42	3.60	.614		
	Chemistry	36	3.65	.601		
	Geology	44	3.64	.587		
	Total	158	3.64	.625		
Total score	Biology	36	3.68	.600	.294	.830
	Physics	42	3.57	.495		
	Chemistry	36	3.65	.487		
	Geology	44	3.63	.533		
	Total	158	3.63	.526		

Table (10) shows there are no statistically significant differences at (α= 0.05) due to Subject Teacher Teaches variable in all difficulties, this result can be attributed to the convergence and overlap between the various types of sciences.

IV. RECOMMENDATIONS

From the results, the study recommends the following:

1- Raising awareness of students and teachers of the importance and necessity of electronic assessment and distance learning.

2- Providing many forms and templates that are easy for teachers to use in electronic assessment.

3- Training teachers and students on electronic assessment tools and how to use them.

4- Providing adequate infrastructure and free internet that suits the needs of electronic assessment.

5- Agreement with internet companies to provide better features that allow students to continue their exams without interruption.

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