

Article

The Role of the E-Learning Departments in Controlling the Quality of Electronic Assessments in Palestinian Universities during the COVID-19 Pandemic

Rabab Hamdan ^{1,2}, Wafaa Ashour ² and Wajeeh Daher ^{2,3,*}

¹ Information Technology Department, Palestine Technical University–Kadoorie, Ramallah P.O. Box 2022, Palestine; rabab.hamdan@ptuk.edu.ps

² Department of Educational Administration, Arab American University, Ramallah P.O. Box 240, Palestine; wafa.aashour@hotmail.com

³ Department of Educational Sciences, An-Najah National University, Nablus P.O. Box 7, Palestine

* Correspondence: wajeehdaher@najah.edu

Abstract: The research aimed to identify the role of the e-learning departments in Palestinian universities in controlling the quality of the academic processes during the COVID-19 pandemic. Data collection was conducted using interviews starting from November 2020 and ending in December 2020 during the academic year 2020/2021. The interviews included a number of questions within the axis of electronic assessment. The population of the study consisted of directors of e-learning departments in a number of Palestinian universities, namely: University A, University B, University C, University D, and University E. The main study findings indicated that the universities agreed that the assessment at the beginning of the pandemic sought to save what could be saved in the emergency period, which made electronic assessment a complex issue in this pandemic. Moreover, the problem of plagiarism and faked identities was one of the biggest problems faced by university instructors in the electronic assessment; consequently, changes have been made to the assessment methods that were used before the COVID-19 pandemic. To do so, alternative methods of learning and assessment were sought and arrived at.

Keywords: e-learning department; ICT; higher education; university; assessment; evaluation; e-assessment



Citation: Hamdan, R.; Ashour, W.; Daher, W. The Role of the E-Learning Departments in Controlling the Quality of Electronic Assessments in Palestinian Universities during the COVID-19 Pandemic. *Sustainability* **2021**, *13*, 12021. <https://doi.org/10.3390/su132112021>

Academic Editors:

Javier Cifuentes-Faura,

Joseph Crawford and Jo-Anne Kelder

Received: 23 September 2021

Accepted: 28 October 2021

Published: 30 October 2021

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2021 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

The rapid development in the field of information and communication technology (ICT), witnessed in the twenty-first century has led to the emergence of systems and tools that have revolutionized the exchange and sharing of knowledge in various fields, but mainly in the education field. In light of this technical progress and amidst the large bulk of knowledge introduced to almost all aspects of human life, e-learning and blended learning have been one of the possible options offered by universities since the 1990s, a period that witnessed an immense advancement in both software and equipment, as well as the emergence of e-learning departments [1]. However, its structure and tools were difficult to use at the beginning [2].

Galanis et al. [3] argue that assessment is a vital part of the educational process and an important factor for its continuous improvement, and therefore traditional assessment methods should be revised to become effective and applied in distance learning environments. This is especially true for emergency education that involves new learning environments. The present research investigates the efforts put into e-assessment by the e-learning departments in Palestinian universities.

As described above, assessment is an integral part of the educational process. During and at the end of the educational process, a variety of assessment methods must be used in order to identify the strengths and weaknesses of these educational process, and work

to improve and foster it. Many assessment options remain available even when teaching is conducted remotely, because assessment constitutes the most important backbone of education, as the global trend seeks to keep pace with the latest developments in the field of ICT, and thus increase the demand for electronic assessment in educational circles.

2. Theoretical E-Assessment Frameworks

E-assessment refers to the end-to-end electronic assessment process in which ICT is used for the presentation of recording responses and assessment activities [4–6]. Howarth [7] defined e-assessment as the use of ICT to manage and perform different types of assessment—diagnostic, summative or formative. He also emphasized that ICT is necessary for electronic assessment, where ICT makes assessment an essential part of the e-learning process. Kim et al. [8] described two types of distance assessment. First, formative assessment, through which it is possible to provide observations and data on an ongoing basis to both teachers and students. This shows the extent of students' mastery of educational objectives, where it is normally conducted by taking samples from students and providing feedback to them based on the assessment. Second, summative assessment, which is used to determine the students' score, in addition to providing comprehensive conclusions about the mastery of learning objectives.

Fontanillas et al. [9] describe five essential characteristics of e-assessment: Strategic (considers the identification of the key elements for improvement based on the acquisition of competencies), integral (assures the integral acquisition of the competencies), holistic (takes into account all the internal and external agents), transversal (affects all of the learning actions and activities and the interactions that take place during the learning process), and coherent (takes into account the different processes as interrelated and not isolated, giving coherence to the assessment). In addition, Shalatska et al. [10] recommend the following processes when implementing e-assessment in higher education: to determine intended recipients and the purpose of testing; select appropriate instruments and e-platform; specify forms of feedback; clarify the tasks; provide knowledge base for operating e-tests, etc.

Simonson et al. [11] state that e-learning management consists of the following basic components: (calendar, announcements, syllabus), content tools (such as content pages, quizzes, and assessment features), and communication tools (such as discussion forums, messaging, and synchronous emails). These components can assist both the instructor and the student in the teaching and learning process by providing a digital platform. The teaching/learning platform systems can be useful for instructors to organize, manage and present the course materials; they also serve to provide various digital assessment options that students learn, choose and think about. Schneider and Council [12] argue that Learning Management Systems (LMS) can be used as part of a blended learning environment, where students use them to study online, as part of class time, before moving to class for discussion or practice of some skills, lectures or even projects.

3. Literature Review

Researchers have been interested e-learning [13,14] and e-assessment as part of the e-learning [15–18]. Kundu and Bej [17] tried to identify students' perception of electronic assessment in light of COVID-19 outbreak. The study results revealed that the level of students' general perception towards electronic assessment was moderate, and this perception varied depending on gender, academic level and economic status. Gasparyan et al. [18] carried out a study on plagiarism in an attempt to analyse poor writing, lack of related training, emerging anti-plagiarism strategies, and new forms of wasting of resources. The researchers concluded that although anti-plagiarism software checks had helped uncover elementary forms of textual recycling, they remain inefficient for preventing complex forms of plagiarism. Therefore, the human element would be the best trusted option in this domain. Sa'di et al. [19] found that the Jordanian universities swiftly shifted to e-classes

during the COVID 19 lockdown, but they were not able to shift swiftly to an appropriate assessment in e-learning.

Peytcheva-Forsyth et al. [20] aimed at investigating the impact of technology on cheating and plagiarism from the perspective of teachers and students from Sofia University (Bulgaria). The study results revealed that the technology affects the opportunities for dishonest behaviours in assessment in different ways within the domain of the three studied contexts including: (1) face-to-face exams; (2) submission of paper assignments which were prepared in the absence of a teacher; (3) submission of online assignments which were prepared in the absence of a teacher; but mainly modifies the means of cheating rather than encouraging academic lying or academic dishonesty. In addition, some researchers pointed at e-assessment as safe. Bhebhe and Maphosa [21] say: "it has proved to be safe during the times of COVID-19 pandemic as it reduces contacts between individuals".

Das [22] conducted a study that aimed at exploring students' perceptions of relevant traditional and alternative assessment methods that can be used to assess the cognitive learning and characteristics of graduates in a university of technology in South Africa. The main study findings showed that the students perceived the traditional and alternative assessment tools as being appropriate to varying degrees; they also considered the various assessment tools effective in assessing cognitive learning and verifying the characteristics of graduates. Furthermore, the researcher concluded that a mixture of traditional and alternative assessment tools is appropriate and may help in achieving effective assessment for civil engineering students at the university. Galanis et al. [3] explored the use of e-voting based cryptographic protocols to implement synchronous as well as asynchronous online electronic assessment procedures in order to alleviate the problems arising from the lack of interpersonal transaction in open and distance learning environments. One of the most important results is that assessment is a vital part of the educational process and an important factor for its continuous improvement, and that traditional assessment cannot be effective and applied in distance learning environments.

4. Research Rationale, Goals and Questions

4.1. The Research Rationale and Goals

Due to the conditions from which the whole world suffered as a result of the spread of the COVID-19 pandemic, educational institutions suddenly found themselves forced to switch to distance learning to ensure the continuity of the teaching and learning processes, and to use the internet, smart phones and computers in remote communication with students [23]. The current study explores the role of the e-learning department in different Palestinian universities in assessing the educational processes during COVID-19 in an attempt to reach the educational outputs with the regular competencies of students.

The importance of the research lies in the fact that it may contribute to supporting the efforts of decision makers regarding the assessment of university students in the era of e-learning. It was a great challenge for educational institutions at the global level to integrate e-learning technologies into university education. In addition, assessment is a crucial factor that may help in controlling obstacles and challenges in e-learning during emergency education. The present research helps shed light on a crucial issue, which may contribute to our deeper knowledge of e-assessment and thus may contribute to adopting or developing some of them.

4.2. The Research Question

What is the role of the e-learning departments in Palestinian universities in controlling the quality of the academic process in terms of the axis of electronic assessment during COVID-19 pandemic?

5. Methods

5.1. Research Context and Participants

The research was conducted in light of the COVID-19 pandemic, coinciding with the state of confusion and crisis faced by Palestinian higher education institutions. It sought to identify the procedures for controlling the quality of electronic assessments to keep quality e-learning of the students.

The researchers contacted the universities, and they received formal consent forms as an expression of agreement to conduct the research. After the universities' administration signed the consent forms, data collection was started; it lasted for a whole month, from November 2020 to December 2020. The directors of the e-learning departments in five Palestinian universities were selected to conduct interviews with them in a purposeful sampling, as they are the responsible by the universities administration for managing this crisis. Due to the specificity of the state of emergency in light of the pandemic that resulted in preventing movement and gatherings by the government, the interviews were held face-to-face or through the ZOOM platform based on the geographical dimension and ease of communication. The interviews were recorded for transcription and analysis. The researchers were the interviewers.

The study participants consisted of five officials in the e-learning departments in five Palestinian universities, namely: University A, University B, University C, University D, and University E. The current study was meant to be confined to the academic year 2020/2021.

5.2. Data Collecting and Analysis Tools

Educational literature on e-learning management was reviewed, as well as previous studies on e-assessment, and then a set of interview questions were formulated [24]. The interview, as the main study tool, was used to collect data in this research. The researchers used these interviews as an explanatory tool to help identify variables and relationships related to e-assessment in the Palestinian universities during the emergency education. The interviews were semi-structured where they began as a broad questions and then advanced into more specific ones.

The qualitative descriptive approach with inductive reasoning was used due to its suitability for this type of studies; the responses and answers obtained were classified and sorted into sub-categories that focused on the minute details that characterized the assessment process in light of the COVID-19 pandemic.

5.3. Research Validity and Reliability

The codes of the categories were the single terms of the category or any synonym of those terms. Table 1 describes the categories and codes that served finding the categories relevant to the present research, in addition to examples on these codes.

Following Table 1 in a flexible way ensured transferability, which refers to the potential for extrapolation and relies on the reasoning that findings can be generalized or transferred to other settings or groups [25]. In addition, credibility was established through choosing officials from the electronic learning departments (ICT departments) in the universities.

To ensure validity and reliability, we considered the saturation of the data collecting and analysis processes. After analysing the transcribed interview of the fifth participant, we arrived at the same codes and categories again, which showed the saturation of our data, indicating that no further interviews were needed [26].

Table 1. Codes and examples on the codes.

Category	Codes	Examples
Assessment using face-to-face means	Assessment, evaluation, face-to-face, regular	In some assessments, there was a file that contains questions that are answered in print or handwritten in the appropriate manner, and within the allocated time that was specified by the instructor
Suggesting alternative methods of e-assessment	Suggest, propose, alternative, different, method, way e-assessment	A direction was made towards alternative evaluation techniques that depend on analysis
Putting restrictions on multiple-answer questions	Restricting, conditioning, multiple-answer, question, problem	The method of placing random questions within the categories (easy, medium, difficult) has been adopted.
Giving freedom for the instructors initiate e-assessment methods:	Freedom, instructor, initiate, suggest, propose, is responsible, e-assessment, method, way	The administration's decision was that the instructor is supposed to responsible for the various assessment settings
Distributing the e-assessment methods by a single instructor among the others:	Distribute, show, e-assessment, method, way, instructor, lecturer, others, rest	We showed some successful models for instructors who succeeded in building computerized exams using Moodle
Encouraging activities as means of e-assessment:	Encourage, change, allow, activity, problem solving, e-assessment	The evaluation rates were changed, and a large percentage was given to the activities provided by the student
Requesting the use of cameras during the synchronous exam:	Request, require, ask, camera, video, synchronous exam	The cameras in synchronous exams are legal, but in terms of custom, they cannot force students because of their privacy in the Palestinian society
Being flexible in in replacing face-to-face exams with e-assessment	Flexible, replace, make, face-to-face, e-assessment, exam, problem solving	The student who faced technical problems with the Internet during the exam

6. Results

The assessment methods that were adopted in the emergency phase in light of the COVID-19 pandemic were an attempt to balance the conditions of students in an unusual and unprecedented stage of its kind, on the one hand, and the educational material that the academics sought to accomplish, on the other hand. Then, the various e-learning departments were engaged in choosing the appropriate assessment techniques according to the circumstances and privacy of each academic course. These assessment techniques were meant to prepare students for creative thinking skills and higher levels of thinking. The directing assessment processes followed by the e-learning centres at the Palestinian universities are described below. In reporting the quotations from the interviewees, we will follow APA 7 directions: If the quotation is fewer than 40 words, we incorporate it into the paragraph and enclose it in double quotation marks, while if the quotation comprises 40 or more words, we include it in an indented, freestanding block of text, without quotation marks.

6.1. Assessment Using Face-To-Face Means

Assessment using face-to-face means was used in three cases. The first case concerned practical courses that needed to be conducted face-to-face. The second case concerned e-assessment that went wrong, while the third case concerned students who had special circumstances that did not enable them to be assessed electronically. Describing the first case, the University D official described the circumstances when face-to-face assessment was maintained: "The medical faculties forced most of the students to sit for face-to-face assessments at the university". As for the rest of the specialties, assessment was done remotely. He added:

In some assessments, there was a file that contains questions that are answered in print or handwriting, and within the allocated time that was specified by the instructor, the student was supposed to submit the answers. It was obligatory to assess the students who were enrolled in some engineering practical workshops due to lack of any other plausible alternative.

The same official said: “During these face-to-face exams, all appropriate and necessary precautions were taken into account to maintain safety and avoid direct contact among students. Many exam sessions used to be held sometimes with half the capacity of the exam hall”.

With respect to the second case, when face-to-face assessment was used, the University A official said: “In the first semester during the closure due to COVID-19 Pandemic, the university administration discovered that students’ marks in certain courses were extraordinarily high. Therefore, course instructors were requested to test students again but in a face-to-face context”.

With respect to third case, that of students with special circumstances who had problems handling e-learning and e-assessment due to health issues, there was a special employee during the pandemic and after it. This employee helped them sit for exams and do them in the university campus. The interviewees stressed the fact that when some students faced problems during exams such as poor internet connection, connection interruption, power cut off, these students were forced to sit for face-to face exams at the university campus. This decision was confirmed by all the universities. The University B official said “We allowed face-to-face assessment when the government’s decisions permitted that and when the student had difficulty in doing the electronic exam. Here, we did that on an individual basis”.

6.2. Suggesting Alternative Methods of E-Assessment

Three of the interviewees from different universities talked about encouraging the adoption of alternative assessment techniques in order to evaluate students’ performances. The University B official said:

A direction was made towards alternative evaluation techniques that depend on analysis, and then in the treatment phase after the first shock of the COVID19 pandemic, the instructors were trained on all evaluation methods. Instructors were asked to offer a course syllabus that includes the course objectives, the course various assessment mechanisms, practical activities and/or projects that show the student’s personality such as analyzing research papers and other exercises or activities that were held at the level of each college and the nature and specificity of the course.

This encouragement of alternative methods of e-assessment was confirmed by the interviewee from University E when he said: “When we changed the methods of Teaching, so there must be a change, there must be a change in the methods of assessment.” While the interviewee from University A added:

One of the most difficult things in light of the COVID19 pandemic was the assessment process, usually the monitoring was prevalent. Alternative methods were the face-to-face written exam where instructors were supposed to direct students to do group work projects, except in certain courses in education and sociology departments because, where they depended on discussions and case research, but in mathematics, chemistry and science written assessments were unavoidable.

Specifically, the universities gave different assessment options for students with learning disabilities, the official at University A explained, “the student who suffers from slowness in the printing process is allowed to write manually and then sends it as an image through Moodle”.

6.3. Putting Restrictions on Multiple-Answer Questions

The directors of the E-Learning Department have agreed that universities have adopted electronic assessments monitoring in light of the COVID-19 pandemic by imposing certain restrictions on the student's ability to move between questions, randomizing test questions, limiting the number of questions on each page. The University D official said:

The method of placing random questions within the categories (easy, medium, difficult) has been adopted; moreover, shuffling the questions and changing the order of answers to the same question reduced the cheating process. Students could not log into the electronic assessment in Moodle through more than once; each student was supposed to log into his/her account via their usernames only once irrespective of where he or she is.

The official from University E expressed similar techniques followed by the university as means of e-assessment. The official from University A stated that the Administration Board of the university had taken a number of decisions including the incorporation of a limited number of questions (2–4) in each page and that moving to or between questions was completely banned.

6.4. Giving Freedom for the Instructors to Initiate E-Assessment Methods

The COVID-19 emergency encouraged the instructors' freedom to initiate e-assessment methods. The official from University E agreed with his counterparts, saying: "The administration's decision was that the instructor is supposed to be responsible for the various assessment settings including monitoring and controlling them, but the instructor needed to inform all the students about these setting in advance". The official from the University D stressed the same point.

6.5. Distributing the E-Assessment Methods by a Single Instructor among the Others

The new experiences of the universities in e-assessment during the COVID-19 pandemic made the universities encourage the utilization of the individual e-assessment by other instructors. The official from University A stated:

We showed some successful models for instructors who succeeded in building computerized exams using Moodle, and their experiences were displayed in a set of settings that ensured preventing movement between questions, and incorporating a variety of questions in each exam.

6.6. Encouraging Activities as Means of E-Assessment

The official from University C stated that: "The evaluation rates were changed and a large percentage was given to the activities provided by the student." This was confirmed by the interviewee from University E who added: "It was approved to change the examination assessment rates, so more percentages were given to the activities that depended on the student's analysis through a case study or through an analysis of a specific problem or an open question". The interviewees from University A and the University D agreed with him. The University B interviewee added: "The change in the evaluation rates was to encourage assessment through activities in each course, but we gave freedom to the instructors and university department according to their orientation".

6.7. Requesting the Use of Cameras during the Synchronous Exam

In an attempt to control the cheating process while holding exams at the university in light of the COVID-19 pandemic and the possibility of forcing students to activate their cameras, universities confirmed that this matter is private enough in our society. The interviewee from University C indicated that "forcing students to play on the camera was strongly opposed", while the interviewee from University B stressed:

Opening the cameras is legal, but in terms of custom, they cannot force students because of the privacy issue in the Palestinian society, in addition to the fact that the speed of

the Internet in the country does not bear the great burden of devices when playing the camera and the Internet.

This is in line with the University D interviewee who stated: “Of course, we cannot compel the student to play on the camera.” The interviewee from University E emphasized, “Forcing students to open the camera was not humane.”

University A disagreed with this proposition when he stated:

We requested students to open their cameras, where some professors applied them firmly. The problem was with first-year students because they were beginners to the system and to the language, so it was difficult for them to abide by such obligations. The student who refused to open the camera was allowed to compensate for this by sitting to face-t-face exams in the university campus.

6.8. Being Flexible in Replacing Face-To-Face Exams with E-Assessment

The universities showed flexibility in allowing face-to-face assessment in courses, in which e-assessment was held, on an individual basis. The official from University B confirmed that “the student who faced technical problems on the Internet during the exam was excused and was eventually given the chance to sit for an alternative exam in the university campus.

7. Discussion

Advanced technology in general [27,28] and e-learning in particular [29,30] have attracted the attention of researchers and educators in the last decade. This is especially true in emergency education [31–33], where advanced technology and e-learning can contribute to the success of the educational outcomes that are related to educational assessment. It was the goal of the present research to investigate the role of the E-Learning departments in controlling the quality of electronic assessments in Palestinian universities during COVID-19 pandemic. The emergency closure imposed in Palestine required a number of changes in how students learned [34,35] and how they were evaluated, and in certain cases, it caused assessment techniques to be altered and sometimes replaced with alternative assessments procedures such as online student-centred activities. The educational process was based on the new acquired experiences that were rapidly developing in light of the state of emergency, and in light of the widespread use of technology to ensure the continuity of the teaching-learning process during the pandemic [36].

In order to achieve the skills of the twenty-first century including communication and the ability to use technology, in addition to the flexibility that it adopts in not confining the student to classrooms at a certain time, the need to employ and control electronic assessments that require decisive decisions had emerged. The universities followed the approach that if the assessment that depends heavily on the technical infrastructure is to be adopted, there had to be confidence in the resulting educational outcomes.

Previous research that studied the issue of e-assessment reported the difficulty of students with this assessment. Kundu and Bej [17] confirmed that the level of students' perceptions of electronic assessment was moderate and that social status and academic specialization had a role in the extent of commitment to this assessment. Here, we looked at the role of the electronic department in trying to keep quality e-assessment at the universities. The present research results showed that changes were made to the approved assessment methods that were adopted before the COVID-19 pandemic so that they coincide or harmonize with the current status quo that prevented gatherings starting with educational gatherings. These results could be attributed to the fact that the general situation necessitated a change in the methods of assessment. The results also showed that the universities agreed that assessment at the beginning to save what could be saved because what happened was a shock, and not everyone was qualified and trained to deal with the emergency situation and the use of technology in education. Trust in electronic assessment was the most difficult axis to measure in this pandemic, as well as the process of evaluating educational outcomes to describe the educational level that the student has acquired in

terms of knowledge and skills to be achieved at the end of the course. We argue that this could be attributed to the government decisions that imposed a complete closure in some periods and the conversion of face-to-face practical assessments that were supposed to be held at the university to electronic assessments. All these things caused some kind of confusion and ambiguity in the mechanism of appropriate assessment of the educational material or even the shift towards alternative assessment which was not that easy to control. The electronic departments attempted and succeeded to provide and encourage various e-assessment methods.

Ali and Dmour [37] conclude that universities “should establish student’s enquiry system to help the students who encounter problems during the online courses as well as online assessment. Some students might not be familiar with the technologies and tools they will be using during the online classes. Therefore, they must be provided with adequate training to be aware of the tools used during online classes” (p. 226). The e-learning departments at the Palestinian universities were aware to the student issue, so they worked to make the assessment techniques encourage students to use, depending on distance learning means, creative thinking skills and higher levels of thinking.

Researchers are concerned with the issue of plagiarism in online learning as it influences the integrity of this learning [38,39]. In the present research, this issue is one of the biggest problems that faced the faculty members in confirming the identity of the student, as e-learning departments organized electronic assessments, but the process of controlling electronic assessments with specific, clear, binding instructions and regulations was impossible. The decisions that could have given greater control and confidence in these results, such as providing a secure browser or requiring students to open the camera, were considered inhumane and were confronted and resisted by different parties. The previous results agree with Peytcheva-Forsyth et al. [20] that technology affects opportunities for dishonest behavior in electronic assessment as well as the submission of written tasks and assignments online. The previous results could also be related to Gasparyan et al. [18] who emphasized the importance of relevant training and anti-plagiarism and anti-cheating strategies.

8. Conclusions and Recommendations

Current research pays extensive attention to e-learning and its impact on the different aspects of this method of learning (ex., [40]). The present research explored how emergency education affected the assessment methods in higher education institutes in Palestine. Fontanillas et al. [9] describe five essential characteristics of e-assessment: strategic, integral, holistic, transversal, and coherent. We argue that the e-assessment processes performed by the e-learning departments in the Palestinian universities, during COVID-19, could be considered strategic as the electronic department identified the key elements for distance-learning-based improvement based on the acquisition of competencies by the university instructors and students. The processes were also holistic as they cared for all the educational agents in distance learning, including the instructor, the student, and the distance learning platform, as well as the assessment potentialities of the platform. In addition, the e-assessment processes encouraged by the e-learning departments were transversal, as the assessment processes were traversed across the various departments at the same university. Further research is needed to verify, in a substantial way, whether the e-assessment employed by the e-learning departments in the Palestinian universities could be described as integrative or coherent.

The research results indicated that the basic foundation for the future vision of the trend towards electronic learning and electronic assessment in Palestinian higher education institutes has been formed, which indicates that learning and assessment after COVID-19 would not be the same as before COVID-19. Practical policies must be adopted by higher education institutes to support the inclination towards blended learning. In addition, researchers, who have been interested in electronic environments for e-learning (e.g., [41–43]), say that LMSs have some limitations and do not provide what they should have to provide

as an educational system for teaching and assessment. Moreover, Oliveira et al. [44] emphasize the need to adopt systems with educational and administrative tools and functions that ensure attaining the quality of the learning management system. In addition, Galanis et al. [3] emphasized the importance of using existing coding protocols to implement synchronous and asynchronous electronic assessments online in order to mitigate the problems arising from this type of assessment. All the previous studies imply the need to take care of the electronic environments on which the distance education is based. An important issue here is the potentialities of the electronic environment to enable different types of assessment. Practical efforts are needed in this field.

Based on the study findings, we recommend that the university administrations spare no practical efforts in forming policies that ensure building a strong foundation for e-assessment. This e-assessment would ensure the quality of the outputs resulting from e-learning. In addition, universities, even in developing countries, are encouraged to adopt electronic assessments for theoretical courses that depend on research, analysis and case research. Moreover, the finding suggests the need for a practical multilevel approach to the problems of cheating and plagiarism, where this approach should be related to “raising student awareness and ethics, training teachers to detect cheating methods, and institutions activating their code of practice and applying severe sanctions on those who engage in such practices” ([45], p. 1). In addition, we recommend applying technical quality standards in the Palestinian universities to improve and develop the distance educational process, in general, and during emergency education in particular, especially e-assessment [46]. Furthermore, it is recommended that ICT centres in the universities make practical evaluation of the e-assessments performed by the instructors in order to give them feedback on this e-assessment. This evaluation could benefit from the literature [47] and would improve the instructors’ e-assessment practices.

Author Contributions: Writing—original draft, R.H. and W.A.; Writing—review and editing, W.D. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

References

- Poon, J. Blended learning: An institutional approach for enhancing students’ learning experiences. *J. Online Learn. Teach.* **2013**, *9*, 271–288. Available online: https://jolt.merlot.org/vol9no2/poon_0613.pdf (accessed on 25 September 2021).
- Vollmer, J.; Debunking the LCMS Myth. Chief Learning Officers. 1 July 2003. Available online: <https://www.chieflearningofficer.com/2003/07/01/debunking-the-lcms-myth> (accessed on 25 September 2021).
- Galanis, V.I.; Laskari, E.C.; Meletiou, G.C.; Vrahatis, M.N. E-Evaluation in Open and Distance Learning Environments. In Proceedings of the Presented at The International Conference on Information Technologies (InfoTech 2009), Varna, Bulgaria, 17–20 September 2009.
- Baneres, D.; Baró, X.; Guerrero-Roldán, A.-E.; Rodriguez, M.E. Adaptive e-Assessment System: A General Approach. *Int. J. Emerg. Technol. Learn. (ijET)* **2016**, *11*, 16–23. [CrossRef]
- Hu, C. Application of E-Learning Assessment Based on AHP-BP Algorithm in the Cloud Computing Teaching Platform. *Int. J. Emerg. Technol. Learn. (ijET)* **2016**, *11*, 27. [CrossRef]
- Astalini, A.; Darmaji, D.; Kurniawan, W.; Anwar, K.; Kurniawan, D.A. Effectiveness of Using E-Module and E-Assessment. *Int. J. Interact. Mob. Technol. (ijIM)* **2019**, *13*, 21–39. [CrossRef]
- Howarth, P. The opportunities and challenges faced in utilizing e-Based assessment. In Proceedings of the Presented at Annual Conference of Educational Research Center on Educational Measurement, Beirut, Lebanon, 24–25 March 2010.
- Kim, N.; Smith, M.J.; Maeng, K. Assessment in online distance education: A comparison of three online programs at a university. *Online J. Distance Learn. Adm.* **2008**, *11*. Available online: <https://www.westga.edu/~distance/ojdl/spring111/kim111.html> (accessed on 25 September 2021).
- Fontanillas, T.R.; Carbonell, M.R.; Catasús, M.G. E-assessment process: Giving a voice to online learners. *Int. J. Educ. Technol. High. Educ.* **2016**, *13*, 1–14. [CrossRef]

10. Shalatska, H.; Zotova-Sadylo, O.; Makarenko, O.; Dzevytska, L. Implementation of E-assessment in Higher Education. In Proceedings of the ICTERI Workshops, Kharkiv, Ukraine, 6–10 October 2020; pp. 1172–1186.
11. Simonson, M.; Zvacek, S.M.; Smaldino, S. *Teaching and Learning at a Distance: Foundations of Distance Education*, 7th ed.; Information Age Publishing: Charlotte, NC, USA, 2019.
12. Schneider, S.L.; Council, M.L. Distance learning in the era of COVID-19. *Arch. Dermatol. Res.* **2021**, *313*, 389–390. [[CrossRef](#)]
13. Garrison, D.R.; Vaughan, N.D. *Blended Learning in Higher Education: Framework, Principles, and Guidelines*; John Wiley & Sons: Hoboken, NJ, USA, 2008.
14. Daher, W. Virtual Interactions in Distance Learning. In *Handbook of Research on Practices and Outcomes in Virtual Worlds and Environments*; IGI Global: Hershey, PA, USA, 2012; pp. 514–535.
15. Baĳala, A.; Baĳala, M. Enhancing ethical behavior in online exams. *Ann. Etyka Źyciu Gospod.* **2020**, *23*, 37–51. [[CrossRef](#)]
16. Daher, W.; Awawdeh Shahbari, J. Secondary students' identities in the virtual classroom. *Sustainability* **2020**, *12*, 4407. [[CrossRef](#)]
17. Kundu, A.; Bej, T. Experiencing e-assessment during COVID-19: An analysis of Indian students' perception. *High. Educ. Evaluation Dev.* **2021**, *15*, 114–134. [[CrossRef](#)]
18. Gasparyan, A.Y.; Nurmashv, B.; Seksenbayev, B.; Trukhachev, V.; Kostyukova, E.I.; Kitas, G.D. Plagiarism in the Context of Education and Evolving Detection Strategies. *J. Korean Med. Sci.* **2017**, *32*, 1220–1227. [[CrossRef](#)]
19. Sa'Di, R.A.; Abdelraziq, A.; Sharadgah, T.A. E-Assessment at Jordan's Universities in the Time of the COVID-19 Lockdown: Challenges and Solutions. *Arab. World Engl. J.* **2021**, *1*, 37–54. [[CrossRef](#)]
20. Peytcheva-Forsyth, R.; Aleksieva, L.; Yovkova, B. The impact of technology on cheating and plagiarism in the assessment—The teachers' and students' perspectives. In *AIP Conference Proceedings*; AIP Publishing LLC: Melville, NY, USA, 2018; Volume 2048, p. 020037.
21. Bhebhe, S.; Maphosa, C. An exploration of online assessment in institutions of higher learning. In *The Impact of COVID-19 On the International Education System*; Naumovska, L., Ed.; Proud Pen: London, UK, 2020; pp. 172–183. [[CrossRef](#)]
22. Das, D.K. Civil Engineering Students' Perceptions of Conventional and Alternative Assessment Methods. *Afr. J. Res. Math. Sci. Technol. Educ.* **2020**, *24*, 116–128. [[CrossRef](#)]
23. Yulia, H. Online Learning to Prevent the Spread of Pandemic Corona Virus in Indonesia. *Eternal Engl. Teach. J.* **2020**, *11*. [[CrossRef](#)]
24. Roberts, R. Qualitative Interview Questions: Guidance for Novice Researchers. *Qual. Rep.* **2020**, *25*, 3185–3203. [[CrossRef](#)]
25. Elo, S.; Kääriäinen, M.; Kanste, O.; Pölkki, T.; Utriainen, K.; Kyngäs, H. Qualitative content analysis: A focus on trustworthiness. *SAGE Open* **2014**, *4*, 2158244014522633. [[CrossRef](#)]
26. Saunders, B.; Sim, J.; Kingstone, T.; Baker, S.; Waterfield, J.; Bartlam, B.; Burroughs, H.; Jinks, C. Saturation in qualitative research: Exploring its conceptualization and operationalization. *Qual. Quant.* **2018**, *52*, 1893–1907. [[CrossRef](#)]
27. Baya'a, N.; Daher, W. Middle school students' learning of mathematics using mobile phones: Conditions and consequences. *J. Interact. Learn. Res.* **2010**, *21*, 165–185.
28. Daher, W. Discursive positionings and emotions in modelling activities. *Int. J. Math. Educ. Sci. Technol.* **2015**, *46*, 1149–1164. [[CrossRef](#)]
29. Daher, W.; Baya'A, N. Characteristics of middle school students learning actions in outdoor mathematical activities with the cellular phone. *Teach. Math. Its Appl. Int. J. IMA* **2011**, *31*, 133–152. [[CrossRef](#)]
30. Daher, W. Mathematics Learning Community Flourishes in the Cellular Phone Environment. *Int. J. Mob. Blended Learn.* **2010**, *2*, 1–17. [[CrossRef](#)]
31. Jusas, V.; Butkiene, R.; Venĳkauskas, A.; Burbaite, R.; Gudoniene, D.; Grigaliūnas, Š.; Andone, D. Models for Administration to Ensure the Successful Transition to Distance Learning during the Pandemic. *Sustainability* **2021**, *13*, 4751. [[CrossRef](#)]
32. Butnaru, G.L.; Niĳă, V.; Anichiti, A.; Brînză, G. The Effectiveness of Online Education during Covid 19 Pandemic—A Comparative Analysis between the Perceptions of Academic Students and High School Students from Romania. *Sustainability* **2021**, *13*, 5311. [[CrossRef](#)]
33. Drašler, V.; Bertoncej, J.; Korošec, M.; Pajk Źontar, T.; Poklar Ulrih, N.; Cigiĳ, B. Difference in the Attitude of Students and Employees of the University of Ljubljana towards Work from Home and Online Education: Lessons from COVID-19 Pandemic. *Sustainability* **2021**, *13*, 5118. [[CrossRef](#)]
34. United Nations Office for the Coordination of Humanitarian Affairs COVID-19 Emergency Situation Report 6, 28 April 2020. Available online: <https://www.ochaopt.org/content/covid-19-emergency-situation-report-6>. (accessed on 25 September 2021).
35. Adli, H. Gaza Children Struggle with Studies during COVID-19 Lockdown. Al Jazeera, 16 October 2020. Available online: <https://www.aljazeera.com/news/2020/10/16/gaza-children-struggle-with-studies-during-covid-19-lockdown>. (accessed on 25 September 2021).
36. UNESCO. COVID-19 in Palestine: How Distance Learning Will Help Student Continue Education. 12 April 2020. Available online: <https://en.unesco.org/news/covid-19-palestine-how-distance-learning-will-help-student-continue-education>. (accessed on 25 September 2021).
37. Ali, L.; Dmour, N. The shift to online assessment due to COVID-19: An empirical study of university students, behaviour and performance, in the region of UAE. *Int. J. Inf. Educ. Technol.* **2021**, *11*, 220–228.
38. Allen, I.E.; Seaman, J. *Digital Learning Compass: Distance Education Enrollment Report 2017*; Babson Survey Research Group, e-Literate, and WCET: Babson Park, MA, USA, 2017. Available online: <https://onlinelearningsurvey.com/reports/digitallearningcompassenrollment2017.pdf> (accessed on 25 September 2021).

39. Jaschik, S.; Lederman, D. *Survey of Faculty Attitudes on Technology: A Study by inside Higher Ed and Gallup*; Gallup, Inc.: Washington, DC, USA, 2018. Available online: https://www.insidehighered.com/system/files/media/IHE_2018_Survey_Faculty_Technology.pdf. (accessed on 25 September 2021).
40. Daher, W.; Sabbah, K.; Abuzant, M. Affective Engagement of Higher Education Students in an Online Course. *Emerg. Sci. J.* **2021**, *5*, 545–558. [[CrossRef](#)]
41. Abuzant, M.; Ghanem, M.; Abd-Rabo, A.; Daher, W. Quality of Using Google Classroom to Support the Learning Processes in the Automation and Programming Course. *Int. J. Emerg. Technol. Learn. (ijET)* **2021**, *16*, 72–87. [[CrossRef](#)]
42. Amer, A.; Daher, W. Moodle quizzes as a teaching tool in English for academic purposes course. *Int. J. Innov. Learn.* **2019**, *25*, 35. [[CrossRef](#)]
43. Daher, W. Students' Adoption of Social Networks as Environments for Learning and Teaching: The Case of the Facebook. *Int. J. Emerg. Technol. Learn. (ijET)* **2014**, *9*, 16. [[CrossRef](#)]
44. Oliveira, P.C.D.; Cunha, C.J.C.D.A.; Nakayama, M.K. Learning management systems (LMS) and e-learning management: An integrative review and research agenda. *JISTEM-J. Inf. Syst. Technol. Manag.* **2016**, *13*, 157–180. [[CrossRef](#)]
45. Meccawy, Z.; Meccawy, M.; Alsobhi, A. Assessment in 'survival mode': Student and faculty perceptions of online assessment practices in HE during COVID-19 pandemic. *Int. J. Educ. Integr.* **2021**, *17*, 1–24. [[CrossRef](#)]
46. Hamdan, R. The Extent to Which Technical Education Quality Standards Are Applied at Palestine Technical University and Colleges. In Proceedings of the Eighth Arab International Conference for Quality Assurance of Higher Education, Lebanese International University, Beirut, Lebanon, 9–11 April 2018.
47. Azevedo, J.; Beites, P.D.; Oliveira, E.P. Evaluating E-Assessment: A Practical Application Using Statistical Methods. In *Handbook of Research on E-Assessment in Higher Education*; Azevedo, A., Azevedo, J., Eds.; IGI Global: Hershey, PA, USA, 2019; pp. 68–100.