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The Role of ICT Centers in the Management of Distance Education in Palestinian Universities during Emergency Education

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Abstract: The present research intended to verify the role of ICT centers in Palestinian universities in managing the academic process in emergency education due to the pandemic. The research investigated this issue using a descriptive qualitative approach. The data collection was carried out using individual interviews during the first semester of the academic year 2020/2021. The data analysis was carried out using an inductive thematic analysis. The research participants were ten officials in the ICT centers of five universities. The main study findings show that the universities performed several actions in the context of their management of the distance learning processes. These actions targeted quality education by holding workshops for the professional development of the instructor, which resulted in being a main factor in the success of the distance learning process. In addition, the ICT centers were engaged in addressing the communication between the instructor, the student, and officials at the universities. They also addressed strengthening the infrastructure for distance learning in the universities.

Keywords: communication; COVID-19; distance learning; ICT centers; management; pandemic; quality of educational process; support

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1. Introduction

Universities, as higher education institutions, are expected to lead in using various communicational channels to perform educational processes, where one of these channels is distance education. This is particularly true in teaching and learning in emergency contexts. Developing countries are special in that they generally lack the means needed for distance learning [1], Palestine being one such country. The present research is interested in the management of support for distance learning by ICT centers in Palestinian universities.

Researchers have paid attention to the management of support for distance learning, as this management may positively or negatively influence students' distance learning experience [2,3]. This support is considered as one aspect of the management of distance learning processes [4]. Further, this support is especially needed in online emergency education, as in the case of COVID-19 distance education [5]. In particular, support can positively influence the quality of online education [6,7]. Here, we are interested in investigating the support given by ICT centers at Palestinian universities for instructors and students, in order to ensure the quality of e-learning in the emergency education format that resulted from COVID-19.

1.1. E-Learning

Darab and Montazer [8] defined e-learning as an innovative approach to appropriately facilitate education; it uses digital resources in tandem with other educational methods that are offered through an open and flexible education system. Moreover, it is designed and

equipped with interactive media that people can interact with anywhere and at any time. Successful e-learning requires a set of prior procedures including preparing the necessary infrastructure to ensure and maintain a useful and effective teaching/learning process. Students need technical support, as well as other services that aim at making the learner's academic life more comfortable and effective [9]. It is worth noting that support is not limited to students; it also includes faculty members who are looking for support in order to improve their work, especially the elderly who lack expertise in handling electronic devices and applications. Algahtani [10] reported that poor infrastructure and a lack of acceptance of e-learning were perceived by the e-learners as barriers to effective learning. Kavrayici [11] found that implementation dimensions of classroom management, and leadership and instructional planning positively predicted the connectedness dimension of classroom community.

Distance education is one variant of e-learning. In recent years, interest in distance education in higher education institutions has increased all over the world [12], including developing countries such as Palestine (e.g., [13]). Therefore, these institutions have attempted to make distance learning part of their curriculum [14], which has helped them to handle the difficulties of distance education in emergency situations such as COVID-19. Nevertheless, higher institutions, especially in developing countries, confronted difficulties in implementing distance education during COVID-19, leading them to attempt to manage the support of their staff and students in maintaining quality education. In this study, we aim to examine the role of higher education institutions in supporting instructors and students engaging in distance education.

Researchers have been interested in investigating the contribution of distance learning to the different aspects of students' learning. In his study [10], Algahtani found that many e-learners thought they could learn independently using tools provided by technology. They believed that planning and training improved their e-performance. Snoussi and Radwan [15] carried out research to explore Communication students' experience of distance e-learning during emergency education in the United Arab Emirates (UAE). They found that distance learning could benefit students in several ways, including harnessing technology, enhancing their communication skills, and saving instructional time during a crisis. Limitations primarily stemmed from technical difficulties and computer skills.

Poon [16] carried out a study that aimed to identify the benefits provided by blended learning to teach students skills and experiences through an institutional approach. The main results show that the success factors for the development of blended learning units were technological information and human resources. This includes the resources needed to develop an online learning platform such as a learning management system at NTU, and its continuous enhancement and maintenance. In addition, the study revealed that senior management support is necessary to allocate resources, and blended learning can be used to promote connection and communication.

Adzharuddin [17] noted that although LMS users may experience some problems, they should not neglect the program during the learning process when they are using a completely new system. Many participants reported positive opinions about LMS, suggesting that it should be available in all universities around the world. He concluded that universities need to ensure that students and teachers who use LMS receive proper training and guidance, as well as having a dedicated team on hand to resolve any issues that may arise.

In Kayode's study of distance learning programs, [18] she investigated the relationship between student engagement in distance learning programs and the management of communication, such as communication practices and tools. The study found that communicating effectively and practicing effective communication techniques have a strong positive impact on distance students' engagement with their coursework. In addition, Gonzalez-Hernando et al. [19] found that blogs and other social media could make e-learning more effective.

This study considers e-learning at universities in times of emergency. Specifically, it looks at the role of ICT centers in the management of distance education.

1.2. ICT Centers in Higher Education Institutions

ICT centers in educational institutions are considered to be part of the proper infrastructure and quality of service needed for integrating technology and, specifically, distance education [20]. Aguaded et al. [21] relate the success of the ICT center in the educational institution to the functioning of those who lead it. Aguaded et al. [21] further say that one of the most notable measures fostered in ICT centers is the use of platforms and webs as modulation elements. Author et al. [22] studied the role that Palestinian e-learning departments played in controlling academic assessment during the COVID-19 epidemic. The main findings of their study indicate that the assessment at the beginning of the pandemic aimed to save as many resources as possible during an emergency period, causing electronic evaluation to be a complex issue during the pandemic. Additionally, they found that a major problem facing university instructors in electronic assessments was plagiarism and fake identities. This necessitated the search for alternative assessment tools. This study is interested in ICT officials' management of distance education at universities.

1.3. Managing Distance Education

Hashim et al. [23] reported that when asked about future plans for improving distance education programs administration, administrators said that training helped lecturers to become more proficient at delivering content. Hashim et al. [23] recommended improving communication practices among lecturers and attitudes toward effective online instruction, which are critical for ensuring distance learners success.

Salmon [24] proposed a five-stage model for managing asynchronous learning: access and motivation, online socialization, information exchange, knowledge construction, and development. Jusas et al. [25] proposed another five-stage model for managing online education: publishing information about distance learning on a timely basis; providing lecturers, administrative staff, and students with the necessary support; planning lecturers' digital skills development; ongoing monitoring of the study's progress; and assessing each group in the institution as a part of the institution's educational process.

Researchers emphasized the role of distance education platforms in promoting the success of distance education. Through the use of educational platforms and distance education networks, Moodle plays an important role in distance education, and teachers also have the opportunity to enhance their skills. Machynska and Dzikovska [26] found that the use of educational platforms and distance education networks such as Moodle plays a significant role in the success of distance education. Moreover, managing social interaction, a motivating environment, and the opportunity to ask questions immediately were considered advantages of synchronous lessons [27].

1.4. Dimensions of Quality in the Administration of Education

A framework for quality education was developed by Kivistö and Pekkola [28] by leveraging Harvey and Green's framework for administration quality and conceptualization [29]. The framework is comprised of five dimensions. The first dimension is called "Administrative quality as exceptionality/excellence". This dimension addresses the budget that is appropriate for the level of resources and the motivated and qualified employees, which is related to "tangible" factors such as the attractiveness and adequacy of facilities. Quality can be assessed, at least to some extent, by benchmarking it against acceptable minimum standards. The second dimension is called "Administrative quality as perfection/consistency". In addition to the level of service provided externally and internally, this dimension concerns aspects of administrative work that must be reliable, accessible, and accurate. It also considers staff responsiveness, or their willingness to help out. The third dimension is "Administrative quality as fitness for purpose". It refers to the university's ability and capacity to accomplish its mission and goals through administration. Further, it

relates to fulfilling the expectations of internal and external users for any administrative service. The fourth dimension is "Administrative quality as value for money". Based on limited resources, including monetary and human resources, quality is defined as the ability to maximize the benefits of administrative services. The fifth dimension is "Administrative quality as transformation". In addition to providing support for academic activities at universities, the fifth dimension also examines whether academic excellence is fostered along with financial success and student needs.

1.5. The Research Rationale and Goals

The conditions of the COVID-19 pandemic made educational institutions, including higher education institutions, shift to distance education to ensure the permanence of the quality of the teaching and learning process, which resulted in using digital tools in teaching and learning [30]. In this study, we examined the role that the e-learning department played in managing distance learning in Palestinian universities during the pandemic, in order to achieve the educational goals that match the expected capabilities.

Educational institutions worldwide encountered a great challenge in attempting to integrate e-learning technologies into higher education. The present research could contribute to perceiving how higher education institutions managed the support of distance learning. In addition, it may be a critical factor that could help in managing difficulties in e-education, as well as managing support in times of emergency.

1.6. The Research Question

The research problem is determined by the following main question:

In the face of the COVID-19 pandemic, what role does the ICT center play in managing quality in Palestinian universities?

2. Method and Procedure

2.1. Research Context and Participants

We contacted the ICT centers at a number of Palestinian universities to request their agreement to conduct the research on their processes during the period of emergency education. After acquiring their approval, data collection was carried out, lasting for one month. The interview was held with the ICT officials who signed their consent to participate in the interview. According to the geographical dimension and ease of communication, interviews were conducted face-to-face or by Zoom, and they were recorded for later analysis.

The interviewees consisted of ten officials in the ICT centers of five Palestinian universities, which we denoted as University 1, University 2, University 3, University 4, and University 5. The present study addresses universities' ICT centers' processes in the academic year 2020/2021. All the participants had 5–17 years of experience as e-learning directors, with a mean score of 11 years.

2.2. Data Collection Tools

The present research utilized the interview in the data collection that aimed to find and characterize categories and themes related to managing distance learning in times of emergency. The educational literature on the management of e-learning was reviewed in order to compose a set of appropriate interview questions. The opening question was: How did you manage the distance education of instructors and students at the university? During the interview, related questions were asked. Examples of such questions are: How did you manage distance learning during COVID-19? What support did you give to instructors to ensure that teachers and students at your university are engaged in quality education? What support did you give to students to ensure that teachers and students at your university are engaged in quality education?

2.3. Data Analysis Tools

In the present research we utilized inductive and deductive reasoning. As part of the descriptive thematic approach, inductive reasoning was utilized to sort and classify the responses and answers to focus on detailed aspects of the management process in the context of the pandemic. Table 1 describes the codes that were utilized to arrive at the categories related to the management processes of emergency distance education.

Table 1. Codes related to the categories in the present research.

Category	Codes	Example
Holding training workshops for instructors	Hold, training, preparing, workshop, instructor, lecturer	There were many training workshops—some of them were optional.
Answering students' needs	Answer, satisfy, student, needs, demands	Some students who needed laptops were provided with them on the condition that they give them back after exams.
Supporting students' communication with the university officials	Support, assistance, instructor, teacher, communication, university officials, staff	When a student's question was received, it was directed to the concerned authorities who used to follow them up and settle things smoothly.
Supporting instructors' communication with the university officials	Support, assistance, instructor, communication, university officials	Technical support numbers have been provided to professors for easy communication that ensures solving their problems.
Providing assistive videos for e-learning	Video, e-learning	Videos were made at first because people liked to learn through videos.
Strengthening the infrastructure	Strengthen, improve, infrastructure	We made infrastructure updates due to the fact that the university was prepared to be a university for distance education.
Increasing awareness to e-learning	Increase, develop, awareness, beliefs, attitudes, e-learning	The teachers' beliefs were necessary and were the foundation for success.
Supporting e-communication	Support, increase, awareness, e-learning, e-communication	The official communication is what was requested from the faculty members and students, because other means of communication may cause problems.

We utilized the deductive reasoning in interpreting the interviews of the participants, which would give a comprehensive image of the ICT centers' management of quality education during the emergency education. The deductive reasoning depended on Kivistö and Pekkola's [28] framework of quality education and the five dimensions of this framework that are described in the first section of this paper.

2.4. Saturation of the Categories Related to Universities' Management of Distance Education

Saturation could be related to the coverage of the studied phenomenon by the categories found during the data collecting and analysis methods, in addition to the rich description of the properties of each category. In the present research, we arrived at the categories' coverage of management of distance education after interviewing seven ICT officials from the five universities and analyzing their interviews. We arrived at the rich description of the categories after interviewing and analyzing nine interviews. We continued to interview the tenth ICT official and analyze her interview, but no new property of any category was found.

2.5. Trustworthiness of the Research

Regarding the trustworthiness of the research, we mainly depended on Elo et al. [31]. Credibility was ensured through interviewing the appropriate persons and describing these persons so that the reader would recognize the properties of the participants.

Dependability indicates the data stability along time and under several conditions. Here, the Palestinian universities had similar as well as different conditions when they started distance education in the frame of emergency education. One of these conditions is the preparedness of the universities for e-learning, as well as the dependability results from the statement of the conditions used to select participants and the description of the characteristics of the participants. We gave this description above, which enriches the dependability of the research. Moreover, the description of the participants and the codes (Table 1) adds to the transferability of the results to other contexts.

Conformability indicates the research analysis objectivity—that is, the potential for correspondence between a number of independent coders regarding the data's meaning. Here, we ensured conformability through computing the agreement between coders. The conformability and reliability of the qualitative coding could be examined by computing the agreement between coders (Cohen's Kappa coefficient). Two coders coded 25% of the whole transcripts. Cohen's Kappa coefficient resulted in 0.85 to 0.95 for the categories associated with the management of distance learning by universities. The previous values are considered accepted for the agreement between coders.

3. Results

The present research intended to investigate the management of support for instructors and students in order to ensure quality teaching and learning in Palestinian universities. To achieve this, we interviewed officials from the ICT centers at the universities. The analysis of the interview transcripts revealed the following categories. Interviewing officials from five Palestinian universities also adds to the dependability of the research.

3.1. Holding Training Workshops for Instructors

The training workshops for the instructors' category had three sub-categories that we describe below.

3.1.1. Concern to Provide the Instructors with Training Workshops

Interviewee 1, from University 5, talked about the university concern to provide the instructors with training workshops on distance learning: "Training was offered to most of the professors to develop their capabilities to use technology and thus to adopt distance learning."

3.1.2. Concern to Provide Workshops as Occurring Earlier

Interviewee 1, from University 4, asserted that the university concern to provide workshops for instructors on distance education was not new, although it was not compulsory:

"In the beginning, during the past years, the university was interested in this topic of workshops for instructors. There were many training workshops, some of them were optional or not compulsory. The features for this type of learning were presented to the interested parties, and the Moodle platform was provided to everyone, but they did not know how to use it. One of the workshops was designed to train participants on how to use it, how to get to know the design of different types of activities, whether it is an assignment, a quiz or a discussion session."

3.1.3. The Training Workshop as a Project in Collaboration with a European Country

Interviewee 1, from University 2, talked about a project to train the instructors on interactive technological tools in collaboration with a European country:

"We are currently working on arranging a project with the distance institute learning center in Britain, which organizes online training sessions in e-learning. Each session included five staff members who were supposed to train their colleagues in handling different programs including interactive technology programs using a Padlet, discussion and classroom forums using Zoom private meeting to transfer traditional learning into an interactive e-learning."

The themes in the first administration category are related to the dimension "Administrative quality as transformation", where this dimension is related to providing support for academic activities at universities. Workshops for instructors are one aspect of support to ensure the quality of teaching and quality of administration of distance learning.

3.2. Answering Students' Needs

The category of answering students' needs included one sub-category.

The Universities' ICT Center's Concern about Students' Needs

Interviewee 1, from University 4, described the university concern with students' needs:

"There was a final form to help any student who had a problem during the exam or when handing over an assignment; moreover, any student that needed a laptop or an Internet connection during the pandemic was directed to go to the Dean of Student Affairs to help him/her and take necessary measures. Some students who needed laptops were provided with ones on the condition that they give them back after exams."

The themes in the second administration category are related to the dimension "Administrative quality as fitness for purpose", where the main goal of answering students' needs was to ensure that students' needs are answered to maintain the quality of distance learning.

3.3. Supporting Students' Communication with the University Officials

The category 'supporting students' communication with the university officials' had two sub-categories, which are described below.

3.3.1. Supporting Students' Communication with the University Officials at the Beginning of the Emergency Education

Interviewee 2, from University 5, described the ICT center's support of students' communication with the university officials at the beginning of emergency education:

"At the beginning of the pandemic, by virtue of the small number of 600 students, the issue of controlling things was easier; any student could contact any employee from the university as the students were given the right to get help and the instructors were obliged to provide students with technical support from all levels. When a student's question was received, it was directed to the concerned authorities who used to follow them up and settle things smoothly. The most difficult stage during the emergency was that problems took place at a daily basis."

3.3.2. Specific Methods of Supporting Students' Communication with the University Officials

Interviewee 1, from University 1, described one specific way used to support students' communication with the university officials:

"Telephone numbers were also offered to help students contact the university at the time of the exam; students could contact the technical support directly and instantly. Furthermore, technical support was available even after office hours."

The themes in the third administration category are related to the dimension "Administrative quality as perfection/consistency". The students' goal of communication is mainly to maintain the quality of their learning. Thus, supporting students' communicational needs supports the consistency of their learning and attempts to perfects this learning.

3.4. Supporting Instructors' Communication with the University Officials

The category of 'supporting instructors' communication with the university officials included one sub-category.

Specific Methods of Supporting Instructors' Communication with the University Officials

Interviewee 1, from University 3, described a specific ways to support instructors' communication with the university officials: "Technical support numbers have been pro-

vided to professors for easy communication that ensures solving their problems, directing them to different destinations, and sometimes displaying inquiries on the main screen of the course management page."

The themes in the fourth administration category are also related to the dimension "Administrative quality as perfection/consistency". Supporting instructors' communicational needs makes their work more reliable as they utilize the staff responsiveness and their willingness to help out.

3.5. Providing Assistive Videos for E-Learning

The category 'providing assistive videos for distance learning" had two sub-categories, which are described below.

3.5.1. Providing Assistive Videos for Distance Learning Training

Interviewee 1, from University 3, confirmed that "a weekly plan used to be scheduled and each issue/inquiry was answered and resolved through an attached video that explained how to implement what is required in the weekly plan". Interviewee 2, from University 2, said: "We did not suffer greatly in university regarding distance learning, and despite that, technical support provided a training file that contains videos."

3.5.2. Providing Videos for Students' Use in Distance Learning

Interviewee 2, from University 1, said:

"A web page was created on Facebook. It called on university professors and experts who inspired a relationship with e-learning to teach via short videos. The university prepared short videos in coordination with the Academic Development Unit. Each video was maximum 5 min and it included content and skills needed for a specific skill."

The themes in the fifth administration category are related to the dimension "Administrative quality as exceptionality/excellence". These themes address assistive videos as resources that could support the attractiveness and adequacy of facilities and thus students' motivation to learn.

3.6. Strengthening the Infrastructure

The category 'Strengthening the infrastructure' had three sub-categories, which are described below.

3.6.1. Strengthening the Infrastructure at the Beginning of the Emergency Education

Interviewee 2, from University 5, talked about the first actions they took in order to confront the emergency education, where one of those was related to infrastructure:

Immediately after announcing the state of emergency, we started to think about how we could protect ourselves and handle the situation. We had no chance but to replace the face-to-face teaching learning process with an electronic process through a number of bilateral and confidential consultations about the issue; one of them was about the university infrastructure.

3.6.2. Strengthening the Infrastructure with the Help of Local Companies

Interviewee 2, from University 4, described an initiative made by the telecommunications company to increase the speed of the internet connection for instructors and faculty staff members.

"Contact was made with a Palestine Telecommunication Company. In order to raise the speed of internet connection for faculty members, an official letter was sent by the university administration to the company, which stated that in order to be able to present a lecture online, the bandwidth must be appropriate."

3.6.3. Strengthening the Infrastructure to Fit the Specific Conditions of the University

Interviewee 2, from University 1, described updating infrastructure as an action that fit the university's preparedness for distance learning.

"We made infrastructure updates due to the fact that the university was prepared to be a university for distance education; furthermore, an update was made for the Google Meet software, and the needs required for better e-education, mainly those related to improving the Internet connection."

The themes in the sixth category are related to the administrative dimension "Administrative quality as fitness for purpose", where taking care of the infrastructure is essential to ensure that the infrastructure fit the university purpose of maintaining distance learning.

3.7. Increasing Awareness of Distance Learning

The category of increasing awareness of distance learning had three sub-categories, which are described below.

3.7.1. The Importance of Beliefs about Successful Distance Learning

Interviewee 1, from University 2, talked about the importance of instructors' beliefs about successful distance learning:

"The teachers' beliefs were the necessary foundation for success. Some of them agreed with and supported the integration of the educational process, while others opposed it and refused to incorporate remote research; it was necessary to stress on beliefs and change them to accept e-learning."

3.7.2. Using Videos to Lessen the Opposition to E-Learning

Interviewee 2, from University 4, talked about using videos to lessen the opposition to e-learning: "Special videos were posted to spread awareness of the importance of e-learning, in order to reduce the spread of the so-called phenomenon of opposition towards whatever is new that already existed widely in the Palestinian culture."

3.7.3. The Need for Increasing Awareness of Distance Learning

Interviewee 2, from University 3, talked about why increasing awareness of distance learning is needed:

"The parties to the educational process were not aware, at the beginning of the emergency education, of the distance learning culture, as they should and cannot distinguish between traditional education and e-learning. This awareness was necessary as it affects the decisive decisions taken by instructors."

The themes in the seventh category are related to the administrative dimension "Administrative quality as fitness for purpose", where distance education cannot be performed in a quality manner without the appropriate beliefs regarding e-learning's positive role as a mode of instruction and learning.

3.8. Defining E-Communication Tools

The category 'Defining e-communication tools' had two subcategories, which are described below.

3.8.1. Requesting the Use of Formal Channels for Formal Communication

In order to control quality and preserve the rights of both the instructor and the student, the universities unanimously agreed to adopt messages that could be sent through the course management platform or via the official e-mail. Interviewee 1, from University 1, clarified the information regarding the electronic means of communication between the instructor and the student:

"Communicating with students was conducted only through Moodle or the university email. Personal email is prohibited, but instructors could use the WhatsApp or other social networking sites or means to communicate with students, but it was forbidden to

administer any form assessment techniques such as exam through them. Everything was done through Moodle officially, whether it was a report about an exam or canceling an exam or a lecture."

3.8.2. Problems Caused by Using Informal Communication

Interviewee 2, from University 3, indicated the problem that could arise from informal communication:

"The official communication is what was requested from the faculty members and students, because other means of communication may cause problems. For instance, some students may deny the fact that they were informed; they could say that they did not receives any messages. An application was approved on mobiles for ease of communication."

The themes in the eighth category are related to the administrative dimension "Administrative quality as exceptionality/excellence", where e-communicational tools are varied, but to maintain the excellence of learning, appropriate tools should be uses, such as Moodle and Zoom.

4. Discussion

Researchers have been interested in distance learning, especially in light of the emergency education caused by the COVID-19 pandemic (e.g., [32–37]). The present research intended to investigate the management of support performed by ICT centers at Palestinian universities in order to ensure quality education. The research findings indicate that weaknesses emerged in some aspects of distance learning in higher education institutions in Palestine for different reasons, including the lack of information technology infrastructure that is necessary for quality education. This is in line with previous studies that emphasized the necessity of appropriate infrastructure for the success of distance education [38]. The European Commission [39] say that working and studying from home are made possible by a well-developed Internet infrastructure.

During the emergency education caused by the pandemic, the universities' ICT centers tended to develop their resources and educational guides to help those concerned make the most of the educational material that was provided. The transformation was sudden; the educational sector had not undergone sufficient preparation and did not possess the requested capabilities needed for distance education. Specifically, it was necessary for the education systems in the universities to strive for recovery at the beginning of the emergency phase, without doing the same again. Therefore, there had to be a continuous and serious renewal process to take into account the problems related to the Internet connection, the continuous power cuts, and the state of fluctuation between power cuts and power supply due to excessive loads on the electricity usage. This renewal process was mainly performed by the ICT centers in the universities. This role of the ICT center is acknowledged by researchers as facilitating the availability and adequacy of skilled human resource capacity [40], which could be of great help in times of emergency education that involve distance learning.

Specifically, the current study findings indicate that ICT centers in Palestinian universities considered workshops for the professional development of the instructor, a main factor in the success of the distance learning process. Thus, the experts at these ICT centers were engaged in holding training and learning development programs to match the technological revolution in the field of education. These training programs help to overcome the difficulties that may arise due to the poor infrastructure and financial constraints that form an important axis in the growth of e-learning [10].

These results are consistent with Adzharuddin [17], who concluded that training and guidance should be provided to students and lecturers on how to use LMSs. In addition, the communication between the instructor and the students on one side, and the university officials on the other side, was of concern for the ICT centers. The study results show that the universities provided telephone numbers for technical support, and special channels were established on the university's website for teachers and students.

The ICT centers at the Palestinian universities helped to provide learning materials, whose goal was two-fold: to provide e-learning training for the instructors and to provide learning materials for the students. Videos were used to satisfy the goal of providing learning materials. This shows that videos could serve a primary role in learning [41], particularly during emergency education [42]. Other studies reported presentations that were utilized in distance education due to times of emergency [43].

Communication is a crucial element of distance education [44]. To ensure safe and effective communication, the Palestinian universities obligated all parties involved in the educational process, including teachers and students, to communicate via the university's official e-mail, or to communicate using the course management environment. It is probable that most of the social media used did not enable sufficient discipline and responsibility, in addition to the inability to compel any party to use them. This emphasis on quality communication agrees with previous research results suggesting that various advantages lie in harnessing technologies, enhancing students' communication skills, and the need to preserve the sanctity of education even in times of crisis [14].

The emphasis on quality communication demonstrates that the Palestinian universities were aware of the important role of communication in guaranteeing effective online teaching and learning. This awareness agrees with researchers who stress that quality communication is needed for effective distance learning. Kayode [18] argues that the use of effective communication tools to communicate with students had a positive impact on supporting the sharing of distance knowledge with them. This emphasis also agrees with the results of the study conducted by Poon [15], who found that one of the success factors of blended learning relates to its continuous development and maintenance, and that the support provided by the administration is important for the allocation of resources and the possibility of using blended learning as a means to encourage communication.

5. Conclusions, Recommendations and Limitations

The current research aimed to verify the role of ICT centers in Palestinian universities in managing the support of distance education during the emergency education situation caused by COVID-19. The discussion above shows that the ICT centers at the Palestinian universities were attentive to the needs and difficulties of the staff and students. It seems they were aware that the degree of using the system and the obstacles to using e-learning affect the quality of distance learning. This prompted the ICT centers to try and support the instructors and students in their effort to engage in distance learning.

Taking into account the quality framework in the administration of education by Kivistö and Pekkola [28], the participants from the Palestinian universities acknowledged that they paid attention to four of the five dimensions of this model: administrative quality as exceptionality/excellence; administrative quality as perfection/consistency; administrative quality as fitness for purpose; and administrative quality as transformation. More concern was given to administrative quality as fitness for purpose, which is expected considering the emergency situation. The participants referred little to the administrative quality as value for money, which could be explained by the need of higher education institutions to accomplish quality education, and that they are expected to need sufficient resources, including money. Previous research pointed to this dimension as directing the policy and actions of the Palestinian Ministry of Education [45]. This is expected, as Ministries of Education concern a whole country and not just one higher education institution.

The pandemic led to an increased demand for e-learning and e-assessment through technological means that ensure the provision of a direct line of communication with students, in order to ensure quality education. It is recommended, based on the findings of the present study, that ICT centers in universities should work hard to build a specialized technical support center to maintain and develop the existing infrastructure. In addition, these centers should provide continuous training courses on how to deal with the e-learning environment, in order to enhance learning at the university.

The research results show that emergency education contributed to the extensive use of distance learning. It is expected or hoped that this emergency education will encourage the policy makers at Palestinian universities, as representatives of universities in developing countries, to adopt distance education as one option of teaching and learning. This would ready these universities for times of emergency education that necessitate the use of distance education. Furthermore, a distance learning platform would provide instructors and students with rich communicational channels that would enable various types of interaction and engagement [46]. In addition, universities, and schools in general, could benefit from applying different types of online learning, such as the blending of face-to-face and online instruction, or online learning that utilizes student-initiated mobile device use. In addition, the universities could benefit if needed and in times of emergency from local ICT centers close to the universities [47].

One limitation of the research was the number of participants, but this limitation was lessened as the participants were from five different universities. Further research is needed to involve more participants from the ICT centers at universities in developing countries. This would add stronger validity and reliability to the research. A second research limitation is that the research was carried out in one developing country; future research needs to be carried out in more developing countries. A third limitation is that the current research was based on qualitative methods. Future research is needed, where combined methods or quantitative methods are used. Combining qualitative and quantitative research would add to the objectivity of the study as it enables the triangulation of data and results.

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