Factors Affecting the Quality of University Online Learning Post Covid-19 Pandemic: A Case Study of Palestine Polytechnic University Students

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THESIS APPROVAL

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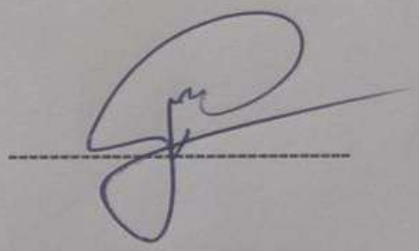
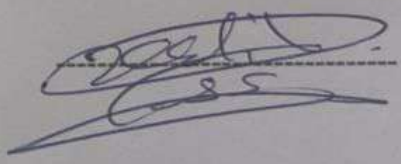
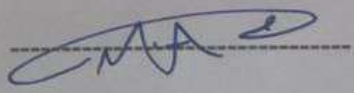
Dr. Belal Amro Hebron University	Supervisor	
Dr. Khalil Massri Hebron University	Internal Examiner	
Dr. Mohammed Moreb Smart College for Modern Education	External Examiner	

DEDICATION

To my dearest family, whose unwavering support has been my fortress during this trip, and to my revered tutors who have unselfishly passed on their experience and erudition, and to all those that have offered love and encouragement toward the study of mine, it is on you I dedicate this work. Words cannot adequately express how deeply grateful I am to each one of you but I hope that this work serves as an expression of immense gratitude for me. Special thanks to my thesis supervisor, Dr. Belal Amro, for his invaluable guidance, unwavering support and insightful feedback throughout this process. Your mentorship has been instrumental in shaping this research. Thank you for everything.

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LIST OF ABBREVIATIONS

ICT: INFORMATION AND COMMUNICATION TECHNOLOGY
(LMSS: LEARNING MANAGEMENT SYSTEMS
PPU: PALESTINE POLYTECHNIC UNIVERSITY
WHO: WORLD HEALTH ORGANIZATION
QAA: QUALITY ASSURANCE AGENCY
ICT: INTERNET COMMUNICATION TECHNOLOGIES
HEIS: HIGHER EDUCATION INSTITUTIONS
LSPS: LEARNING SERVICE PROVIDERS
MOOC: MASSIVE OPEN ONLINE COURSES
UNDP: UNITED NATIONS DEVELOPMENT PROGRAM
MVU: MEDITERRANEAN VIRTUAL UNIVERSITY
EU: EUROPEAN UNION
ULI: UNIT FOR LEARNING INNOVATION
MOHE: MINISTRY OF HIGHER EDUCATION
UGU: UNIVERSITY GRADUATES UNION

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Abstract

This study aimed to investigate the impact of various factors on the quality of e-learning at Palestine Polytechnic University (PPU) following the Covid-19 pandemic. Drawing upon previous research, the study employed a descriptive and analytical methodology. A questionnaire encompassing six key factors influencing online learning quality (administrative support, computer skills, system quality, online services, course content, and motivations) was developed to test the study questions. The study population included all enrolled PPU students for the 2023–2024 academic year, approximately 9,300 students across various colleges. The electronic survey tool yielded 403 responses. Cronbach's alpha, used to assess the internal consistency of the tool items, was found to be 0.89 .Simple regression analysis was utilized to assess the impact of each quality component on the quality of online learning. The study's findings revealed a positive and statistically significant influence of all factors on the quality of online learning in the post-pandemic period. The researcher presents several recommendations based on the findings, including: prioritizing comprehensive quality improvements, benchmarking against developed countries, implementing ongoing training and development, boosting motivation and engagement, emphasizing continuous improvement, investing in talent acquisition, and incorporating AI and chatbot technologies.

Keywords: Quality, online learning, Covid_19, Palestine Polytechnic University.

العوامل المؤثرة على جودة التعليم الجامعي بعد جائحة كوفيد_19 : حالة دراسية على طلبة جامعة بوليتكنك فلسطين

اعداد الطالب
امجد هوريني
بإشراف الدكتور
بلال عمرو

الملخص

هدفت هذه الدراسة إلى التحقيق في تأثير العديد من العوامل على جودة التعليم الإلكتروني في جامعة بوليتكنك فلسطين (PPU) في أعقاب جائحة كوفيد-19. استنادًا إلى البحوث السابقة، اعتمدت الدراسة على منهج وصفي وتحليلي. تم تطوير استبيان يشتمل على ستة عوامل رئيسية تؤثر على جودة التعلم عبر الإنترنت (الدعم الإداري، مهارات الحاسوب، جودة النظام، الخدمات الإلكترونية، محتوى الدورة، والحوافز) لاختبار أسئلة الدراسة. وشمل مجتمع الدراسة جميع طلاب PPU المسجلين للعام الدراسي 2023-2024، حوالي 9,300 طالب موزعين على مختلف الكليات. أسفرت أداة المسح الإلكترونية عن 403 استجابة. وجد أن ألفا كرونباخ، المستخدمة لتقييم الاتساق الداخلي لمواد الأداة، بلغت 0.89. تم استخدام تحليل الانحدار البسيط لتقييم تأثير كل مكون من مكونات الجودة على جودة التعلم عبر الإنترنت. أظهرت نتائج الدراسة تأثيرًا إيجابيًا ودال إحصائياً لجميع العوامل على جودة التعلم عبر الإنترنت في فترة ما بعد الجائحة. يقدم الباحث العديد من التوصيات بناءً على النتائج، بما في ذلك: إعطاء الأولوية لتحسينات الجودة الشاملة، ومقارنة المعايير مع الدول المتقدمة، وتنفيذ التدريب والتطوير المستمرين، وتعزيز الدافع والمشاركة، وتأكيد التحسين المستمر، واستثمار في اكتساب المواهب، وتضمين تقنيات الذكاء الاصطناعي وشات بوت.

الكلمات المفتاحية: الجودة، التعلم عبر الإنترنت، كوفيد-19، جامعة بوليتكنك فلسطين.

CHAPTER 1: INTRODUCTION

1.1 Study Background

Traditionally, higher academic institutions have offered their services and lectures face to face by integrating students and teachers into wide discussions inside the classroom. Academic interaction is one of the means that contribute to the rapid understanding of the topic of the lesson (Davies et al. 2016).

Many researchers have focused on the quality of education as one of the main ways to reach a high level of competitiveness among academic institutions. Quality has been linked to many factors, including the size of the university or the location (developed or developing country), the type of lesson (theoretical or scientific), the administrative services (electronic or traditional), the means of technology on which the university relies, the funds invested in the localization of technology, and finally the strategic vision of the university about adopting Quality as a clear policy.

The quality of educational services has a significant impact on the student's perception of these services, which is greatly reflected in the quality of academic achievement.

Covid 19 pandemic imposed exceptional circumstances all over the world, as the closures and the irregularity of the traditional educational process contributed to the trend towards e-learning through several digital means. Educational platforms and video systems employed for conferences have become means that have been exploited in academic institutions, conferences and meetings for most countries of the world (Kuzenkoff, 2020).

The success of countries in the transition towards digital life and its academic localization depended largely on the technological readiness of countries and academic

institutions. The ability of instructors and students to adapt their skills as a result of scientific institutions in developed countries has significantly contributed to the steady continuation of the educational process. Developing nations were unable to integrate technology, which led to a decline in educational outcomes (Rodriguez-Segura, 2020). The quality of educational services is the basis for sustaining educational outputs capable of bridging the gap in joining the process of technical development.

The growth of Information and Communication Technology (ICT) has sparked advancements in a number of industries, including business, finance, health, and education. Since technology and education have been integrated, education has expanded quickly, which has encouraged the development of e-learning, which is seen as a potent learning medium (Al-Fraihat, Joy, & Sinclair, 2017). In the field of education, e-learning is now widely used, especially in higher education. 99% of institutions have online learning Management Systems (LMSs) in place, and 85% of the online learning Management Systems have been used, according to Dahlstrom, Brooks, and Bichsel (2014). In the UK, 95% of higher education institutions have adopted LMSs to support their educational offerings (McGill & Klobas, 2009).

In order to increase the effectiveness of e-learning systems, many researchers have worked to uncover e-learning success characteristics such as IT competency, teaching style; and attitude and mindset (Webster and Hackley, 1997) . As a result, the quality of e-learning systems has attracted a lot of research interest.

1.2 Research Problem

Covid 19 pandemic affected all our daily life activities and forced many changes and imposed many challenges on different disciplines among which is the education sector. Educational institutions were forced to continue their services during the

pandemic and to adopt online learning as one of their solutions. Palestinian universities have also to tackle the problem and adopt online learning even post Covid 19 due to many reasons including Israeli occupation which sometimes prohibits students from safely reaching their universities. However, Universities in Palestine lack the strategy to implement and enhance the necessary factors that influence the quality of online education. (Khlaif et al. 2021), (Hinawi& Barahmi, 2015). Therefore, we will investigate the factors that influence the quality of online education for university students in Palestine. This will aid Palestinian educational institutions in implementing a strategy that considers the factors influencing the quality of online education.

1.3 RESEARCH QUESTIONS

Main question:

- What are the factors that affect the quality of online learning from Palestine Polytechnic University (PPU) student's perspective?

Sub questions:

- Does administrative support affect online learning quality at PPU from student's perspective?
- Do computer skills affect online learning quality at PPU from student's perspective?
- Does system quality affect online learning quality at PPU from student's perspective?
- Do online services affect online learning quality at PPU from student's perspective?

- Does the course content and design affect online learning quality at PPU from student's perspective?
- Do motivations (training, rewards, …, etc.) affect online learning quality at PPU from student's perspective?

1.4 RESEARCH OBJECTIVE

Main objective:

- Identify and study the main factors that affect online learning quality at PPU from student's perspective.

Sub-objectives:

- To investigate whether administrative assistance affects the quality of eLearning from student's perspective.
- To investigate whether computer skills affect the quality of eLearning from student's perspective.
- To investigate whether system quality affects the quality of eLearning from student's perspective.
- To investigate whether online services affect the quality of eLearning from student's perspective.
- To investigate whether course content and design affect the quality of eLearning from student's perspective.
- To investigate whether motivations affect the quality of eLearning from student's perspective.

1.5 Definition of Key Terms

Online learning: "online learning is an umbrella term that refers to the use of any digital device or media (multi-media) for teaching and learning, especially for delivery

or accessing of content. Thus, online learning can take place without any reference to a network or connectivity" (UNESCO,2020).

Education quality: "The essence of learning is quality in higher education. The objective of quality assurance is to persuade others of the adequacy of a learning process". (Harvey, 2007, p. 5)

Covid_19: "According to the World Health Organization (WHO), coronaviruses are a virus family that causes a range of ailments, from the common cold to more severe diseases such as severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS). Initially, these viruses were transmitted from animals to humans" (WHO, 2020).

1.6 STUDY PLAN

The main aim of this study is to examine the impact of Palestine Polytechnic University (PPU) online learning factors (administrative support, computer skills, system quality, online services, course content, motivations) on the quality of online learning. The case study will use qualitative and quantitative research methods. This study will consist of six chapters namely: Introduction, Literature review, E- learning and Covid 19, Research Methodology, statistical Procedures, and Results and Recommendations.

Table1 : Factors Affecting Online Learning Quality at PPU (With Relevant Survey Questions)

Subcategory	Research Question	Hypothesis	Relevant Survey Questions
Administrative Support	Does administrative support affect online learning quality at PPU from student's perspective?	H1: Administrative support has a positive and significant effect on online learning quality at PPU.	1. PPU provides online platform to access the textbooks and reference materials. 2. The administrators adequately address constructive feedbacks of online learning. 3. PPU Adequacy of administrative support leading to participate online learning.

			4. PPU has a clear and systematic procedure in an online admission and registration department. 5. PPU administrators conducts primary meetings with learners. 6. PPU provides financial aid/assistance to online learners. 7. PPU assesses the learner willingness and readiness for online learning.
Computer Skills	Do computer skills affect online learning quality at PPU from student's perspective?	H2: Computer skills have a positive and significant effect on online learning quality at PPU.	1. I have high the ability to browse online information. 2. I have the ability to share digital content. 3. I have ability to use online meeting platforms (Zoom, MS Teams, Skype etc.). 4. I employ Abilities to use online communication platforms (e-mail, chatting, etc.). 5. I have Computer skills to use software and programs efficiently.
System Quality	Does system quality affect online learning quality at PPU from student's perspective?	H3: System quality has a positive and significant effect on online learning quality at PPU.	1. PPU students are Satisfied with technical support. 2. PPU students are Satisfied with IT services. 3. PPU students are Satisfied with student affairs office. 4. PPU provides a digital-library access to worldwide academic resources. 5. PPU trains students on online skills to enable them understand courses easily. 6. Technological facilities in PPU have advantages on education quality. 7. PPU provide students with temporary training linked to online learning tools. 8. Digital manual of online

			learning helps students to follow courses.
Online Services	Do online services affect online learning quality at PPU from student's perspective?	H4: Online services have a positive and significant effect on online learning quality at PPU.	1. Interaction with colleagues of my degree course. 2. Interaction with instructors. 3. Interaction with administrative staff. 4. Satisfaction with online classes. 5. Satisfaction with online tutorials/seminars and practical classes. 6. Satisfaction with online supervisions (mentorships). 7. The online learning platform is user-friendly to install and operate from student side. 8. Minimum system requirements and proper technical support provided for online learning.
Course Content and Design	Does the course content and design affect online learning quality at PPU from student's perspective?	H5: Course content and design have a positive and significant effect on online learning quality at PPU.	1. Proper learning materials provided in the online learning. 2. The supporting modules given in online learning for the content are simple to understand. 3. Online learning promotes the student's critical thinking, analysis, and problem-solving. 4. There is a suitable online learning outcome to the course that can be done through online learning. 5. The class work and assignments conducted by online learning are sufficient. 6. PPU provide students with enough practical courses. 7. Interaction with instructors in PPU lead to facilitate content of course. 8. Supervision in PPU courses

			increased the students' responsibilities.
Online Learning Motivations	Do motivations (training, rewards, …, etc.) affect online learning quality at PPU from student's perspective?	H6: Motivations have a positive and significant effect on online learning quality at PPU.	1. The instructor provides the guidance I need to be successful in online learning classes. 2. The instructor responds to questions, clearly, completely, and in a timely manner. 3. I freely communicate with the instructor in online learning classes. 4. PPU students are very interested in the content area of online courses. 5. I freely communicate with other students in online learning classes. 6. Flexibility of PPU online courses schedule supports students to more attendance. 7. Flexibility of online lecture makes online learning more comfortable to me.

CHAPTER 2: THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1 Theoretical Framework

Recent developments in network and computer technology have propelled the growth of online learning. Furthermore, the COVID-19 pandemic, a global public health emergency declared by the World Health Organization (WHO) in January 2020, has made the use of electronic learning platforms for online learning an urgent and indispensable necessity. Online learning based on Internet services has become available and widespread, facilitating the online learning system, despite the current pandemic that is impeding education globally. Colleges and institutions employ software programs like Microsoft Teams and Zoom to further their students' education through the usage of online resources. As a result, universities in particular and society at large start to worry about the efficacy of online learning and students' online learning results.

Li (2014) asserts that easier learning methods are made possible by advancements in communication technology since social media access is a valuable resource for communication and information. Online learning is a helpful tool to tackle the problems of the pandemic crisis in particular as well as other difficulties in general. Online technology is considered as an active aspect of both students’ and lecturers’ learning systems.

Because of the few interactions, erratic audio and video quality because of reliance on Internet quality, and inadequate technology, the majority of students have little interest in online learning. This chapter is debated theoretical farmwork and literature review.

2.2 Online learning in developed countries

Learning is the secret of success in one's personal life. It also benefits a business or country as a whole by facilitating the adoption of new technology. Learning has become more convenient and comfortable in this era, thanks to e-learning. The majority of e-learning activities are carried either at work or at home. In industrialized nations, e-learning development is seen as the responsibility of the government, not just the concerned institutions.

The UK has established a board called the Quality Assurance Agency (QAA) to serve as the code of practice for e-learning. The European University Constitution states that all universities have two main roles: teaching and research. According to the constitution, colleges "should transfer new knowledge while preserving the traditional knowledge." (ESG2015).

Since online learning is made simple and adaptable through the use of information and communication technologies (ICT), it poses a long-term challenge to institutions that prioritize profit-making, particularly in the face of increasing market competition and changing student expectations. The shift towards online learning has been fueled by a combination of factors, including the reduction in government funding for traditional higher education institutions (HEIs) (Lockee, 2021), the rise of online learning platforms like MOOCs (Massive Open Online Courses) (Bellini et al., 2021), and the increasing demand for flexible and accessible learning options (Kerres & Buchner, 2022).

Even though industrialized nations strongly advocate e-learning, colleges place a greater emphasis on their instructional strategies and do not solely rely on technology. Universities provide all students and professors with access to cutting-edge technology, study materials, and journals from all over the world because they think that

autonomous learning may be made feasible with the use of ICT. ICT has significantly improved the relationship and communication between students and teachers (Lewis and Goodison, 2004). ICT and e-learning are more likely to be used by students' body than teachers (Nawaz and Qureshi, 2010).

When e-learning community students are compared with face-to-face students, it is clear that online students are capable of collaborative online learning and environments of rapid progress, whereas face-to-face students or traditional students demonstrate greater confidence in their learning outcomes. To get around this, the student needs to get instructions and information about how to incorporate technology into both teaching and learning (Nawaz and Kundi, 2010). To foster a productive online learning and teaching process, institution should make changes to their curriculum in accordance with learner requirements and should implement e-learning in order to foster group collaboration (Nawaz and Kundi, 2010).

2.3 online learning in developing countries

The e-learning process is seen by developing nations as a potential means or strategy to support economic progress and interactions with other nations (Macleod, 2005). There is a belief that is common in poor nations that e-learning deployment contributes to better education quality (Hvorecky et al., 2005). With the support of the internet's development, the expansion of the global economy, and the development of digital communications, poor nations began to adopt ICT by the 1990s (Mujahid, 2002). With the use of e-learning, the feeling of isolation has been reduced significantly (Tinio, 2002), as well as , online learning aided the process of digital integration among students in developing countries (Macleod, 2005).

The adoption of ICT (Internet Communication Technologies) and e-learning has brought numerous changes among students and society in the areas of motivation and confidence levels, as well as helping them to advance their technical and communication abilities (Tubaishat et al., 2006). For higher education, developing nations rely more on conventional instruction than on online learning (Sanyal, 2001). Emerging nations experience a delay in the widespread adoption of technology and progress due to their substantial populations. Individuals who lack the financial means to purchase the exorbitant cost of education do not derive any benefit from technology (Macleod, 2000). Although developing nations have challenges, they manage to produce a significant number of network and software engineers and generate big export revenues (Krishan, 2006). The challenges involve a lack of expertise and systematic approaches in utilizing technology, a deficiency in administrative and technical assistance for its integration and mindset, and modifications to the educational system (Nawaz and Qureshi, 2010).

2.4 Quality of Online learning

Online learning is the transfer of knowledge via synchronous and asynchronous internet technologies. While keeping a social distance, online learning enables students to communicate with their teachers and fellow students as well (Dong et al., 2020). Students can learn, interact, share their thoughts, be independent in their learning, and manage time on their own via online learning (Azzi et al., 2021; Hwang et al., 2021). While using online learning, students as well as educators must be able to use technology to build and sustain good social relationships (Andel et al., 2020). In addition to the effective implementation of technology, online learning is also influenced by other variables such as the availability of proper facilities, infrastructure, and student financing.

Online education may be given rapidly, efficiently, and effectively due to the diverse capabilities provided by information technology platforms. ICT systems enable students to access a wider range of content while providing them with the flexibility of time and location, even in the face of the COVID-19 epidemic, which has necessitated the use of ICT by students (Mustakim, 2020). In addition, online books often incorporate audio-visual enhancements to enhance the overall learning experience (Hasibuan, 2016).

While online resources offer several benefits for students, the effectiveness and efficiency of online learning can be influenced by various aspects (Pratiwi, 2020). These elements include learner preparation, university support, the role of the faculty, and motivation. distinct pupils may see these variables in distinct ways. Various impediments that students often face impede the effective provision of educational services (Laksana, 2021). Online education is generally of worse quality for students residing in regions with limited internet access and frequent power disruptions. The quality of online learning can be strongly influenced by a variety of major characteristics, including the role of the instructors, the university's help, the home study environment, and motivating factors. Accordingly, the quality of online learning is profoundly affected by internal and external factors, the important elements are addressed below:

2.4.1 Administrative support:

Administrative support, once defined as the institution's assistance in the design and implementation quality of education programs and courses, is now best understood as the institution's capacity to facilitate the participation of all in quality research, teaching, and learning experiences. It includes policies, finances, supply chain, human resources development and management, research administration, student affairs, and digital

technologies in order to provide efficient, effective, and sustainable support services to their stakeholders, i.e., students, faculty, and staff. Administrative support was previously viewed as a peripheral function; however, it now plays a central role in the administration of higher education institutions (HEIs) and is essential for meeting new demands and ensuring the success of teaching and research (Ryttberg & Geschwind, 2017).

Teixeira, Bates, and Mota (2019) state that administrative support should be provided within the context of an institution-wide innovation strategy that promotes synergies and involves all academic entities and operational sectors. Administrative support should not be viewed as a separate component of the HEI system, but rather as a center of services that supports students, faculty, and staff. Therefore, administrative support must maintain a close, permanent relationship with learning support systems, departments, and technical departments. The ability of each major component of the administrative support system to provide valuable support to its stakeholders (learners, instructors, and staff) is a crucial success factor.

2.4.2 Computer skills

Home infrastructure and computer skills played a significant role in online learning, the rapid shift toward online learning means that many students are moving to home environments that lack the conducive conditions for learning, such as quiet areas and digital devices with (high-speed) internet access, which are essential for effective online learning. Technical infrastructure includes computer, or access to it, contains the appropriate software, a webcam, and a steady (and fast) internet connection (Chopra et al, 2019) . The more previous experience and expertise students have with electronic media, the smoother the transfer to e-learning will be. Computer skills reflect a student's

capacity to work with computers and different educational platforms. This is especially significant for those who participate in online workout modalities (Cidral, 2018).

2.4.3 System quality

The definition of online learning used in this study includes three basic aspects: Technology, Access and Quality. However, our research focuses on quality, which is considered a key issue for education in general and e-learning in particular. There are currently two recognized challenges in online learning:

General interoperability requirements and High-quality requirements. Moreover, quality itself is such an abstract concept that it cannot be expressed and identified by a simple definition. Specific contexts and user perspectives should be considered when defining online learning quality. It is also important to classify appropriate criteria to describe this quality (Stracke, 2006).

Multiple perspectives and considerations can be applied to quality. In this context, the SunTrust Equitable report Close, Humphreys, and Ruttenbur (2000) illustrates the pyramidal value chain of online learning. As the foundation of the value pyramid, content is the most essential aspect of online learning. To use the Internet as an instrument to enhance online learning, the content must be non-distracting and conducive to education. The importance of learning aids and facilitators cannot be overstated. In truth, learning platform and knowledge management system providers are essential to the delivery of effective content. Providers require an infrastructure to deliver educational content. In addition, Learning Service Providers (LSPs) serve as channels of distribution for content providers. One of the difficulties faced by these knowledge centers and their LSPs is ensuring that students obtain the most current

content. The online learning value pyramid is completed by businesses specializing in educational e-commerce (e-retail) as showed below:

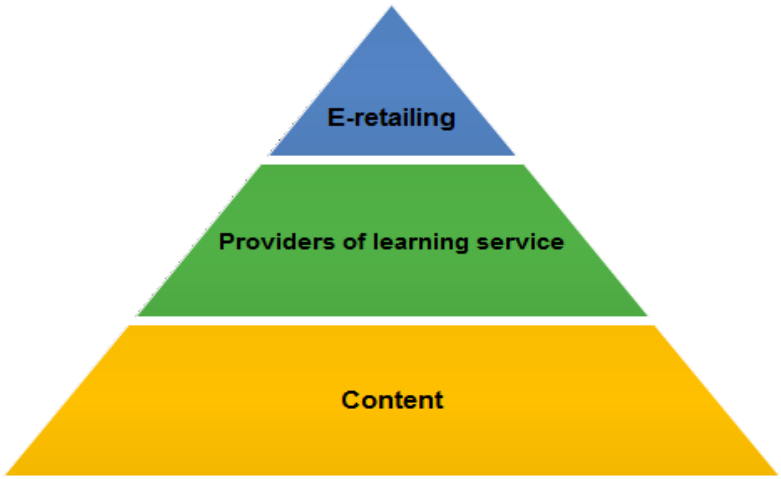

Figure.1. The online learning value chain pyramid (Humphreys, and Ruttenbur ,2000)

2.4.4 Online services

In online service environment, service quality characteristics have different importance in shaping the quality of the overall online service. Liu and Arnett (2000) argued that four factors determine a website's success in e-commerce: information quality, system usage, system design quality, and playfulness. Sohn (2000) states that reliability, interactivity, usability, content of web pages and functional web sites, and speed of delivery are his six most important service quality characteristics perceived by customers.

2.4.5 Course content

An educational context is a setting in where instruction takes place. This can be viewed from its two perspectives: essential and relative. The quality of the online learning experience relies both on the quality of the context itself and on the interaction between

the designed and executed experience and the context in which it takes place. The context of learning is particularly essential in terms of quality, since all learning takes place in a particular setting and the characteristics of that setting have a major impact on the significance and value of learning.

Also, there are few research on the quality of e-learning services that demonstrate that the quality features of online learning services play diverse roles in molding the quality of online learning services as a whole. Peltier et al. (2007) discovered that course content was the most important element impacting the quality of the online learning experience. Yang, Cai, and Zhou (2005) created their five-factor scale for judging service quality of information presented on online portals. The five aspects include usability, value of content, relevancy of information, access, and interaction. Information quality assesses a teacher's responsiveness to pupils, for example by delivering timely feedback or answering queries in an online learning setting (Maslov. and Nikou, 2020).

2.4.6 Motivations

Motivation to learn is one of the key learning outcomes of today's students. However, Fredman (2014) and Lau and Ng (2015) pointed out that student attribution to changes in actual learning motivation has not been well studied. Motivation can influence students' perceptions, attitudes and decisions about successful learning (Lee & Pang, 2014). Motivation theorists have emphasized the contribution of environment, socialization, and personal beliefs (Hufton et al., 2003; Oqvist & Malmstrom, 2016). Oqvist and Malmstrom (2016) identified classical examples of student motivation, including modeling, teaching, providing adequate choice, reinforcement, engagement, and interest. This creates a learning environment that motivates students to learn and

actively engage in learning. Motivation is one of the key factors in the success of many student learning activities.

Paris and Turner (1994) identified motivation as the 'driving force' of learning, motivation can alter what you study, how you learn, and when you learn (Schunk and Usher 2012). Studies demonstrate that motivated learners are more likely to engage in demanding tasks, be more engaged, love learning and engage more deeply, and have more accomplishment, tenacity, and originality (Ryan and Deci 2000b). Given the important two-way relationship between motivation and learning (Brophy 2010), it is not surprising that motivation has been extensively and actively studied in traditional educational settings (Schunk et al. al. 2014).

Independent, egocentric, and intrinsically motivated characteristics have long been associated with distance learners (Moore, 1989). Shroff et al. (2007) identified intrinsic motivation as an essential characteristic of online learners. Online learners are intrinsically more motivated than on-campus students at both the undergraduate and graduate levels, according to studies comparing online and on-campus students (Huett et al. 2008; Shroff and Vogel 2009; Wighting et al. 2008). In contrast to Martens et al. (2004), learning environments typically rely on intrinsic motivation, associated curiosity, and self-regulatory traits to attract learners, thus the larger emphasis on intrinsic motivation. He contends that intrinsic motivation is frequently desired in online students. In fact, technology is intrinsically motivating because it offers a variety of qualities that are regarded as essential for cultivating intrinsic motivation: challenge, curiosity, novelty, and imagination. (1987, Lepper and Malone). Additionally, technical frustration can diminish intrinsic motivation. The intrinsic motivation of learners is an essential factor to consider, but current research on motivation in these settings is limited in scope (Bekele, 2010). Recent concerns about attrition rates in emerging

technology-enabled environments such as online courses (Lee et al., 2013) and massive open online courses (Liyanagunawardena et al., 2013) call for a deeper comprehension of the complexities of factors that influence online learning motivation.

2.5 Online learning and Covid 19

The COVID-19 pandemic has had a significant impact on many facets of daily life, including educational systems, and caused widespread disruptions on a global scale. Nations from all around the world rushed to lessen CO2.2 VID-19's effects on society and to cut back on infections and fatalities. Many schools and institutions around the world decided that online learning would be the best answer as a result of the crisis and worry about the virus spreading (UNESCO, 2020). The abrupt global spread of the coronavirus gave administrators and educators very little time to create practical mitigating strategies. Numerous universities lacked the necessary skills to handle the numerous difficulties that developed as a result of the switch to online learning platforms (Daniel, 2020).

The Covid 19's effects on the educational system started with the suspension of in-person instruction at all educational levels in a global context. 166 countries had closed their schools and institutions by March 2020, according to various UNESCO reports. 87% of students were impacted by these measures. Similar effects were felt by millions of instructors around the world (IESALC-UNESCO, 2020).

The difficulty of not being able to attend school for classroom learning affects over 1.4 billion students in nearly 162 nations (Selviyanti E, Sardjono W, and Mukhlis M, 2021). Due to schools' failure to provide the essential "offline part" of learning, such as a learning place on campus, during the COVID-19 pandemic, physical learning has suffered. Remote study was made mandatory for students, which is more akin to unstructured, self-directed learning. ICT-based learning, or e-learning, is a broad term

for the general teaching and learning that takes place in educational institutions. We also see e-learning as a component of blended learning, therefore its boundaries between traditional learning and e-learning are hazy and difficult to define. When we evaluate the COVID-19 situation, despite its faults, the idea of blended learning is crucial because the pandemic and quarantine seem to have redefined the before. (Ozadowicz, 2020).

The higher education institutions had to close due to the COVID-19 pandemic's global quarantine. As a result, the learners' (students') social connections with the teachers and their physical presence have been impacted (Karalis and Raikou, 2020). Higher education institutions have shifted more and more toward using e-learning as a primary method of operation during the pandemic (Almaiah et al., 2020; Ebneret al., 2020). In order to evaluate an e-learning capability to offer a high-quality outcome in the framework of COVID-19, distance education and course design have grown in importance (Almaiah et al., 2020). Multiple obstacles were discovered to affect the educational preparedness to deliver e-learning, according to a study of teachers at a higher education institution (Alea et al., 2020).

According to Hasan and Bao (2020), students may feel extreme psychological anguish when online learning about the disease and may also prefer traditional classroom instruction.. However, e-learning and the development of e-learning related methodologies and technology have garnered enormous attention due to the necessity of adapting to the educational processes at the higher education environments (Ebner et al., 2020). A substantially larger data consumption with learning apps and tools used in e-learning has been suggested to be a new problem created by the availability of ICT and the Internet for the design and delivery of education (Favale et al., 2020). As a result, e-learning may encounter substantial difficulties with regard to the technical

(ICT dependability, equipment availability), social (teachers' capacity to), and social features (teachers' ability to deliver e-learning, students' distress).

2.5.1 Quality of E-learning during Covid 19 era

Online learning tools were crucial in facilitating the shift from traditional to online education during the COVID-19 epidemic. With the ongoing advancements in educational technology, various online learning platforms have emerged, including MOOC (Massive Open Online Courses), Zoom Cloud, and WeChat Work. These platforms gained popularity during the pandemic. The rapid transition of online learning from a complementary educational tool before the pandemic to the sole substitute for traditional learning during the pandemic has led to challenges in utilizing online education platforms, prompting researchers to investigate this phenomenon (Chen et al., 2020).

Chen et al. (2020) conducted a study comparing the user experiences of eight popular online education platforms in China before and after the COVID-19 epidemic. Users' experiences of using internet platforms were notably different before and after the COVID-19 epidemic. Before the pandemic, users were worried about the platform's access speed, dependability, and timeliness of video information transfer (p.28). Following the pandemic, users primarily concentrated on the platform's course management, communication, engagement, learning, and technical support services (p.28). Users had a positive experience with the Zoom Cloud platform before the epidemic and with DingTalk after the outbreak in 2021. They offer some recommendations to enhance the user experience of the online education platform amid the pandemic. The ideas aimed to enhance support services by offering customers comprehensive, timely, convenient, and rapid support, improving interactive

communication convenience by adding a split-screen function to the platform, optimizing user-friendliness, and enriching platform resources.

In a different investigation conducted by Chen et al. (2020) on user satisfaction of educational online platforms in China, they concluded after analyzing the emotion data from online feedback that "Ding and Tencent Class provided high quality service, while Chaoxing Learning and MOOC encountered multiple issues, such as failing to submit the online learning time, lags, and a major video delay" (p. 22), and they found that "users personal factors did not have a direct impact on their level of satisfaction, while system availability had a major effect on user satisfaction" (p.22). Based on their results, they suggest that "system technology issues cannot be dismissed" because "there are still many problems in the platform technology" (p. 23) and that "two-way interaction of teaching must be improved" (p. 23) because "an increase in interaction can improve students' learning enthusiasm and concentration" (p. 23). Pandey et al. (2021) stated in their study that learning model or attitudes towards delivering of online class greatly affects students' satisfaction with online learning.

2.5.2 Post-Pandemic Online Education

The end of numerous pandemic restrictions is approaching after three years of fighting the COVID-19 pandemic (Spencer, 2023). The normalcy that existed before to the outbreak of the disease is slowly returning. The majority of educational institutions across the globe have reopened and switched from offering online learning to regular classroom instruction. This does not imply, however, that traditional education will become obsolete and take the place of online learning. Online learning will continue to be a part of modern education for a number of good reasons. For instance, during the pandemic, it turned out to be the greatest and only substitute for traditional education, offering students online safety from the COVID-19 virus in addition to a continuation

of their education. Many scholars support the online learning in pos-pandemic, claimed that online education open the door toward new innovation.

Lockee (2021) says that the COVID-19 epidemic "could permanently change how education is delivered." However, Kerres and Buchner (2022) are impartial to this proposition. They think that educational technology is a vital tool for the introduction and growth of online learning. In their study on the influence of the pandemic on education, they give two contradicting viewpoints on the role that educational technology would play in in post-pandemic education: a pre-digital view and a post-digital one. The former suggests a return to normalcy, whereas the latter aims to use the experience of the epidemic for comparable educational improvements. They agree that the experience of online education during the pandemic provides an opportunity to "rethink education" after the epidemic (Zhao, 2020), but that the future of education rests significantly on how open the education system is to embrace this opportunity.

Zhu and Liu (2020) remark that the emergence of the COVID-19 pandemic has considerably sped the development of online learning in higher education in China, and its impact on the education system can generate future development prospects. They argue that infrastructures, such as the Internet, big data, artificial intelligence, 5G, cloud-based platforms, and other technologies are critical to the development of a new education paradigm that "could represent an evolution from traditional, teacher-centered, and lecture-based activities towards more student-focused activities including group activities, discussions, hands-on learning activities, and limited use of traditional lectures" (p. 697). However, achieving such a new paradigm demands "conceptual and philosophical rethinking of the nature of teaching and learning, and the functions and relationships of teachers, learners, and resources in post-digital learning communities" (p. 697), in addition to the infrastructure preparation.

While online learning proved essential during the pandemic (Xie & Siau, 2020), its future likely lies in integration with traditional methods rather than complete replacement. This blended learning approach, where online and in-person elements work together, offers flexibility and adaptability for students (Bellini et al., 2021). Paudel (2021) argues that blended learning is particularly effective in resource-constrained settings, like Nepal, where online learning alone may not be viable. Keshavarz (2020) proposes a "hybrid campus" model that combines online theory with in-person practical learning, making education more resilient and sustainable, especially in times of crisis.

During the pandemic, all students used the online option; nevertheless, they would prefer to use an offline or hybrid mode in the future (Apte 2022; Wu et al., 2021). The need for qualified online teachers is growing along with the need for online learning in K–12 and higher education (Crew & Olivia, 2023). The curriculum might help educate female students about eHealth and enhance a number of eHealth-related health behavior outcomes (Roh & Won, 2023). There are drawbacks to online learning as well, such the requirement for self-control, the possibility of loneliness, and the importance of dependable internet access. For students taking online courses, institutions and educators need to make sure that the right support structures are in place to address these issues and provide a positive online learning environment (Muliaman and Wahdi Ginting, 2022).

Online learning environments have transformed the way that students and teachers interact, becoming essential elements of contemporary education. According to Gupta et al. (2023), these platforms are essential for encouraging interaction and cooperation between instructors and students. In addition, the incorporation of messaging apps, discussion boards, and video conferencing tools has ushered in a new era of interactive

online learning that fosters creativity and the development of digital skills. Teachers have been compelled to abandon their conventional teaching methods and adopt new technology as a result of realizing the revolutionary possibilities of online learning.

2.6 Online learning in Palestine

In times of crisis and wars, Palestine's educational institutions always strive to offer top-notch instruction to everyone. The suggested e-learning innovation is a workable program because of the rising demand for education, the limited resources available for traditional learning, as well as the physical and security issues (EL-Harazin, et al., 2007).

Proliferation of ICTs is one of the most important effects of the continuous bloodshed in Palestine. The construction of increasingly connected communities, whose fabric gets solidified through access to the Internet and information, is seen by Palestinians as made possible by ICT, which they view as essential to their survival and quality of life (Saidam, 2007). Consequently, the international community, including the World Bank, the United Nations Development Programme (UNDP), the European Union, and others, began to include the use of ICT in policy suggestions for Palestinians (Zuriek et al., 2006). Internet access was first made available in the early 1990s. The first place in the region to connect to the Internet was Palestine, and specifically Birzeit University (Rabayah et al., 2008).

Birzeit University, a pioneer in online learning in Palestine, developed the Ritaj portal in 2002. This platform, meaning "heritage" in Arabic, offered students access to course materials, administrative functions, and communication with instructors. While initially intended to address disruptions caused by political unrest, Ritaj laid the foundation for online learning in Palestinian higher education. Its success highlighted the potential of technology to overcome physical and political barriers, paving the way for the broader

adoption of online learning in universities throughout Palestine. (El-Harazin, Mikki, & Abu Day'yah, 2007).

Many donor-funded e-learning initiatives have been underway since 2005. Among these is the Mediterranean Virtual University (MVU), a two-year EU initiative launched by Aalborg University in Denmark in 2005. Eleven universities from the Mediterranean and northern Europe are working together on this project, which aims to develop online degree programs in engineering and computer technology, pilot them globally, and then make online learning available to students everywhere.

English for Journalists, undergraduate courses, English Communications; and one post graduate course on Computer Modeling of Water Supply Systems.

Another donor-funded initiative to develop e-business programs including supply chain management, e-commerce, enterprise resource planning, and customer relations management was called MedForist (EUMEDIS Program). The Ibn Rushd institution at Birzeit University is another organization that is considering offering online courses. Additionally, this area has generated a number of courses, such as Principles of Palestinian Commercial Law, the Political System in Palestine, Psychological Foundations of Education, Introduction to University Teaching, and Coronary Heart Disease. Birzeit University presently uses MOODLE, a learning management system, extensively, and offers both in-person and online courses.

2.6.1 online learning in Palestine during Covid 19

In response to the COVID-19 pandemic, Palestine declared a state of emergency on March 5, 2020. This significantly impacted the higher education sector, with over 170,000 students directly affected (MOHE, 2020-a). While Palestinian traditional colleges quickly implemented emergency measures to continue education, their responses were varied and often lacked a comprehensive strategy. The Ministry of

Higher Education and Scientific Research (MOHE) recognized the need for a more systematic approach, announcing a plan for the digitalization of higher education and developing a by-law for e-learning (MOHE, 2020-a). A 2019-2020 study by MOHE found that while a majority of lecturers and students had received some online learning training, there was room for improvement in terms of overall implementation and effectiveness. The study recommended utilizing online learning as a support for in-person teaching, providing accessible platforms for training instructors and learners, and establishing clear guidelines for online learning by-laws (MOHE, 2019).

Palestinian universities, facing unique challenges in a complex sociopolitical environment, are increasingly embracing online learning as a means to provide accessible and quality education. Institutions like Birzeit University, renowned for its pioneering e-learning initiatives, have established robust platforms and training programs. Al-Quds University, known for its commitment to technological integration, offers a broad range of online courses with strong technical support. Palestine Polytechnic University (PPU), focusing on technological fields, has made significant strides in online learning, particularly since the COVID-19 pandemic. A comparison of their online learning experiences reveals both commonalities and unique strengths:

Table 2: Comparing Online Learning Experiences in Palestinian Universities

Feature	Birzeit University	Al-Quds University	Palestine Polytechnic University (PPU)	Source
Learning Management System (LMS)	Moodle	Moodle, Blackboard	Moodle	University Websites
Online Course Availability	Wide range across disciplines, including some specialized programs	Good range across disciplines	Diverse range, especially in technological fields	University Websites

Faculty Training	Dedicated Unit for Learning Innovation (ULI), various training initiatives	Faculty development programs, online teaching workshops	Regular workshops, training on specific online tools, E-Pal project	University Websites, Interviews with Faculty
Technical Support	IT support department, online resources	IT support, help desk, online resources	Dedicated technical support team, online manuals	University Websites, Interviews with IT staff
Student Access to Technology	Generally good access, with initiatives to address digital divide	Access varies, with efforts to address the digital divide	Access to technology varies, with some needing support	Interviews with students, Ministry of Higher Education Reports
Accessibility for Students with Disabilities	Some resources available, but more could be done	Some accessibility features implemented, but further improvements needed	Efforts to make online learning accessible, but further development needed	University Websites, Interviews with Students with Disabilities
Focus on AI and Chatbot Technologies	Some exploration of AI applications in teaching	Some use of chatbots and AI tools in certain courses	Limited integration so far	Interviews with faculty, University Publications
Incentives for Faculty and Students	Incentive programs exist, but more could be developed	Some incentive programs in place, but further development required	Some incentives, but more are needed	University Policies, Interviews with faculty and students

2.6.2 Obstacles to online learning in Palestine

While the adoption of e-learning has gained momentum in Palestinian universities, navigating its implementation remains a complex endeavor, characterized by persistent obstacles. The challenges identified by EL-Harazin, Mikki, and Abu Day'yah (2007), including inadequate technical infrastructure and a lack of dedicated leadership, remain pertinent. Furthermore, the COVID-19 pandemic has brought these obstacles into sharper focus, highlighting the urgent need for greater investment in digital

infrastructure, as emphasized in a 2020 report by the Ministry of Higher Education and Scientific Research (MOHE). Khlaif, Affouneh, and Salha (2021) underscore the impact of these challenges, noting that while online learning offers potential, its widespread adoption requires a proactive approach to address the limitations stemming from a combination of technological constraints and the complex political and social landscape of Palestine. educational institutions in Palestine still confront many hurdles and difficulties in all various areas, the most prominent of which are:

1. Weak technical infrastructure for information and communications
2. Lack of time required for transformation and renewal
3. Scarcity of change leaders who bear the responsibility of awareness, creating inspiration, addressing difficulties, and following up on anything new in the field of e-learning
4. The divide between the rising generations and the elders that make decisions
5. Weakening the function of the teacher as a key educational supervisor and his direct relationship with his pupils and thus his capacity to directly affect
6. Weakening the significance of the educational institution in society and losing its vital role in scientific education
7. The advent of commercial entities that strive for profit to monitor the certification and preparation of teachers, who are not competent to do so
8. There are numerous scientific gadgets employed in the teaching process, which may lead the student to be reluctant to utilize them.

2.6.3 The impact of Corona on education in Palestine

As soon as the Corona pandemic started appearing in the world, this pandemic required all countries to make changes in how to live in preventative measures ways and methods in various fields, as it affected all sectors, including education, resulting in those responsible for education adopt the method of distance education until the crisis ends.

The means of implementing distance education varies in various parts of the world. In Palestine, the Ministry of study was fast to apply e-learning techniques, as this system was fresh to deal with in its comprehensiveness in this experience, despite the problems and challenges it experiences, as it currently presents the best option for our students to continue their study.

The experience of utilizing the e-learning technique is of remarkable proportions, as the power of current technology is utilized to improve educational achievements for all students. The quality of education that students acquired during the present crisis differed to a notable degree, since the digital gap and the accompanying substantial discrepancy in homework assignments were genuine and noticed among students. everyone.

During previous times in Palestine, e-learning was unexpectedly enforced on students and there was a transition from traditional education to e-learning, causing them severe disorientation and dissatisfaction at the beginning of the crisis due to an absence of adequate willingness and getting ready for this type of education.

With the start of the outbreak of the pandemic of Corona, and after a short period of no more than a week after the declaration of the state of emergency, competition began at the level of teachers and tools for higher education, and everyone started attempting to employ social networks and all accessible technology to carry out the educational process from home, and here we witnessed grievances, anxiety, and disarray from learners and their families who They complained about the influx of tasks and e-learning images that filled the screens, occupied the family, and caused stress for the students. All of these paradoxes are natural in times of crisis. On the one hand, we want the process of learning to continue, and on the other hand, we want to remain away from strain and pressure.

2.6.4 Online Learning in PPU During Covid 19

Palestine Polytechnic University (PPU) is one of the main universities in Palestine that offers academic and professional degrees in technology and engineering in addition to ongoing learning and professional technological consulting utilizing the newest technologies and highest standards in all sectors. PPU has the purpose of graduating qualified labor forces able to generate beneficial change and meet the demands and requirements of society as a whole in scientific, technical, and research sectors. Providing creative thoughts and solutions. focusing on the importance of research and development in reaching continuous and significant national progress. And attain greatness via improving resources and expanding the possibilities of human resources. PPU was founded in 1978 by the University Graduates Union (UGU) as a local nonprofit organization that provides educational resources, and it is linked to the Palestinian University Presidents Council, the World Association of Universities, the Arab Universities League, and the Islamic League of Universities. PPU contains the departments of Technology and Engineering, Applied Science, Administrative Sciences and Informatics, Information Technology and Computer Engineering, and Applied Professions, it is regarded to be a medium sized university with over 50 academic programs and more than (9300) students.

2.6.5 E-Learning in the University of Palestine Polytechnic University (PPU) Post-COVID-19

The outbreak of COVID-19 has transformed the landscape of education across the globe with universities being forced to quickly adapt to new methods of teaching and learning. One of the most notable transformations is the extensive use of e-learning or online education. For example, PPU has not been an exception in moving towards this direction as it grapples with pandemic related challenges while keeping consistency and

quality of education at par. Essentially, e-learning involves utilizing electronic technologies primarily the internet for teaching remotely. In PPU, a number of initiatives and adjustments have taken place as far as e-learning post-COVID-19 is concerned with regard to enhancing accessibility, efficiency, and engagement in virtual learning environment. One of the major objectives that have been set after COVID-19 regarding e-learning at PPU is offering students flexible and inclusive ways through which they can learn. Students can easily reach course materials, participate in interactive lectures, contribute to discussions online and submit assignments by using electronic platforms or resources from any location that has access to internet connection. This flexibility also embraces deep dive into different types of learning environments such as asynchronous at PPU, innovative technologies and pedagogical approaches are blended in e-learning to improve learners' experience. Students have a wealth of digital tools and resources available to them ranging from interactive multimedia presentations, virtual labs and simulations that support active online learning, critical thinking as well as problem-solving skills acquisition. Furthermore, there are online platforms for collaboration which together with communication tools aid in peer-to-peer engagement thereby enriching the online learning process and creating a sense of belonging among the students and their teachers. Consequently, this means that transitioning to e-learning after COVID-19 has not been without some difficulties. Among such concerns include: technical problems, matters of unequal access due to the lack of adequate technology at home during the lockdowns and continual faculty training needs among the numerous issues being considered by e-learning strategy directors at PPU. Nonetheless, it is noteworthy that pandemic gave rise to digital transformation in education making stakeholders moving forward with new ideas considering contemporary students' demands. In summary, e-learning at

PPU after COVID-19 is a flexible and changing method of teaching that emphasizes on availability, involvement, and advancement. With the adoption of technology and new ways of teaching and learning PPU has positioned itself to succeed in the digital era while encouraging student success in an increasingly intricate and globalized world.

PPU created an e-Learning center in 2006 and this unit has been cooperating with the academic staff even till now by supporting them to be more familiar with online platforms. It is after the beginning of the COVID-19 pandemic that the center has made concerted efforts to scale up the quality of the online learning in this case in various dimensions. These efforts include:

- ✓ Scheduling briefing sessions for all club's representatives from each college.
- ✓ Developing the programs for nine colleges and 10 staff members.
- ✓ Business it also provides the instructive on how Moodle, the e-learning system, is used.
- ✓ Providing online assessment methods training to College of Medicine instead of giving specific assignment to train online evaluation.
- ✓ Lane works on training and induction for the use of different online tools, examples are CANVA, Snagit, Google Meet, Nearpod among others.
- ✓ Regular training courses held on-line to introduce students to assessments, such as Socrative and Google Meet.
- ✓ By making videos illustrations which show the user how to use those online tools, aimed at raising the level of online learning quality.
- ✓ Providing online manuals to staffers covering all functionality varying among the online learning platforms.

These activities illuminate PPU's persistent pursuit of improving its online learning institutions, and consequently helping its academics strategize in developing quality

education on the web. Recently PPU expanded cooperation with many western institutions to maintaining online learning projects, E-Pal is a long-term initiative supported by The Norwegian Agency for Development Cooperation (Norad) for a duration of six years. The initiative is a collaborative effort involving PPU, UCAS, the University of Oslo in Norway, and Oslo Metropolitan University in Norway.

The higher education sector is currently grappling with the challenge of effectively incorporating and leveraging rapid technological advancements to enhance the quality of teaching and learning. The surge in online learning during the COVID-19 pandemic posed challenges to traditional procedures, raising several inquiries regarding the optimal utilization of current technologies to enhance students' academic and vocational growth. Presently, significant discussions revolve around the methods to tackle the involvement of generative artificial intelligence (AI), such as ChatGPT, and immersive technologies, such as virtual and augmented reality. ChatGPT, a large language model developed by OpenAI, has sparked debate regarding its potential applications and ethical considerations in education. (OpenAI, 2023) Additionally, there is a focus on utilizing online learning to create more adaptable educational options.

2.7 Literature Review

The world has witnessed widespread and rapid development in recent years, especially in the technology sector, which has greatly affected the education sector as one of the sectors that has coexisted with this development. Online learning is no longer confined to a specific region or a specific level of education. This is what prompted researchers to study the mechanism of enhancing the quality of online learning, especially in light of crises, particularly the Covid-19 crisis**.**

Al-Salim and Aledwan (2021) “The relationship between academic integrity of online university students and its effects on academic performance and learning quality”. This

study examined the relationship between academic integrity, academic performance, and learning quality among online university students. 155 active online university students were contacted through email to collect data. The results indicated that there is a statistically significant correlation between the academic integrity of online students and the quality of their academic learning.

Saleem et al. (2022) “Factors Affecting the Quality of Online learning During COVID-19: Evidence From a Developing Economy**”.** this study Assessed the parameters influencing the quality of online education for Pakistani students during the COVID-19 pandemic. Developing countries like Pakistan present a unique scenario for online education as the general public has limited access to technology, ICT services and the internet. In this paper, the aspects that influence students' online learning process are integrated with situational factors as boundary conditions (moderator variables). Results showed that university support, teacher support, and motivational factors influence the quality of online learning. The relationship between teachers' supportive and motivating factors and the quality of online learning was significantly influenced by context. Situational factors did not affect the quality of university support or online learning connections.

Ambayed Hiba Khalil (2020) “Analysis E-Learning Status in Palestinian Universities, A Case Study of Palestine Technical University- Kadoorie Tulkarm”, The researcher tried to analyze the reality of e-learning in Palestine Technical University-Khudouri/Tulkarem, she identified the most significant challenges students face when using the educational system, as well as analyzing the degree to which university students interact with the E-learning system, and showed that e-learning is a viable option for higher education. According to the study's findings, 63.16% of those surveyed think that E-learning in universities actually has a number of issues.

According to the survey, complaints about the E-learning system have increased among respondents (87.97%) since the Covid 19 pandemic, and among academics (81.36%), the infrastructure was one of the biggest obstacles to E-learning. While the majority of researchers (63.934%) believe that e-learning can help students interact with one another.

Hinawi and barahmi (2015) "Assessing the capabilities of the faculty members in e-learning at Al- Quds Open University from their viewpoint". This study intends to assess faculty members' e-learning abilities at Al-Quds Open University and to identify their actuality in light of various factors during the second semester of the 2013–2014 academic year. The study population was 1709 faculty members and a stratified random sample was taken from the university's faculties and used by the researcher. 573 academic participants, or 33% of the study population, made up the sample. Eight axes with 128 sub-axes were established by the researchers along with a questionnaire containing a number of independent variables. The study's findings showed that the faculty members at Al- Quds Open University scored highly overall in the area of E-learning, and that there are statistically significant differences between them at the level of significance (a=0.05) due to their backgrounds in college, professional experience, and teaching experience.

Andez-Batanero (2022) “Online education in higher education: emerging solutions in crisis times”**.** The research attempted to examine and characterize the transition from in-person to online learning as well as how teachers and students felt about the epidemic. The study was developed using the PRISMA statement- and PICoS strategy-supported methodology using Web of Science, Scopus, ERIC, and PsycINFO to find relevant scientific literature. 29 studies out of 241 found throughout the search have

been included. The findings demonstrated that online education was a viable alternative for the growth of higher education, but many flaws in the shift to online education were also discovered. The study's findings suggest that higher education will move toward online instruction in the future. Institutions should therefore increase their investments in online learning platforms and enhance their programs for teacher training.

Otifi, et al. (2022) “Evaluation of the effect of COVID-19 mandated shift to virtual teaching on medical students’ performance at King Khalid University, Abha**”.** This study's primary goal was to evaluate how medical students' academic performance in general and systemic pathology courses was affected by the switch to a virtual learning environment. The results of a quiz and practical exam completed by the identical groups of students before the switch to virtual classrooms were compared to the results of a second quiz and practical exam taken after several weeks of virtual instruction. The data was analyzed using SPSS software, and the paired t-test was employed to assess the hypotheses. The 103 students who were selected for the survey received a brief electronic survey (N = 103). In order to learn more about the targeted students' e-learning experiences at this time, a survey was also conducted with them. Findings indicate that 84% of respondents would want to continue using e-learning in the teaching and learning process even when normalcy has been restored, and 60% of students overall found their experience with it to be worthwhile. The pupils performed noticeably better on the post-virtual assessments than on the pre-virtual tests.

Adam and Metljak (2022) Experiences in distance education and practical use of ICT during the COVID-19 epidemic of Slovenian primary school music teachers with different professional experiences**.** The aim of this study was to determine how the professional experience of music teachers affected the use of ICT in Slovenian primary schools before and after the declaration of the COVID-19 epidemic. Descriptive, causal

and non-experimental basic research methods were combined with quantitative research strategies. A 14-day online survey was developed and distributed to primary school music teachers in Slovenia through multiple media. A total of 83 Slovenian primary school music teachers participated in this study. Results showed that less-experienced people are more familiar with ICT compared to experienced music teachers. The effectiveness, motivation, and quality of learning objectives are now greatly influenced by the innovative use of ICT by primary school music teachers.

Al-Mawee et al. (2021) “Student’s perspective on distance online learning during COVID-19 pandemic: A case study of Western Michigan University, United States”, The study's objectives included identifying the variables that affect students' experiences and examining the effects of student and college characteristics on views of online learning, as well as exchanging knowledge and experiences that could positively affect distance online learning at WMU. Through the official website of Western Michigan University, Qualtrics, the survey was delivered online. All WMU students, professors, and staff had access to the Qualtrics platform, a potent platform for survey design, through the WMU's official website. Students received information on informed consent and a link to the survey via university email.

The survey included 420 undergraduate and graduate students at Western Michigan University who enrolled in various online learning courses in the 2019-2020 school year. In-person or hybrid classes are preferred by many students, especially freshmen, over online programs. There are other reports that faculty and students generally prefer hybrid or mixed programs. Students spoke of positive and negative experiences with distance online learning, including loss of social interaction and time and place flexibility.

Previous studies addressed the impact of some factors on the quality of online learning during the Covid-19 pandemic. These studies did not fully address these factors, and this is considered a large gap between the current study and previous studies. By addressing the full set of factors that affect the quality of e-learning, there is a vision. Comprehensively about the mechanism of attention to all these factors in any future plan to enhance comprehensive quality. Currently, all factors are affected and affect others, and this is what makes studying them together a scientific advantage for this study.

2.8 Summary

In this chapter, a number of previous studies directly related to the content of the research were presented, which helped the researcher to reach a clear scientific vision about the completion of this research, in addition to addressing the factors that affect the quality of online learning in detail.

CHAPTER 3: RESEARCH METHODOLOGY

3.1. Introduction

The research approach, study population, study sample, sampling process, and data collection tools are all introduced in this chapter along with the research methodology for the study.

3.2. Research Approach

To satisfy the objectives of the study, it relied on the descriptive analytical method based on theoretical literature and related studies, in addition to developing a tool (questionnaire) to be used in collecting data and analyzing it quantitatively.

3.3. Study Population and sampling

The target population for this research is defined to include all PPU students from different colleges which equal 9300, by computing the study sample which equal 369 , this means 369 or more measurements/surveys are needed to have a confidence level of 95% that the real value is within ±5% of the measured/surveyed value.

3.4 Instruments for Data Collection

To examine the study questions researcher designed a questionnaire as one of the data collection instruments for this study.

3.5 Questionnaire

A questionnaire is a method of gathering data that consists of a list of questions that participants must respond to (Patra, 2019). Every kind of closed-ended question is included in the questionnaire created for this study. There were two primary portions of the questionnaire. Participants' gender, degree of schooling, and other personal details were asked about in Section 1. Respondents were to provide their response on a

5-point Likert scale in section 2. The range values on the 5-point Likert scale should be regarded as numerical values, as the Table 1. illustrates.

Table 3. Likert scale

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

The study questionnaire is presented in Appendix A.

3.6 Questionnaire Validity

Experts from various educational fields, including professors and lecturers, were given copies of the questionnaire along with a abstract of the study objectives and questions to assess the questionnaire's content validity during the tool's validation process. These specialists thoroughly reviewed the questionnaire statements to ensure that the instrument was appropriate for the intended use. They recommended making some changes to a few of the questionnaire's items. Every important observation was made.

3.7 Pilot Test

A pretesting survey was conducted prior to the release of the final questionnaire in order to make sure that the statements were understandable to respondents and to identify any potential weak points. For a pilot test, Lancaster et al. (2004) state that a sample size of at least thirty individuals is sufficient.

The internal consistency validity method was used to calculate the correlation coefficients between the degree of each statement and the degree of the dimension to which it belongs, by applying the modified tool to a survey sample consisting of 40 students at the PPU from the study population and outside the sample, for the purpose

of ensuring the validity of the study tool and its extent. The coherence of the statements in each dimension is as shown in the following Tables 2 and 3.

Table :4 Pearson correlation coefficients between the score of the statements and the total score of the dimension to which it belongs in the dimension

Administrative Support		Computer Skills		System Quality		Online services	
N	P	N	ρ	N	P	N	P
1	.780**	1	.867**	1	.831**	1	.617**
2	.803**	2	.890**	2	.869**	2	.683**
3	.749**	3	.832**	3	.751**	3	.788**
4	.705**	4	.881**	4	.813**	4	.866**
5	.740**	5	.873**	5	.891**	5	.879**
6	.660**			6	.842**	6	.894**
7	.893**			7	.918**	7	.790**
				8	.804**	8	.836**

ρ: Correlation coefficient

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 5: Pearson correlation coefficients between the score of the statement and the total score of the dimension to which it belongs in the dimension

Course Content		Online learning motivations		Quality of Online learning	
N	P	N	P	N	ρ
1	.918**	1	.677**	1	.807**

2	.933**	2	.736**	2	.878**
3	.870**	3	.768**	3	.838**
4	.850**	4	.671**	4	.857**
5	.783**	5	.685**	5	.705**
6	.815**	6	.815**	6	.848**
7	.699**	7	.836**	7	.806**
8	.753**			8	.607**
				9	.809**

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

3.8 Questionnaire Reliability

By estimating whether the items reflect similar outcomes if the instrument is utilized at different times under similar settings, the reliability of the tool is determined. Cronbach's Alpha, a statistical test, is used to express this. Alpha has a total value of 80%. Table 5 displays the Cronbach's Alpha measures for each section of the questionnaire. According to Hair et al. (2014), the outcomes validate the instrument's reliability.

Table 6: Results Of Cronbach's Alpha for Instrument Reliability

Questionnaire Part	Number Of Items	Cronbach's Alpha
Administrative Support	7	.894
Computer Skills	5	.932
System Quality	8	.889
Online services	8	.882

Course Content	8	.887
Online learning motivations	7	.889
Quality of Online learning	9	.898
Total Degree for The Instrument	**52**	**.894**

3.9 Data Gathering and Analysis Technique

The questionnaire was archived electronically and shared by PPU students in various colleges. It was filled out accurately within a period of 15 days, and 403 questionnaires were processed, suitable for statistical analysis.

To evaluate the data, IBM SPSS statistical software version 26 was utilized. This study employed two statistical methods for data analysis: inferential statistics and descriptive statistics. A subfield of statistics known as descriptive statistics deals with techniques for arranging and condensing unstructured data into formats like tables, graphs, and numerical summaries. This improves comprehension of the facts and offers a useful presentation method. Conversely, the area of statistics known as inferential statistics deals with extrapolating conclusions from a sample to the population that was used for the sample. With this method, the likelihood of drawing the wrong conclusion is calculated, and the generalizations' dependability is evaluated (Peck et al., 2008). The researcher employed the following statistical tools to look into research questions:

1. Frequencies and percentages to depict the features of the sample.
2. The sample's responses are described using the mean and standard deviation, where the mean represents the central value of a group of numbers and the standard deviation represents the spread of a set of values.

3. Simple and multiple regression computed to show the effects of independents variables on dependent variables (online learning quality)

Every point on the 5-point Likert scale has a weighted average that is determined by the researcher. By deducting the first scale's value from the last scale's value (5 − 1 = 4), the range may be calculated. Since the result is the highest value on the scale (4 ÷ 5 = 0.8), it is then divided by five. The weighted average of the first scale was then determined by adding the scale's minimum value, which is 1. Table // displays the weighted average for each scale.

Table 7: Mean Weighted Average

Scale	Weighted Average	Adjusted
Strongly Disagree	1 – 1.80	**Low**
Disagree	1.81 – 2.60	
Neutral	2.61 – 3.40	**Moderate**
Agree	3.41 – 4.20	**High**
Strongly Agree	4.21 – 5	

3.10 Summary

This chapter examined the methodologies approach, which was used to study the research problem from multiple angles, as well as the overall framework of the research strategy. The study population and sample selection procedure were also thoroughly covered. The design and application of data recording techniques were also covered. Additionally, certain research findings were given. Chapter 4 will provide the data analysis and results of the data that was gathered.

CHAPTER 4: RESULTS ANALYSIS

4.1. Introduction

Analyzing the data gathered is essential to achieve the study goals and provide answers to the research questions. In this chapter, the results of the research are presented, analyzed, and discussed. Based on the questionnaire's results, a quantitative analysis of the data was conducted based on the study sample's demographic information. The study variables' means and standard deviations were calculated as well. Finally, a simple regression analysis models was created and its shows the effect of independent variables on the dependent variable. Table .6. shows demographic data as follow:

Table 8: Demographic Data

Variable	Category	Frequency	Percent
Sex	Male	118	29.3
	Female	285	70.7
	Diploma	57	14.1
Education	Bachelor	327	81.1
	Master	14	3.5
	PHD	5	1.2
	Beginner	47	11.7
English proficiency	Intermediate	283	70.2
	High	73	18.1
College discipline	Scientific	171	42.4
	Administrative	131	32.5
	Social	36	8.9
	Professional	65	16.1

Computer availability for	Available	333	82.6
personal use	Unavailable	70	17.4
Internet accessibility for	Yes	353	87.6
personal use	**No**	**50**	**12.4**
	3G-4G	82	20.3
Internet access technology	ADSL	99	24.6
	Viber	173	42.9
	Other	49	12.2
	Low	23	5.7
Computer usage ability	Intermediate	171	42.4
	High	209	51.9
	Practical	30	7.4
Type of courses	Theoretical	68	16.9
	Mixed	305	75.5
	City	244	60.5
Residence	Town	71	17.6
	Village	84	20.8
	Camp	4	1.0
Total		**403**	**100%**

Demographic data contributes to giving a clear view of the composition of students at the university. Through this data, a clear framework can be reached about the mechanism for developing policies to enhance the quality of online learning.

The results of the demographic data for the study sample showed that 70.7% of the study sample are female, where 29.3% are male. These results indicate that females are more responsive to participating in expressing their opinion about this study, additionally also indicate that the number of females more than males at the PPU. Moreover, globally females more familiar with online education services. It was also found that there were 14.1% of diploma holders, 81.1% of bachelor's, 3.5% of master's, and 1.2% of doctorate. The lion's share of student sample holder bachelor degree.

Regarding English language skills, which are considered of great importance in online learning, it was found that 11.7% of the study sample have a basic level of the language, 70.2% have an intermediate level, and 18.1% of the sample have a high level of the English language. This mean that the majority of student have intermediate level in English language.

Concerning to the college which the students enrolled, the above table shows that there are 42.4% of scientific colleges, 32.5% of administrative colleges, 8.9% of the college of social sciences, and 16.1% of vocational colleges.

It was shown from the above data about the study sample members owning a personal computer that 82.6% have a personal computer, 17.4% do not own a computer. Computer as an educational tool is available in hand of students. As for access to Internet services, it was found that 87.6% of the study sample have access to Internet services, while there are 12.4 %They cannot access the Internet. Today internet access in Palestine not a problem.

As for the Internet technology that the student accesses, the results indicated that 20.3% of the sample members access 3G-4G technology, while 24.6% of the study sample uses ADSL, 42.9% of the study sample uses Viber, and finally 12.2% uses other technology. .

As for the ability to use the computer, it was found that 5.7% of the study sample had low ability, 42.4 had medium ability, while 51.9% had high ability to use the computer. This ensure that the online learning experience success in PPU although some drawbacks.

It was shown in the table above regarding the type of academic course that there were 7.4% of the study sample who had a practical course, 16.9% who had a theoretical course, and finally that there were 75.5% who had a combined practical and theoretical course. Online learning serves combined practical and theoretical course, so that students in PPU not facing obstacles in follow lessons.

Finally, with regard to the place of residence of students, it is clear from the table above that there are 60.5% of the study sample residing in cities, 17.6% of the study sample residing in towns, 20.8% residing in villages, and 1% of the study sample members residing in camps**.**

Computer skills are considered one of the important factors in online-learning. The tremendous development in the technology and communication sector has revealed many challenges for educational staff and students alike. The tremendous acceleration in online learning technologies, especially in light of the Covid-19, has opened many horizons for learning new skills that enhance the ability to follow... Distance education is easy and simple, away from complications. The Table .7. shows the percentage of PPU students possessing various computer skills.

Table 9: PPU student's computer Skills

Computer Skills	**Fre**	**%**
Internet	11	2.7
Internet, social communication	11	2.7
Internet, social communication, google meet	12	3.0

Internet, social communication, zoom	1	.2
Internet, social communication, zoom, google meet	25	6.2
Internet, google meet	4	1.0
Internet, zoom, google meet	7	1.7
Social communication	19	4.7
Social communication, google meet	3	.7
Social communication, zoom, google meet	9	2.2
Google meet	58	14.4
Zoom	3	.7
Zoom, google meet	16	4.0
Microsoft office	14	3.5
Microsoft office, internet	5	1.2
Microsoft office, internet, social communication	6	1.5
Microsoft office, internet, social communication, google meet	20	5.0
Microsoft office, internet, social communication, zoom, google meet	**150**	**37.2**
Microsoft office, internet, google meet	8	2.0
Microsoft office, internet, zoom	1	.2
Microsoft office, internet, zoom, google meet	3	.7
Microsoft office social communication	4	1.0
Microsoft office social communication, zoom, google meet	5	1.2
Microsoft office, google meet	6	1.5
Microsoft office, zoom, google meet	2	.5
Total	403	100%

Based on the information contained in the Table.7 about computer use skills by students at PPU, it was shown that there is a percentage of 37.2% of the students in the study sample who know Microsoft office, internet, social communication, zoom, google meet, moreover, in second place there are 14.4% who know Google meet, in other words, overall students in PPU have extensive knowledge of computer skills, which qualifies them to rely on them in online learning processes.

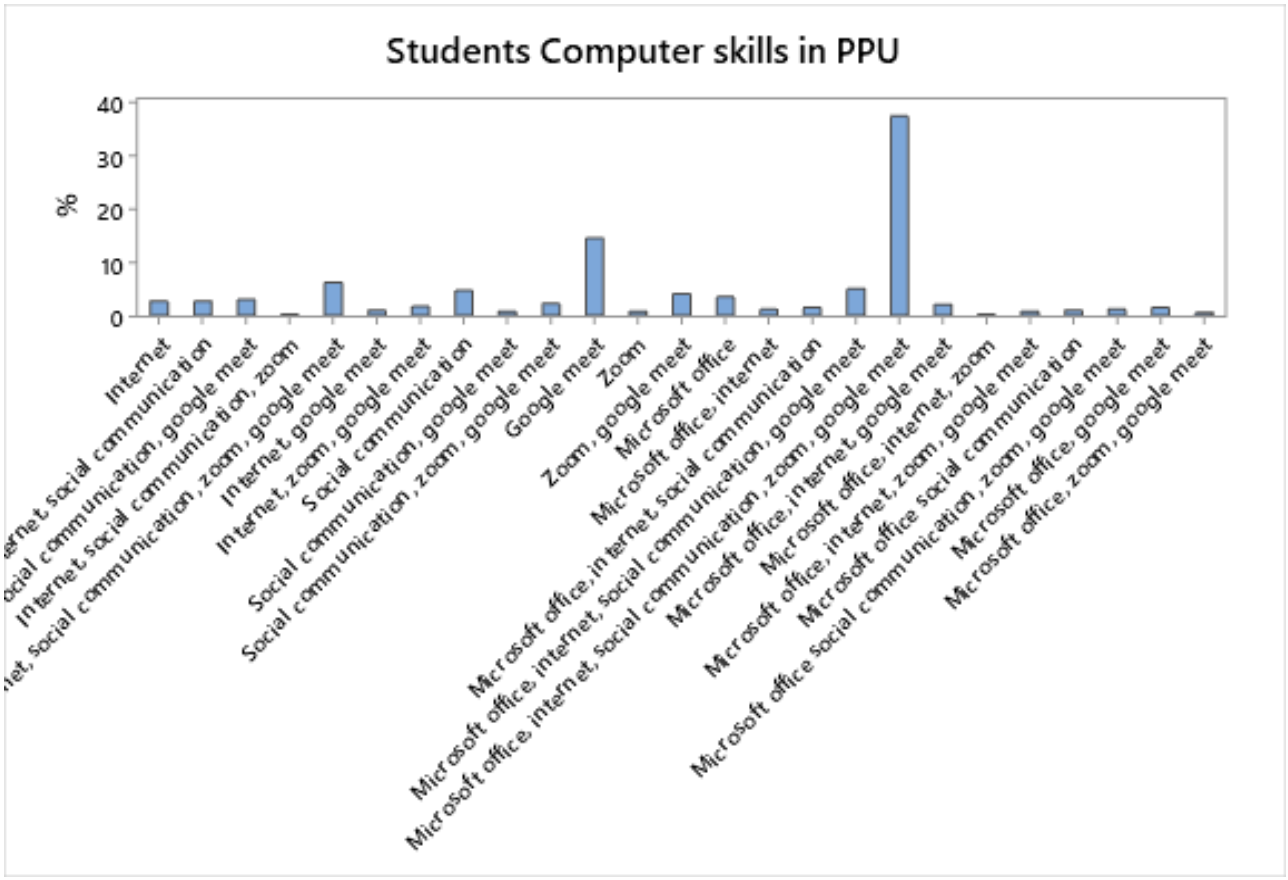

Figure.2. Percentages student's computer skills in PPU

4.2 Means and Standard Deviation of Tool Items

In a questionnaire, construct validation can be achieved by the use of basic descriptive statistics such as mean and variance. To determine if the items in each proposed grouping provide roughly the same amount of information about the construct being

measured, the item mean and item standard deviation were applied. It is also used to check if the standard deviations of the items are about comparable, meaning that each item adds the same amount to the overall scale score. Stated otherwise, the means and standard deviations of the items should be approximately equal on a Likert scale.

Using a subjective scoring method called a Likert scale, respondents can indicate how much they agree with the item's point of view. Larger sample sizes yield better results when using means. The standard deviation (SD) is a commonly used statistical measure of variability. It displays the degree of deviation from the mean (average). Whereas a high SD suggests that the data are dispersed throughout a wide range of values, a low SD suggests that the data points often tend to be near the mean. Based on Likert scale, the degree of importance is less than 2.59 as low, 260-3.39 as moderate and from 3.40 to 5 as high**.**

Table 10: Means and Std of Administrative Support

No	Item	Mean	STD	Degree
1	PPU provides online platform to access the textbooks and reference materials	3.11	1.093	Moderate
2	The administrators adequately address constructive feedbacks of online learning	3.05	.977	Moderate
3	PPU Adequacy of administrative support leading to participate online learning	2.97	1.110	Moderate
4	PPU has a clear and systematic procedure in an online admission and registration department	3.49	.976	high
5	PPU administrators conducts primary meetings with learners	2.78	1.097	Moderate
6	PPU provides financial aid/assistance to online learners	2.88	1.132	Moderate

7	PPU assesses the learner willingness and readiness for online learning	2.77	1.174	Moderate
	Total	**3.0053**	**.76899**	**Moderate**

It appears from Table .8 that the means for the administrative support items at PPU are of average values, and that the item on clarity of procedures for admission and registration via electronic services obtained a high arithmetic mean, and that the overall mean is 3.005, which is of a moderate degree, and this indicates that the support The administrator at a university finds it important in the university's general policies towards achieving comprehensive quality in online learning, especially after the end of the Corona pandemic.

Table 11: Means and STD of Computer Skills

No	Item	Mean	STD	Degree
1	I have high the ability to browse online information	4.03	.890	High
2	I have the ability to share digital content	3.95	.911	High
3	I have ability to use online meeting platforms (Zoom, MS Teams, Skype etc.).	4.14	.772	High
4	I employ Abilities to use online communication platforms (e-mail, chatting, etc.)	4.06	.814	High
5	I have Computer skills to use software and programs efficiently	3.90	.982	High
	Total	4.0154	.72911	High

The Table.9 shows that the means for the items of the computer skills variable among PPU students are high, and that the overall arithmetic mean is 4.015, which is a high

degree. This indicates that the students have high skills in using the computer. Accordingly, computer skills play a major role in the quality of online learning.

Table 12: Means and STD of System Quality

No	Item	Mean	STD	Degree
1	PPU students are Satisfied with technical support	2.62	1.033	moderate
2	PPU students are Satisfied with IT services	2.64	1.071	moderate
3	PPU students are Satisfied with student affairs office	2.63	1.070	moderate
4	PPU provides a digital-library access to worldwide academic resources	2.71	1.109	moderate
5	PPU trains students on online skills to enable them understand courses easily	2.64	1.112	moderate
6	Technological facilities in PPU have advantages on education quality	2.78	1.088	moderate
7	PPU provide students with temporary training linked to online learning tools	2.50	1.073	low
8	Digital manual of online learning helps students to follow courses	2.81	1.063	moderate
	Total	**2.6650**	**.84627**	**moderate**

The results of the means for the system quality variable, as shown in Table 10, indicate that the majority of them are average, that the section on training students on e-learning tools is low, and that the overall mean is 2.66, which is of a moderate degree. Accordingly, those working in the field of education quality within PPU provides appropriate training.

Table 13: Means and STD of Online services

No	Item	Mean	STD	Degree
1	Interaction with colleagues of my degree course	3.77	.957	high
2	Interaction with instructors	3.46	1.012	high
3	Interaction with administrative staff	3.09	1.029	moderate
4	Satisfaction with online classes	2.46	1.174	low
5	Satisfaction with online tutorials/seminars and practical classes	2.65	1.148	moderate
6	Satisfaction with online supervisions (mentorships)	2.72	1.104	moderate
7	The online learning platform is user-friendly to install and operate from student side	3.48	1.098	high
8	Minimum system requirements and proper technical support provided for online learning	2.91	1.036	moderate
	Total	**3.0661**	**.76960**	**moderate**

The means for the electronic services items in Table .11 showed that there are three items with a high degree, there are paragraphs with the highest degree with a moderate degree, and the fourth item regarding students' satisfaction with electronic lessons has a low mean, and the overall arithmetic mean is 3.066 with a moderate degree, and this disparity in the values of the mean is an indicator that there is a discrepancy in the evaluation of electronic services by students.

Table 14: Means and STD of Course Content

No	Item	Mean	STD	Degree
1	Proper learning materials provided in the online learning	2.96	1.073	moderate

2	The supporting modules given in online learning for the content are simple to understand	2.96	1.020	moderate
3	Online learning promotes the student's critical thinking, analysis, and problem-solving	2.66	1.156	moderate
4	There is a suitablonline learning outcome to the course that can be done through online learning	2.67	1.083	moderate
5	The class work and assignments conducted by online learning are sufficient	3.18	1.191	moderate
6	PPU provide students with enough practical courses	2.80	1.159	moderate
7	Interaction with instructors in PPU lead to facilitate content of course	3.76	1.076	high
8	Supervision in PPU courses increased the students' responsibilities	3.59	1.041	high
	Total	**3.0713**	**.79910**	**moderate**

The results of the means for the educational content showed that these means are at moderate degrees, the seventh and eighth paragraphs are at a high mean, and the overall mean is 307, which is at a moderate degree. This indicates that there is a trend towards greater interest in the educational content displayed electronically.

Table 15: Means and STD of Online learning motivations

No	Item	Mean	STD	Degree
1	The instructor provides the guidance I need to be successful in online learning classes	3.22	1.062	moderate

2	The instructor responds to questions, clearly, completely, and in a timely manner	3.40	1.082	moderate
3	I freely communicate with the instructor in online learning classes	3.04	1.142	moderate
4	PPU students are very interested in the content area of online courses	3.00	1.136	moderate
5	I freely communicate with other students in online learning classes	3.53	1.068	high
6	Flexibility of PPU online courses schedule supports students to more attendance.	3.12	1.224	moderate
7	Flexibility of online lecture makes online learning more comfortable to me	3.03	1.267	moderate
	Total	**3.1918**	**.82831**	**moderate**

The results of the means for the online learning motivations variable showed that there are two items whose means are high and the rest of the items are at a moderate degree, and that the overall mean is 3.19, which is at a moderate degree. This indicates that there is great importance for online learning motivations on the quality of online learning at the PPU.

Table 16: Means and STD of Quality of Online learning

No	Item	mean	STD	Degree
1	Online learning raises the level of students' attainment and makes it enjoyable	2.42	1.170	low

2	Online learning improves the instructor's presentation of contents and activities	2.61	1.203	moderate
3	Online learning enhances the bonding between instructors and learners	2.45	1.131	low
4	Online learning is more user friendly and convenient for instructor and learner than traditional learning	2.41	1.240	low
5	Online learning enables the instructor to record the lecture to be accessed later by students	3.97	.997	high
6	Online learning provides two-way communication and cooperation among students	3.27	1.019	moderate
7	Traditional learning continuity in crises fails to achieve the objectives	3.07	1.154	moderate
8	Traditional learning mainly focuses on memorizing	3.06	1.232	moderate
9	Online learning mainly depends on critical thinking	2.85	1.051	moderate
	Total	**2.9018**	**.79711**	**moderate**

The results of the means for the dependent variable on the quality of online learning PPU showed that there are four items whose means are low and the rest of the items are at a moderate degree, and that the overall mean is 2.90, which is a moderate degree. This confirms that the quality of online learning at the university has a high priority, especially since there is a plan A strategy towards giving the quality of online learning a great opportunity towards reaching a distinguished educational institution.

4.3: Simple Regression results

In order to determine the impact of independents factors (administrative support, etc.…) on the online learning quality at PPU, a simple regression analysis was conducted,

Simple regression is considered one of the statistical mechanisms that explain the deviation in the dependent variable as a result of the deviation of the independent variable by one unit. Since the study hypotheses address the effect of each independent variable on the dependent variable, this mechanism is considered the most appropriate in order to measure the effect of each variable independently of other variables and its effect on the dependent variable.

1- Does administrative support affect online learning quality at PPU?

A simple linear regression model was employed to examine the relationship between administrative support and online learning quality. This model, as outlined in Agresti and Finlay (2014), can be expressed as follows:

$$\text{Online learning quality} = \text{Constant} + \beta\text{adminstrative support} + e$$

Where 'Online learning quality' is the dependent variable, 'administrative support' is the independent variable, 'β' represents the regression coefficient, 'Constant' represents the intercept, and 'e' represents the error term

$$\text{Online learning quality} = 1.05 + 0.594\ \text{adminstrative support} + 0.64$$

R= 0.59	***t***	***=8.14***	***t=14.78***
	Sig	***(0.00)***	***(0.00)***

Based on statistical results, if PPU increase administrative support by 1 unit this leads to increase online learning quality by 0.594 unit. Where e is standard error. Our study consistent with Pedro and Kumar (2020).

2- Do computer skills affect online learning quality at PPU?

$$\text{Online learning quality} = \text{Constant} + \beta\text{computer skills} + e$$

$$\text{Online learning quality} = 1.868 + 0.235\text{computer skills} + e$$

R= 0.23	***t =8.62***	***t=4.85***	
Sig	***(0.00)***	***(0.00)***	

It was shown from the above results that increasing the computer skills of employees in PPU one unit contributes to the quality of online learning by an amount equivalent to 0.235 units. This indicates that computer skills are greatly important in educational quality. The acquisition of multiple skills by academic workers facilitates and helps students in the easy acquisition of knowledge. Our result consistent with Al-Bourini et al. (2020).

3- Does system quality affect online learning quality at PPU?

$$\text{Online learning quality} = \text{Constant} + \beta\text{system quality} + e$$

$$\text{Online learning quality} = 1.33 + 0.62\ \text{system quality} + e$$

R= 0.62	***t=12.9***	***t=16.0***	
Sig	***(0.00)***	***(0.00)***	

The results of simple regression analysis showed that the quality of the system has a significant impact on the quality of e-learning, as the quality of the system reflects the general policy of the educational system, as increasing the quality of the system by one unit increases the quality of online learning by the equivalent of 0.62 units. Our results consistent with Xiaoxia Li and Wanxia Zhu (2022).

4- Do online services affect online learning quality at PPU?

$$\text{Online learning quality} = \text{Constant} + \beta\text{online services} + \text{e}$$

$$\text{Online learning quality} = .696 + 0.695\text{online services} + \text{e}$$

R= 0.69		***t=5.9***	***t=19.3***
	Sig	***(0.00)***	***(0.00)***

It was demonstrated through testing the impact of university electronic services on the quality of online learning. The results of the statistical analysis showed that increasing electronic services by one unit is reflected in the quality of online learning by one unit, and this indicates that electronic services play a major role in the quality of e-learning. This result consistent with Sutherland et al. (2019).

5- Does the course content and design affect online learning quality at PPU?

$$\text{Online learning quality} = \text{Constant} + \beta\text{course content and design} + \text{e}$$

$$\text{Online learning quality} = 0.836 + 0.674\text{course content and design} + \text{e}$$

R= 0.67		***t=7.16***	***t=18.3***
	Sig	***(0.00)***	***(0.00)***

Through the above simple regression statistical analysis to determine the impact of educational content on the quality of online learning in PPU, it was found that increasing the educational content by one unit contributes to the impact on the quality of online learning by an amount equivalent to 0.67, meaning that educational content

has a significant impact on the quality of e-learning in PPU. Our result consistent with Phipps and Merisotis (2000).

6- Do motivations (training, rewards, …, etc.) affect online learning quality at PPU?

$$\text{Online learning quality} = \text{Constant} + \beta\text{motivations} + \text{e}$$

$$\text{Online learning quality} = 0.832 + 0.674\text{motivations} + \text{e}$$

R= 0.67	***t***	***=7.10***	***t=18.2***
	Sig	***(0.00)***	***(0.00)***

Through simple regression analysis, it was found that increasing motivations in PPU by one unit leads to an increase in the quality of online learning by an equivalent to 0.674. This confirms that incentives have a significant impact on the development and quality of education. Our result consistent with Selvi (2010).

CHAPTER 5: RESULTS DISCUSSION AND RECOMMENDATIONS

5.1 Results Discussion

This study aimed to identify the impact of the quality of online learning on many factors in the period following the Corona pandemic. The researcher worked on using simple regression, with regard to administrative support, which is considered the most important factor in e-learning. The results indicated that this factor has an impact on the quality in online learning is due to the fact that administrative support enhances quality through employees possessing many administrative skills, which help in providing the educational service appropriately and without any obstacles or problems that cause stress to students.

Additionally, better administrative assistance at PPU helps faculty members feel more loyal and like they belong, which frees them up to focus on efficiently presenting the course material. This finding was in line with Mulhem's 2020 study. However, it differs from previous research, particularly that conducted in underdeveloped nations, in that it showed how crucial administrative assistance is for e-learning, particularly in the wake of the coronavirus outbreak.

Given that e-learning is primarily high computer skills, the results of the study on the influence of computer skills on the quality of e-learning at universities indicated that computer skills play a significant role in improving education. Quick interaction with e-learning tools improves students' comprehension of the course material and helps them build their academic skills by utilizing the vast amount of information available on the Internet, which is comparable to what they studied electronically.

The learner can accumulate information through computer skills in e-learning over time, which helps him overcome many obstacles in the first place and leads to improving the standard of instruction is subpar. The study's findings mostly agreed with the Enakrire, 2024, which verified that having computer abilities improves the caliber of online learning.

The quality of the educational system is considered one of the important factors in enhancing the quality of educational outcomes. Through the quality of the system, all educational processes go smoothly and lead to strengthening the mechanism of continuous improvement. The results of the simple regression test showed and impact of the quality of the system on the quality of education, as it was found that the quality of the system has a positive impact on the quality of education, and these results agreed with the findings of Pham et al, 2019, where the quality of the system plays a major role in the continuity of the quality of the educational system.

The quality of traditional education is related to the quality of educational services. In contrast, the quality of online learning depends directly and significantly on innovative electronic services, which contribute significantly to efficient delivery processes. The online learning process is characterized as a dynamic process, meaning that it expands to deal with what is modern in the field of education. With reference to the results of the study above, it turns out that there is a positive and statistically significant relationship with electronic services and the quality of online learning at PPU, and this is largely due to the fact that the university has the readiness to absorb everything that is new in the field of electronic services, and these results agreed with Alawlaqi and Albliwi (2022).

The design of educational content is considered a strong indicator of the quality of education. In recent years, many universities gave the design of educational content a great importance in increasing the quality of online learning. The content is a true reflection of the educational institution. The more important the course content includes the comprehensive knowledge that enable students to high performance, as a result this consider the output of academic quality standards.

To determine the effect of the design of the educational content on the quality of e-learning at PPU, a simple regression analysis was conducted. The results indicated that the effect of the design of the educational content on the quality of e-learning is high, and this confirms that Content design has a positive impact on the quality level. This result is consistent with Pham et al, 2019.

Motivations, whether material or moral, are considered one of the elements that contribute to increasing the quality of online learning at PPU. Incentives contribute to enhancing loyalty and belonging to the institution. The more comprehensive the incentives are, the more achievement can be increased by the institution, and this would greatly enhance motivation toward work. This result is consistent with Huang and Wang (2023).

5.2 Conclusion

The results of the study showed the following:

1 - There is a positive and statistically significant effect of administrative support on the quality of e-learning in a university after the Corona pandemic, as increasing administrative support by one unit contributes to the overall quality by an amount equivalent to 0.59.

2 -The results of the statistical analysis showed that computer skills have a positive impact on the quality of e-learning at a university, as it was found that increasing

computer skills by the equivalent of one unit contributes to quality by the equivalent of 0.23, and this low value indicates that computer skills are distributed among elements other than the quality of education.

2 -It was found, through testing the effect of system quality on the quality of e-learning at a university, that there is a statistically significant relationship and that increasing the quality of the system, which represents the backbone of the educational institution, by the equivalent of one unit, contributes to the quality of e-learning by the equivalent of 0.62.

3 -The results of the study showed that electronic services have a significant impact on the quality of e-learning, as the quality of services has a direct and rapid impact on the entire educational process. It was shown through the analysis that increasing electronic services by the equivalent of one unit contributes to the quality of e-learning by an amount equivalent to 0.69, and this This is due to the fact that electronic services are closely linked to the quality of e-learning. Increasing a modern electronic service within the PPU, such as the ability of students to access the university library's database and view all books and references electronically, would greatly enhance the quality.

4 -The results of the analysis indicated that educational content plays a major role in the quality of e-learning at PPU. The quality of the content and its integration greatly enhances the quality of e-learning, as it was found that increasing and diversifying the educational content by the equivalent of one unit contributes to the quality of e-learning by the equivalent of 0.67. This is due to the ability of educational content to achieve academic satisfaction, which contributes to student satisfaction and thus increases quality.

5 -It was shown through the above analysis that incentives, whether material or moral, have a significant impact on the quality of e-learning at a university. It has been shown

that increasing incentives by the equivalent of one unit contributes to increasing quality by approximately 0.67, and this is due to the fact that incentives work to activate students. To learn everything new in the field of e-learning and thus increase quality.

In general, quality elements contribute greatly to increasing the quality of e-learning PPU in the post-Corona pandemic period. This is due to the fact that the university has a clear strategy towards continuous development on the one hand and its connection to relations with foreign universities that make it interested in enhancing the quality of e-learning on the other hand.

Table 17: summary of results (factor affecting online leaning quality at PPU)

Factor	Impact on Online Learning Quality	Regression Coefficient (β)	Statistical Significance	Comparison with Previous Research
Administrative Support	Positive and significant	0.594	Yes ($p < 0.05$)	Consistent with Pedro & Kumar (2020)
Computer Skills	Positive, but less significant	0.235	Yes ($p < 0.05$)	Consistent with Al-Bourini et al. (2020)
System Quality	Positive and significant	0.62	Yes ($p < 0.05$)	Consistent with Xiaoxia Li and Wanxia Zhu (2022)
Online Services	Positive and significant	0.695	Yes ($p < 0.05$)	Consistent with Sutherland et al. (2019)
Course Content & Design	Positive and significant	0.674	Yes ($p < 0.05$)	Consistent with Phipps and Merisotis (2000)
Online Learning Motivations	Positive and significant	0.674	Yes ($p < 0.05$)	Consistent with Selvi (2010)

5.3 Recommendations

Based on the above results, the researcher recommends the following:

1. **Establish a Dedicated Online Learning Quality Unit:**
    - Create a specialized unit focused on implementing and promoting the latest educational policies related to online learning quality.
    - This unit should be staffed with skilled professionals capable of leading the initiative within six months.
    - Consider including strategies to address the digital divide:
        - Conduct regular assessments of students' access to technology and internet connectivity.
        - Develop targeted initiatives to provide laptops, tablets, or internet access to students in need.
2. **Prioritize Comprehensive Quality Improvement:**
    - PPU should focus on enhancing the quality of academic services holistically, not just in isolated areas.
    - This includes maintaining high international academic standards.
    - Integrate digital access and inclusion:
        - Ensure that all online learning materials and platforms are accessible to students with disabilities.
        - Develop strategies for supporting students who might require assistive technology.
3. **Benchmark Against Developed Countries:**
    - Focus on replicating successful online learning models from developed countries to enhance PPU's quality.

- Learn from their best practices and avoid replicating the challenges faced by developing countries.
- Pay special attention to accessibility:
    - Study how developed countries address the digital divide and make their online learning systems inclusive.

4. **Implement Ongoing Training and Development:**
    - Organize regular educational and training workshops on e-learning that are inclusive and tailored to the needs of PPU's diverse community.
    - Equip employees with the latest online skills.
    - Address digital literacy gaps:
        - Include training on essential digital skills, such as online safety, critical thinking, and information literacy, to help students navigate the digital world effectively.
    - Incorporate AI and Chatbot Concepts:
        - Recommendation: Develop a comprehensive professional training reference guide that incorporates the latest in AI, Chatbot technology, and other relevant digital trends, emphasizing the skills needed for effective online teaching and learning in this new era.
        - This reference guide should be a valuable resource for faculty members, supporting them in integrating these emerging technologies into their courses and online teaching practices.
5. **Boost Motivation and Engagement:**
    - Enhance the role of incentives, both material and moral, to increase interest in online learning and improve its effectiveness.

- Cultivate a culture of quality and excellence in online learning throughout the staff.
- Consider using technology to enhance motivation:
    - Utilize gamification, interactive learning platforms, and other engaging technologies to keep students motivated.

6. **Emphasize Continuous Improvement:**
    - Recognize that quality in online learning is a fundamental requirement, not an optional strategy reserved for crises.
    - Promote a dynamic approach to education that adapts to ongoing technological advancements.
    - Prioritize ongoing research:
        - Regularly assess the impact of online learning on student outcomes and identify areas for improvement.
7. **Invest in Talent Acquisition:**
    - Prioritize recruiting and retaining educational staff who can quickly acquire online learning skills.
    - Invest in talent development programs to ensure that faculty members have the skills needed to deliver effective online instruction.
    - Address the needs of online educators:
        - Provide specific training and support for online faculty members to ensure they have the necessary resources and skills to succeed.

By embracing this comprehensive approach, PPU can implement a robust online learning strategy that addresses the digital divide, ensures quality and accessibility for all, and positions itself as a leader in online education.

REFERENCES:

Alawlaqi, Arwa Hussein and Saja Ahmed Albliwi(2022) A Study on Factors Affecting the Electronic Service Quality in Higher Education in Light of Covid-19 Pandemic from Students Perspectives, European Online Journal of Natural and Social Sciences 2022; Vol.11, No 3 pp. 703-713.

Alea, L.A., Fabrea, M.F., Roldan, R.D.A. and Farooqi, A.Z. (2020), "Teachers' Covid-19 awareness, distanconline learning education experiences and perceptions towards institutional readiness and challenges", International Journal of Learning, Teaching and Educational Research, Vol. 19 No. 6, pp. 127-144

Almaiah, M.A., Al-Khasawneh, A. and Althunibat, A. (2020), "Exploring the critical challenges and factors influencing the E-learning system usage during COVID-19 pandemic", Education and Information Technologies, Vol. 25, pp. 5261-5280.

Al-Mawee, W., Kwayu, K. M., & Gharaibeh, T. (2021). Student's Perspective on Distanconline learning During COVID-19 pandemic: A case study of Western Michigan University, United States. International Journal of Educational Research Open, 2, 100080. https://doi.org/10.1016/j.ijedro.2021.100080.

Almbayed, H., (2020) Analysis E-Learning Status in Palestinian Universities, A Case Study of Palestine Technical University- Kadoorie Tulkarm, Palestine technical university research journal, 2020, 8(3), 154-178.

AlMulhem, A and Shuyan Wang (2020) Investigating the effects of quality factors and organizational factors on university students' satisfaction of e-learning system quality, *Cogent Education*, v7, n1 Article 1787004 2020.

Alqahtani MA, Alamri MM, Sayaf AM, Al-Rahmi WM.(2022) Exploring student satisfaction and acceptance of e-learning technologies in Saudi higher education. Front Psychol. 2022 Oct 10;13:939336. doi: 10.3389/fpsyg.2022.939336. PMID: 36300075; PMCID: PMC9589496.
Ayoub/Al-Salim, M.I. and Aladwan, K. (2021), "The relationship between academic integrity of online university students and its effects on academic performance and learning quality", Journal of Ethics, Entrepreneurship and Technology, Vol. 1 No. 1, pp. 43-60. https://doi.org/10.1108/JEET-02-2021-0009.

Bellini, M. I., Pengel, L., Potena, L., Segantini, L., & ESOT COVID-19 Working Group. (2021). COVID-19 and education: restructuring after the pandemic. Transplant International, 34(2), 220-223.

Bohak Adam, T., & Metljak, M. (2022). Experiences in distance education and practical use of ICT during the COVID-19 epidemic of Slovenian primary school music teachers with different professional experiences. Social Sciences & Humanities Open, 5(1), 100246. https://doi.org/10.1016/j.ssaho.2021.100246.

Chen, T.; Peng, L.; Yin, X.; Rong, J.; Yang, J.; Cong, G. Analysis of User Satisfaction with Online Education Platforms in China during the COVID-19 Pandemic. Healthcare 2020, 8, 200. https://doi.org/10.3390/healthcare8030200.

Chopra G, Madan P, Jaisingh P, Bhaskar P. Effectiveness of e-learning portal from students' perspective: A structural equation model (SEM) approach. Interactive Technology and Smart Education. 2019; 26(1): 160–175. https://doi.org/10.1108/ITSE-05-2018-0027.

Cidral WA, Oliveira T, Di Felice M, Aparicio M. (2018) E-learning success determinants: Brazilian empirical study. Comput Educ. 2018; 122: 273–290. https://doi.org/10.1016/j.compedu.2017.12.001.

Daniel, J. (2020). Education and the COVID-19 pandemic. Prospects. Retrieved from https://link.springer. com/article/10.1007/s11125-020-09464-3.

Daniel, S. J. (2020). Education and the COVID-19 pandemic. Prospects, 49(1), 91–96.

Davies, T.L. Cotton, V.K. and Korte, L. (2016), "Student usage and perceptions of the value of recorded lectures in a traditional face-to-face (F2F) class [PDF]", Journal of College Teaching and Learning. Retrieved September 13, 2020, available at: https://files.eric.ed.gov/fulltext/EJ1108348.

DeLone, W. H., and McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten year update. J. Manag. Inf. Syst. 19, 9–30. doi: 10.1080/07421222.2003.11045748.

Ebner, M., Sch€on, S., Braun, C., Ebner, M., Grigoriadis, Y., Haas, M., Leitner, P. and Taraghi, B. (2020), "COVID-19 epidemic as E-learning boost? Chronological development and effects at an Austrian university against the background of the concept of E-Learning Readiness", Future Internet, Vol. 12 No. 6, p. 94.

EL-Harazin, F. Mikki, M. and Abu Day'yah, Y. (2007). Collaborative Team e-Learning for Peace E-learning Vision and Beyond, 4th Annual Conference of Learning International Networks Consortium (LINC), October 28-30, 2007, Amman.

Enakrire, R.T. (2024) The usefulness of computer skills for enhanced teaching and learning among lecturers in an open distance e-learning (ODEL) environment. Educ Inf Technol (2024). https://doi.org/10.1007/s10639-024-12519-z.

Favale, T., Soro, F., Trevison, M., Drago, I. and Mellia, M. (2020), "Campus traffic and e-learning during COVID-19 pandemic", Computer Networks, Vol. 176, p. 107290.

Fernández-Batanero, J. M., Montenegro-Rueda, M., Fernández-Cerero, J., & Tadeu, P. (2022). Online education in higher education: emerging solutions in crisis times. Heliyon, 8(8), e10139. https://doi.org/10.1016/j.heliyon.2022.e10139.

Gupta et al. (2023) Online assessment techniques adopted by the university teachers amidst COVID-19 pandemic: A case study, Social Sciences & Humanities Open 8(1):100579, DOI:10.1016/j.ssaho.2023.100579.
Hasan, N. and Bao, Y. (2020), "Impact of 'e-Learning crack-up' perception on psychological distress among college students during COVID-19 pandemic: a mediating role of 'fear of academic year loss'", Children and Youth Services Review, Vol. 118, p. 105355.

Hinnawi, Magdi and Barahmeh, Nadera (2015) "Assessing the Capabilities of the Faculty Members in ELearning at Al- Quds Open University from their Viewpoint," Palestinian Journal for Open Learning & eLearning: Vol. 5 : No. 9 , Article 1.

Huang, Y., Wang, S. How to motivate student engagement in emergency online learning? Evidence from the COVID-19 situation. *High Educ* **85**, 1101–1123 (2023). https://doi.org/10.1007/s10734-022-00880-2.

Kerres, M., & Buchner, J. (2022). Education after the pandemic: What we have (not) learned about learning. Education Sciences, 12(5), 315.

Keržič D, Alex JK, Pamela Balbontín Alvarado R, Bezerra DDS, Cheraghi M, Dobrowolska B, Fagbamigbe AF, Faris ME, França T, González-Fernández B, Gonzalez-Robledo LM, Inasius F, Kar SK, Lazányi K, Lazăr F, Machin-Mastromatteo JD, Marôco J, Marques BP, Mejía-Rodríguez O, Méndez Prado SM, Mishra A, Mollica C, Navarro Jiménez SG, Obadić A, Raccanello D, Rashid MMU, Ravšelj D, Tomaževič N, Uleanya C, Umek L, Vicentini G, Yorulmaz Ö, Zamfir AM, Aristovnik A. Academic student satisfaction and perceived performance in the e-learning environment during the COVID-19 pandemic: Evidence across ten countries. PLoS One. (2021) Oct 20;16(10):e0258807. doi: 10.1371/journal.pone.0258807. PMID: 34669757; PMCID: PMC8528294.

Keshavarz, M. H. (2020). A Proposed Model for Post-Pandemic Higher Education. Budapest International Research and Critics in Linguistics and Education (BirLE) Journal, 3(3), 1384-1391.

Kuznekoff, J.H. (2020), "Online video lectures: the relationship between student viewing behaviors, learning, and engagement", Association for University Regional Campuses of Ohio, available at: https://doi.org/http://search.ebscohost.com/login.aspx?direct=true&db=ehh&AN=143181442& site=ehost-live.

L. Li, (2014) "Analysis of psychological factors affecting the quality of online learning," Advanced Materials Research, vol. 926–930, pp. 4461–4464, 2014.

Lederman, D. (2020), "Most teaching is going remote. Will that help or hurt online learning? j inside higher ed", available at: www.insidehighered.com/digital-

learning/article/2020/03/18/mostteaching-going-remote-will-help-or-hurt-online-learning.

Lockee, B.B. (2021) nOnline education in the post-COVID era. *Nat Electron* **4**, 5–6 (2021). https://doi.org/10.1038/s41928-020-00534-0.

M. Apte, S. Dange (2022), A study of effectiveness of online education in pandemic period in pune city, Design, Modelling and Fabrication of Advanced Robots, 1 (1) (2022), pp. 62-66, 10.46632/dmfar/1/1/10.

M. Roh, Y. Won (2023)Impact of online-delivered EHealth literacy intervention on EHealth literacy and health behavior outcomes among female college students during COVID-19 International Journal of Environmental Research and Public Health, 20 (3) (2023), p. 2044, 10.3390/ijerph20032044.

Maslov, I. and Nikou, S. (2020), "Usability and UX of learning management systems: an eye-tracking approach", 2020 IEEE International Conference on Engineering, Technology and Innovation (ICE/ITMC), IEEE, pp. 1-9.

Otifi, H. M., Hassan, H. M., & Andarawi, M. O. (2023). Evaluation of the effect of COVID-19 mandated shift to virtual teaching on medical students' performance at King Khalid University, Abha. Journal of Taibah University Medical Sciences, 18(2), 331–336. https://doi.org/10.1016/j.jtumed.2022.09.005.

Ozadowicz, A. (2020), _ "Modified blended learning in engineering higher education during the COVID-19 lockdown—building automation courses case study", Education Sciences, Vol. 10 No. 10, p. 292.

Ożadowicz, A. Modified Blended Learning in Engineering Higher Education during the COVID-19 Lockdown—Building Automation Courses Case Study. Educ. Sci. 2020, 10, 292. [Google Scholar] [CrossRef].

Pandey, D., Ogunmola, G. A., Enbeyle, W., Abdullahi, M., Pandey, B. K., & Pramanik, S. (2021). COVID-19: A framework for effective delivering of online classes during lockdown. Human Arenas, 1-15.

Paudel, P. (2021). Online education: Benefits, challenges and strategies during and after COVID-19 in higher education. International Journal on Studies in Education, 3(2), 70-85.

Pham, L., Limbu, Y.B., Bui, T.K. et al. (2019) Does e-learning service quality influence e-learning student satisfaction and loyalty? Evidence from Vietnam. Int J Educ Technol High Educ 16, 7 (2019). https://doi.org/10.1186/s41239-019-0136-3.

Rabayah, K. S., Awad, S. and Abdel Kareem, N. (2008). Palestinian ICT Market Liberalization Economic Analysis and Future Roadmap, Report to Information Technology Association (PITA), Ramallah, Palestinian Territories.

Riyadh Bin AbdulRahman Al Hassan (2021) Education Under the Corona Pandemic, Challenges, and Solutions: A Global and Local View from the

Organization for Economic Co-Operation and Development, journal of educational science, Volume, 33 , Number 3 , Riyadh, Saudi Arabia , pp 579- 613.

Saidam, S. (2007). Knowledge and e-governance building in conflict affected societies: Challenges and mechanisms. ICEGOV2007, Macao, China, ACM.

Saleem F, AlNasrallah W, Malik MI and Rehman SU (2022) Factors Affecting the Quality of Online learning During COVID-19: Evidence From a Developing Economy. Front. Educ. 7:847571. doi: 10.3389/feduc.2022.847571.
Santos, J., & Santos, J. (2003). Managing Service Quality Emerald Article : E-service quality : a model of virtual service quality dimensions E-service quality : a model of virtual service quality dimensions. https://doi.org/10.1108/09604520310476490.

Satuti, J. R., Sunaryanto, S., & Nuris, D. (2020). Does Student Satisfaction Mediate the Correlation between E-learning Service Quality, Academic Engagement and Academic Achievement? Www.semanticscholar.org.

https://www.semanticscholar.org/paper/Does-Student-Satisfaction-Mediate-the-Correlation-Satuti-Sunaryanto/51c3e69e3bc31ee67eddccca1639bf62bc63d497
Selvaraj, A., Radhin, V., Nithin, K. A., et al. (2021). Effect of pandemic based online education on teaching and learning system. International Journal of Educational Development, 85, 102444. doi:10.1016/j.ijedudev.2021.102444..

Selviyanti et al.,(2021) Model of developing key performance indicator to increase the quality of education during the Covid-19 pandemic. Journal of Physics: Conference Series. IOP Publishing, 1832. http://dx.doi.org/10.1088/1742-6596/1832/1/012030.

Shahzad A, Hassan R, Aremu AY, Hussain A, Lodhi RN. (2021) Effects of COVID-19 in E-learning on higher education institution students: the group comparison between male and female. Qual Quant. 2021;55(3):805-826. doi: 10.1007/s11135-020-01028-z. Epub 2020 Aug 4. PMID: 32836471; PMCID: PMC7402545.

Spencer, K. (2023). WHO says Covid remains a global emergency, but pandemic could near its end in 2023. https://www.cnbc.com/2023/01/30/who-says-covid-remains-a-global-emergency-but-pandemic-could-near-its-end-in-2023.html.

Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG2015) http://www.enqa.eu/wp-content/uploads/2015/11/ESG_2015.pdf.

T. Crew, M. Olivia (2023) Social sciences & humanities open students ' views and experiences of blended learning and employability in a post-pandemic context, Vol. 8 (2023), 10.1016/j.ssaho.2023.100583.
Wu et al., (2021) Perceptions of medical students towards and effectiveness of online surgical curriculum: A systematic review, BMC Medical Education, 21 (1) (2021), pp. 1-8, 10.1186/s12909-021-03014-x.

Xie, X., & Siau, K. (2020). Online education during and after COVID-19 pandemic. In 26th Americas Conference on Information Systems (AMCIS 2020) (p. 93). Association for Information Systems.

Zhu, X., & Liu, J. (2020). Education in and after COVID-19: Immediate responses and long-term visions. Postdigital Science and Education, 2, 695-699.

Zuheir Khlaif, Saida Affouneh, Soheil Salha (2021) The Bright and Dark Sides of Online learning in Palestine During the Pandemic, in Challenges and Opportunities for the Global Implementation of E-Learning Frameworks. DOI: 10.4018/978-1-7998-7607-6.ch003.

Shraim, Khitam, and Zuheir Khlaif. "An E-Learning Approach to Secondary Education in Palestine: Opportunities and Challenges." Information Technology for Development, vol. 16, no. 3, July 2010, pp. 159–173.

Khlaif, Zuheir N., et al. "Emergency Remote Learning during COVID-19 Crisis: Students' Engagement." Education and Information Technologies, vol. 26, no. 6, 27 Apr. 2021, https://doi.org/10.1007/s10639-021-10566-4.

ockee, B.B. (2021). Online education in the post-COVID era. Nature Electronics, 4, 5–6. https://doi.org/10.1038/s41928-020-00534-0
Bellini, M. I., Pengel, L., Potena, L., Segantini, L., & ESOT COVID-19 Working Group. (2021). COVID-19 and education: restructuring after the pandemic. Transplant International, 34(2), 220-223.
Kerres, M., & Buchner, J. (2022). Education after the pandemic: What we have (not) learned about learning. Education Sciences, 12(5), 315. https://doi.org/10.3390/educsci12050315

APPEDIXES:

Appendix A: survey

Factors Affecting the Quality of University Online learning Post Covid-19 Pandemic: A Case Study of Palestine Polytechnic University Students

Dear PPU students

This study aims to identify the factors that affect the quality of online - **Learning Post Covid-19 Pandemic** at Palestine Polytechnic University from students' perspective. Accordingly, the researcher addresses this questionnaire to you, hoping that you will answer paragraphs due to their great importance in scientific research. We highly appreciate your cooperation and we would like to inform you that all data will only be used for scientific purposes only.

Thank you for your kind response.

Researcher

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2023

First: Demographic data , choose your answer by (✓).

Gender:

Male ☐ Female ☐

Level of Course:

Diploma ☐ Bachelor ☐ Master☐ PHD☐

English proficiency:

Beginner ☐ Intermediate ☐ High ☐

College discipline:

Scientific ☐ Administrative ☐

Computer availability for personal use:

Available ☐ unavailable ☐

Internet accessibility for personal use:

Yes ☐ No ☐

Internet access technology:

3G-4G ☐ ADSL ☐ Viber ☐ Other ☐

Computer usage ability:

Low ☐ Intermediate ☐ High ☐

Type of courses:

Practical ☐ Theoretical ☐ Mixed ☐

Computer skills type:

Microsoft office ☐ Internet ☐ Social media ☐

Zoom ☐ Google meet ☐

Residence:

City ☐ Town ☐ Village ☐ Camp ☐

Second: statements about online learning quality factors

***Administrative Support*:** prestigious university achieved high performance in online learning by administrative support factors.

No	Item	Strongly agree	Agree	Neutral	Not agree	Strongly not agree
1	PPU provides online platform to access the textbooks and reference materials					
2	The administrators adequately address constructive feedbacks of online learning					
3	PPU Adequacy of administrative support leading to participate online learning					
4	PPU has a clear and systematic procedure in an online admission and registration department					
5	PPU administrators conducts primary meetings with learners					
6	PPU provides financial aid/assistance to online learners					

7	PPU assesses the learner willingness and readiness for online learning					

***Computer Skills*:** computer skills have a significant role in online learning during Covid_19 in UUP.

No	Item	Strongly agree	Agree	Neutral	Not agree	Strongly not agree
1	I have high the ability to browse online information					
2	I have the ability to share digital content					
3	I have the ability to use online collaboration platforms (Zoom, MS Teams, Skype etc.). I have ability to use online meeting platforms (Zoom, MS Teams, Skype etc.).					
4	I employ Abilities to use online communication platforms (e-mail, chatting, etc.)					
5	I have Computer skills to use software and programs efficiently					

***System Quality*: today education quality one of the main determinants successful education systems**

No	Item	Strongly agree	Agree	Neutral	Not agree	Strongly not agree
1	PPU students are Satisfied with technical support					
2	PPU students are Satisfied with IT services					
3	PPU students are Satisfied with student affairs office					
4	PPU provides an e-library access to worldwide academic resources PPU provides a digital-library access to worldwide academic resources					
5	PPU trains students on online skills to enable them understand courses easily					
6	Technological facilities in PPU have advantages on education quality					
7	PPU provide students with temporary training linked to online learning tools					
8	Digital manual of online learning helps students to follow courses					

***Online services*:** universities which follow online learning enhance online services as a whole. To what extent does each of the following points affect online learning

No	Item	Strongly agree	Agree	Neutral	Not agree	Strongly not agree
1	Interaction with colleagues of my degree course					
2	Interaction with instructors					
3	Interaction with administrative staff					
4	Satisfaction with online classes					
5	Satisfaction with online tutorials/seminars and practical classes					
6	Satisfaction with online supervisions (mentorships)					
7	The online learning platform is user-friendly to install and operate from student side					
8	Minimum system requirements and proper technical support provided for online learning					

***Course Content*: course content considers the road map of distinguish universities.** To what extent does each of the following points affect the course content

No	Item	Strongly agree	Agree	Neutral	Not agree	Strongly not agree
1	Proper learning materials provided in the online learning					
2	The supporting modules given in online learning for the content are simple to understand					
3	Online learning promotes the student's critical thinking, analysis, and problem-solving					
4	There is a suitablonline learning outcome to the course that can be done through online learning					
5	The class work and assignments conducted by online learning are sufficient					
6	PPU provide students with enough practical courses					
7	Interaction with instructors in PPU lead to facilitate content of course					
8	Supervision in PPU courses increased the students' responsibilities					

***Online learning motivations*:** motivations represent the framework which leads to high performance in distinguishing the education system.

No	Item	Strongly agree	Agree	Neutral	Not agree	Strongly not agree
1	The instructor provides the guidance I need to be successful in online learning classes					
2	The instructor responds to questions, clearly, completely, and in a timely manner					
3	I freely communicate with the instructor in online learning classes					
4	PPU students are very interested in the content area of online courses					
5	I freely communicate with other students in online learning classes					
6	Flexibility of PPU online courses schedule supports students to more attendance.					
7	Flexibility of online lecture makes online learning more comfortable to me					

Quality of Online learning: the main factor of successful Online learning is quality , quality induce educational instructions toward more developments.

No	Item	Strongly agree	Agree	Neutral	Not agree	Strongly not agree
1	Online learning raises the level of students' attainment and makes it enjoyable					
2	Online learning improves the instructor's presentation of contents and activities					
3	Online learning enhances the bonding between instructors and learners					
4	Online learning is more user friendly and convenient for instructor and learner than traditional learning					
5	Online learning enables the instructor to record the lecture to be accessed later by students					
6	Online learning provides two-way communication and cooperation among students					

7	Traditional learning continuity in crises fails to achieve the objectives					
8	Traditional learning mainly focuses on memorizing					
9	Online learning mainly depends on critical thinking					