A'SHARQIYAH UNIVERSITY

College of Business Administration

Master Dissertation

Examining the relationship between University Student's Behavioral Intention and E-learning In Oman.

Prepared By:

Mujahid Mohammed Amor Al-Barwani

1442 AH/ 2021 AD

Examining the relationship between University student's behavioral intention and e-learning in Oman

Submitted to College of Business Administration in fulfillment of the requirement for the degree of Master of Business Administration

Prepared by:

Mujahid Mohammed Amor Al-Barwani

1442 AH/ 2021 AD

Thesis Approval

Examining the relationship between University student's behavioral intention and e-learning in Oman

Prepared By:

Mujahid Mohammed Amor Al-Barwani

This dissertation was defended on……. and approved.

Supervisor

Dr. Fadi Abdel Fattah

Committee Members

	Name	Signature
1.	Dr. Fadi Abdel Fattah (Supervisor)	……..
2.		……..
3.		……..
4.		……..

Acknowledgment

I acknowledge that the source of the scientific content of this dissertation has been determined and that it is not provided for any other degree, and that it reflects the opinions of the researcher, which are not necessarily adopted by the donor.

Researcher:

Name:

Mujahid Mohammed Amor Al-Barwani

Signature:

Dedication – Thanks and Appreciation

I dedicate my thesis work to my beloved family. A special thanks and gratitude to my father and mother, who always encouraged me throughout my journey to obtain my master's certificate and always believed in me. My loving wife was always there next to me, supporting me to complete my studies.

Also, I would like to dedicate this dissertation to my brothers and sister, who always supported me with their prayers and encouraging words. Furthermore, to my friends who always supported me with their prayers and encouraging words.

A special thanks to my supervisor Dr. Fadi Abdel Fattah, for his continuous support and guidance in completing my thesis. To all my lecturers who put time and effort into developing my skills and knowledge.

Thank you all

Abstract

Examining the relationship between University student's behavioral intention and e-learning in Oman

This study investigates the three main factors affecting E-learning implementation in Higher Education Institutions (HEIs) in Oman. Curriculum, Faculty, and ICT infrastructure are the main three factors under student's behavioral intention, they are used to examine their relationship with the quality of e-learning education. A quantitative research method was used to research questions, and hypotheses were built based on the reviewed literature and to answer the research questions and test the hypothesis. A total of 240 students selected randomly from different HEI in Oman have participated in filling a questionnairedeveloped to collect required data related to Examining the relationship between University student's behavioral intention and e-learning in Oman. SPSS data analysis application was used to analyze the collected data.

Based on the outcome of data analysis, it is proven that there is a positive but weak relationship between Student Behavioral intention factors (Curriculum, Faculty, and ICT Infrastructure) and E-learning (Quality of E-learning education). Recommendations are provided to HEIs in chapter five to help them improve their service quality and provide better education to students. HEIs in Oman must understand student's perspectives in terms of their expectations regarding the quality of education they receive, especially with the sudden shift from traditional in-classroom education to e-learning in order for them to enhance their services. This study provides a road map to HEIs in Oman to improve the quality of e-learning education and understand students' perspectives.

Key Words: Students behavioral intention, Higher Education Institutes in Oman, HEIs, Curriculum, Faculty, ICT infrastructure, Quality, E-learning, Education.

ملخص الدراسة

دراسة العلاقة بين النية السلوكية لطلبة الجامعات و التعليم الالكتروني في عمان

هدفت هذه الدراسة الى التحقق من العوامل الرئيسية الثلاثة التي تؤثر على تنفيذ التعلم الالكتروني في مؤسسات التعليم العالي في عمان. تعتبر المناهج الدراسية وأعضاء هيئة التدريس والبنية التحتية لتكنلوجيا المعلومات والاتصالات هي العوامل الثلاثة الرئيسية في إطار نية الطلاب السلوكية، ويتم استخدامها لفحص علاقتها بجودة التعليم الالكتروني. تم بناء أسئلة البحث والفرضيات بناء على الادبيات التي تمت مراجعتها وللإجابة على الأسئلة واختبار الفرضيات، تم استخدام أسلوب البحث الكمي. شارك ما مجموعه 240 طالبا تم اختيارهم عشوائيا من مختلف مؤسسات التعليم العالي في عمان لملء استبيان تم تطويره لجم البيانات المطلوبة المتعلقة بتأثير النية الطلابية السلوكية على التعلم الإلكتروني في عمان. تم استخدام تطبيق SPSS لتحليل البيانات التي تم جمعها.

استنادا الى نتائج تحليل البيانات، ثبت ان هنالك علاقة إيجابية ولكنها ضعيفة بين عوامل النية السلوكية للطلاب (المناهج الدراسية، وأعضاء هيئة التدريس، والبنية التحتية لتكنلوجيا المعلومات والاتصالات) والتعلم الالكتروني (جودة تعليم التعلم الالكتروني). تم تقديم التوصيات لمؤسسات التعليم العالي في الفصل الخامس من البحث العلمي والتي ستساعدهم على تحسين جودة خدماتهم وتوفير تعليم أفضل للطلاب. من المهم ان تفهم مؤسسات التعليم العالي في عمان منظور الطالب من حيث توقعاتهم فيما يتعلق بجودة التعليم الذي يتلقونه خاصة مع التحول المفاجئ من التعليم التقليدي في الفصول الدراسية الى التعليم الالكتروني من اجل تعزيز خدماهم.–تقدم هذه الدراسة خارطة طريق لمؤسسات التعليم العالي في عمان حول كيفية تحسين جودة التعليم الالكتروني المفدم للطلاب وفهم منظور الطالب.

الكلمات الدالة: النية السلوكية للطلاب، مؤسسات التعليم العالي في عمان، المنهج التعليمي، أعضاء هيئة التدريس, البنية التحتية لتكنلوجيا المعلومات والاتصالات, الجودة, التعلم الالكتروني, التعلم.

Table of Contents

List of Tables

List of Figures

List of Abbreviations

E-Learning	Electronic Learning
MoHE	Ministry of Higher Education
MoHERI	Ministry of Higher Education, Research and Innovation
OAAA	Oman Academic Accreditation Authority
HEIs	Higher Education Institutions
SPSS	Statistical Package for Social Sciences
No.	Number
ASTD	American Society for Training and Development
ICT	Information and Communication Technology
ISAM	Institutional Standards Assessment Manual
IT	Information Technology
CET	Center for Educational Technology
ISA	Institutional Standards Assessment
ISAA	Institutional Standards Assessment Application
SAR	Standard Assessment Report
SQU	Sultan Qaboos University

Chapter One

Introduction

1.1 Study Background

Education in Sultanate of Oman was limited to teaching Quran and principles of the Islamic religion, the Arabic language, and Arithmetic, and all were taught in mosques (البوابة التعليمية, 2019). In 1940, the first school was built in Muscat the current capital of Sultanate of Oman after the birth of His Majesty late Sultan Qaboos Bin Said (تطور التعليم في سلطنة عمان: التعليم قبل النهضة, 2012). Before 1970, the Sultanate of Oman did not have any higher education institutions, and the demand for that has been increasing ever since (Carroll, Razvi, Goodleiffe & Al-Habsi 2009). In his first speech on July 23, 1970, His Majesty Sultan Qaboos said, "Yesterday it was complete darkness, and with the help of God, tomorrow will be a new dawn on Muscat, Oman, and its people. I promise you to proceed forthwith in the process of creating a modern government. My first act will be the immediate abolition of unnecessary restrictions on your lives and activities. My people, I will proceed as quickly as possible to transform your life into a prosperous one with a bright future" to show the people of Oman that he will work hard to improve their lives, education was one of the main pillars of development when he said "Education and training human is a laborious process. Yet, it is a necessary process. We shall, for our part, spare no effort to provide opportunities for the training of Omani's at all levels of education" in 1991 at Sultan Qaboos University (An Inspiration to Us All - Oman Observer, 2020).

The Ministry of Higher Education (MoHE) was founded in 1994; it dedicated time and effort to prepare the foundation of Higher education to serve the population growth and the increasing demand for education in different domains (Governance, 2019). As per the royal decree No. 98/2020, the name of MoHE changed to Ministry of Higher Education, Scientific research and Innovation (MoHERI) (Ministry of Higher Education, Scientific Research and Innovation, 2020). The main objectives of MoHERI are to prepare the Omani manpower in the best way possible to participate in enhancing the Omani economy and fulfill the plans to improve the country, to focus and improve the scientific researches that in return will develop the economic wheel and solve the problems of society, to utilize the

latest technology in managing and connecting higher Education Institution's (HEIs) to provide better service quality and to help qualified people get suitable jobs and make the most out of their knowledge and make it easy for them to pursue their higher education further in an easy way with different methods, for example, learning from a distance(Omanportal, 2019). With the establishment of MoHERI, the number of HEIs in Oman has grown dramatically; there are 60 in Oman (Al'Abri, 2019).

Due to the changes in the world we live in and the advancement in technology, HEIs must cope with the changes and come up with new methods to meet the increasing demand for education all over the world; e-learning was the outcome of the technological advancement where each HEIs had to adopt in order to provide educational services based on their environments(Of & Acm, 2004).

We live in a world that keeps changing dramatically fast; new knowledge is required to keep up with the rapid changes and meet the job requirements. Traditional education or in-classroom education is limited to a particular type of knowledge. It cannot diversify and extend the required information or knowledge to students since the amount of knowledge required to fill the job market is increasing so fast, students or even employees need to gain knowledge faster in order to keep up with the job market (Muthurman, Veerasamy & Al-Hazaizi, 2020).

Due to the rapid revolution in technology and computer networking, this revolution impacts the traditional way of teaching. E-learning or education from a distance replaces the traditional way of education where neither students nor lecturers must be physically present in a classroom (Uppal, Ali & Gulliver, 2018). As defined by the American Society for Training and Development (ASTD), e-learning is the delivery of education through the internet from a distance thanks to the advancement in computers and networking; e-learning is considered to be the next killer application since it will have a significant impact on the cost of organizations and HEIs and it will provide courses based on demand and courses can be updated consistently (DeRouin, Fritzsche & Salas, 2005).

This study aims to examin the relationship between studentss' behavioral intention and its effect on the quality of E-learning education in Oman. COVID-19 is a virus that affects the whole world, and it has a significant impact on the educational sector. Because of the Corona virus, the education sector was entirely closed for a long time. Since the pandemic

is taking so long and it is impossible to determine when it will end, HEIs have to switch from traditional education in classrooms to education from a distance. (Tawafak, AlFarsi, Jbbar, Malik, Mathew, AlSidiri, Shakir & Romli, 2021).

Many factors affect the quality of e-learning education in Oman; this study will focus on three main factors (Curriculum, Faculty, and ICT infrastructure). As part of services quality, the students' feedback can be an essential tool to enhance the service provided (Mestrovic, 2017).

1.2 Problem Statement

Oman Academic Accreditation Authority (OAAA) has prepared an Institutional Standards Assessment Manual (ISAM) to govern the quality of education in HEIs. This manual sets the quality requirement for each HEI in Oman to follow to deliver a better-quality service in terms of Higher Education, and each HEI will have to go through the assessment every five years. Those standards were a result of a benchmarking exercise that was carried out against applied standards in other leading countries but at the same time was made to go with the Omani culture (Academic et al., 2016).

Ever since the announcement of the COVID-19 virus worldwide, the number of infected people has increased dramatically, and the number of deaths is increasing; this infected many sectors, including the educational sector (Osman, 2020).

This research examins the relationship between the factors affecting the student's behavioral intentions (Curriculum, Faculty, and ICT infrastructure) and the quality of E-learning service provided by HEIs during the COVID-19 pandemic in Oman.

The main research question is to identify how the main factors affect the quality of E-learning education in Oman.

1.3 Research Questions

Based on the problem statement and the research question "What are the main factors affecting the e-learning quality," three sub-questions were raised:

RQ1: What is the relationship between curriculum and quality of E-Learning in Oman.

RQ2: What is the relationship between faculty and quality of E-learning in Oman.

RQ3: What is the relationship between ICT infrastructure and quality of E-learning in Oman.

1.4 Research Objectives

Based on the research main and sub-questions, the research objectives are as following:

RO1: To Examin the relationship between Curriculum and Quality of E-learning in Oman.

RO2: To Examin the relationship between Faculty and Quality of E-learning in Oman.

RO3: To Examin the relationship between ICT infrastructure and Quality of E-learning in Oman.

1.5 Significant of the Study

Higher Educational Institutions (HEIs) must understand the factors affecting students' behavioral intentions to use e-learning systems instead of the traditional way of education to improve their services, attract more students, and increase student retention. HEIs face a significant challenge where they cannot fulfill their task in communication required education to students due to the change in market requirement and learners needs (Mestrovic, 2017).

This research will examin the relationship between the main factors affecting the quality of E-learning (Curriculum, Faculty, and ICT Infrastructure) in Oman. It will show students' ability to attend the on-line classes and help the HEIs provide them with the required services to help them gain an education. This study will help HEIs recognize how to attract more students to their institutions, identify the required services to enhance the quality of education delivered from a distance, and maintain talents and define human capital investments.

1.6 Operation Definitions

E-Learning: the utilization of electronic media in delivering education to the student's through the internet instead of in classrooms (Sangrà, Vlachopoulos & Cabrera, 2012). Lawless (2018) defines e-learning as using electronic devices such as computers, tablets, or mobile smartphones in communicating and delivering education.

Behavioral intention: the actual behavior or belief of a user that will affect his or her actions towards a subject (Gu, Lee & Suh, 2009). Davis (1989) defined behavioral intention as beliefs that will affect or determine a person's behavior towards a phenomenon.

Curriculum: Mulenga (2018) defined curriculum as a program or the road map of education containing the knowledge carried out to students. The curriculum is the roadmap for lecturers to show what should be taught to students to ensure that they gain the required knowledge and skills, it should be assessed, and required materials should be supporting it (Curriculum Definition, 2021).

Faculty: Several lecturers who deliver education to students in schools/HEIs.(Difference Between Faculty and Staff (with Comparison Chart) - Key Differences, 2017). Faculty are the teachers who teach in HEIs (Rockwell, Schauer, Fritz & Marx, 2000).

Information and Communication Technology Infrastructure (ICT Infrastructure): is a set of hardware and software components that helps communication between end-users (What Is IT Infrastructure? - Definition from Techopedia, 2013).

Quality of E-Learning: Quality is driven by standards set to meet specific requirements that will lead to service excellence (Schindler, Elvidge, Welzant & Crawford 2015).

1.7 Thesis Structure

Figure 1 gives a summary of the chapters in this research.

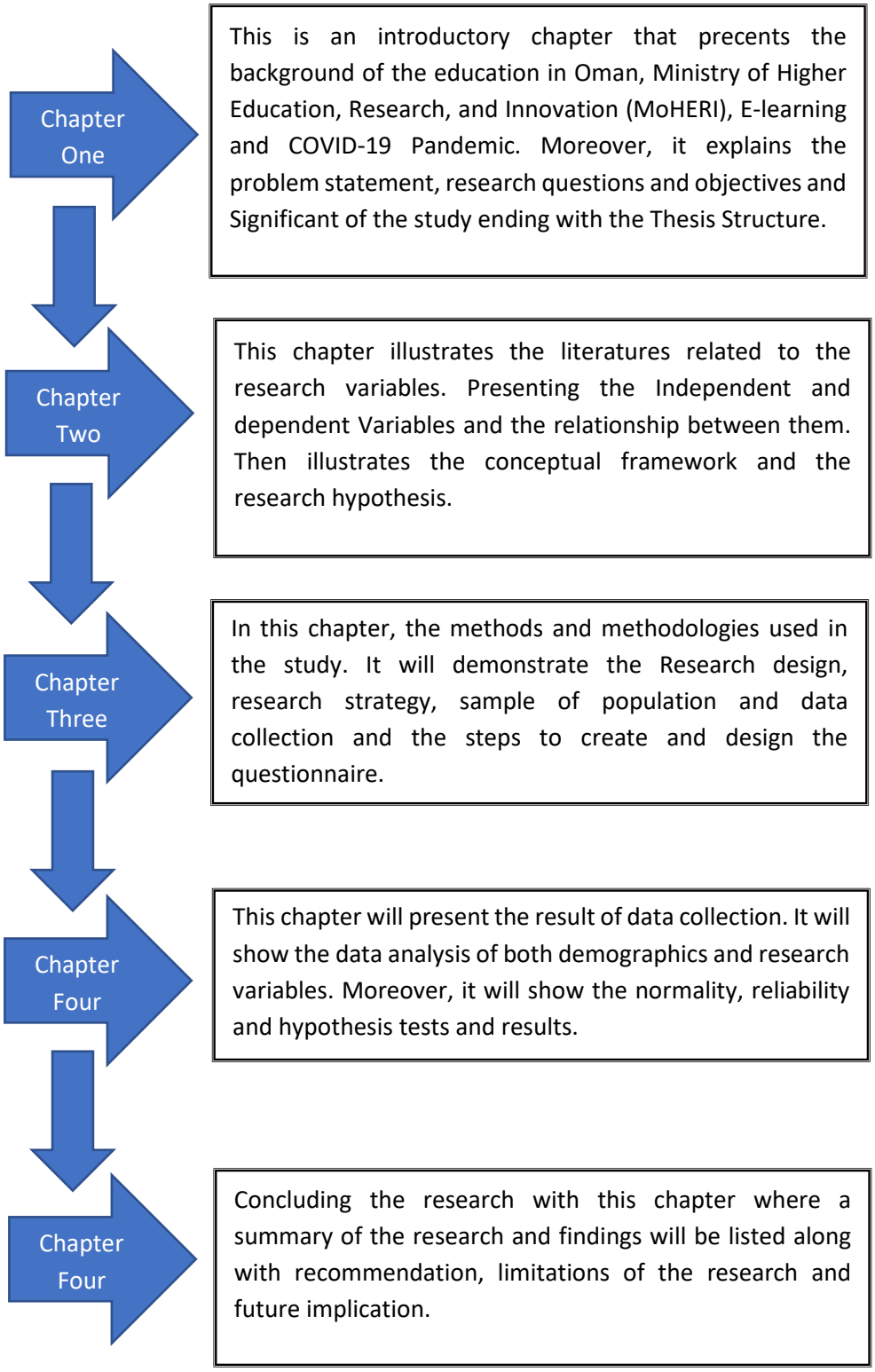

Figure 1. Thesis Structure

Literature Review

2.1 Introduction

After understanding the problem statement, research questions, and objectives, this chapter reviews the research literature and presents the research variables and their relationships with other variables. In this chapter, the conceptual framework and research hypothesis are presented.

2.2 E-Learning

Yi (2012) defined E-Learning or Learning from a distance as the delivery of education using a web-based application. Aldrich (2005) defined e-learning as a comprehensive combination of forms, substances, and foundations to use computerized hardware and software in the learning process.

Education in our current era is a key to survival; with the advancement in technology and discovery, knowledge and skills to adapt to the changes became most important in our lives, where people need to learn on an almost daily basis. Along with the changes, education delivery had to co-op and develop new ways to deliver knowledge to students. E-learning means that education is delivered to students through the internet using different web applications by utilizing their abilities to transmit audio and video (Shraim, 2008). Because of that change came the concept of electronic learning (E-Learning): a type of education that differs from the traditional way of teaching where the interaction between the teacher and the student will be from a distance behind computer screens. (Ministry of Higher Education, 2020). E-learning is made possible because of the advancement in computer and computer networking, where it made connecting easy and possible from a distance (Donoghue & Worton, 2002).

Oman is a developing country that has gone through numerous social changes that have changed the Omani society's needs. Technological advancement has hugely affected organizations, including HEIs leading them to use IT in their services. The use of IT in education has led the Sultanate to be one of the leading countries in the Middle East in

delivering education. E-learning is becoming an essential tool in Oman's educational systems in all HEIs (Muthurman & Veerasamy, 2020).

2.3 Curriculum

The curriculum is what is being taught in all education institutions (Mulenga, 2018). In other words, the curriculum supports the student in their learning journey, ensuring they get the proper knowledge and skills that will support them to secure proper jobs in the job market (Curriculum Definition, 2021).

Each HEI is responsible for developing and designing the curriculum to teach students (Carroll, Razvi, Goodliffe & Al-Habsi, 2009). To start an e-learning education, each lecturer must create his curriculum first to clearly understand what they will study (Al-Gattoufi, Al-Naabi & Gattoufi 2007). One of the functions of the curriculum is to enable the learning process to go forward, it will illustrate what is going to be taught during a class, what is the knowledge and skills that will be acquired during the learning period, and it will indicate what resource is needed to deliver education (Pack, 2007).

Since the curriculum is essential, In USA Curriculum is one of the five quality components since it helps measure the effectiveness of e-learning education. Even in Europe, Curriculum design is considered one of the six categories of e-learning quality measurements (Jung, 2011). In Oman, The OAAA has set an ISAM that governs the quality of curriculum where they make sure that it is relevant, current, and supports students in acquiring education based on their qualifications and fields (Academic et al., 2016). Moreover, an ECBCheck certificate was created for those HEIs who meet the quality requirements of the E-Learning curriculum (Vlachopoulos, 2020).

Al Jardani (2020) stated that curriculum designers or developers should take advantage of the increasing interest in using technology and create a suitable curriculum that will attract them.

The design of a curriculum has to go through different stages in order to come out with a well-designed curriculum, starting with identifying what the requirements are then designing the curriculum based on the requirements, after that implementing or delivering the outcome to the students, and last but not least understanding the outcome or collecting the feedback from students (Pack, 2007). E-learning is nothing without a good curriculum (Muthurman & Veerasamy, 2020).

2.4 Faculty

In such a situation, when moving from the traditional face-to-face education in classrooms to on-line or e-learning, faculty must be ready for the transition since the teaching methods are not the same; they need to develop interest, required skills, and relevant materials (Al Jardani, 2020).

Yi (2012) stated that technological advancement is a part of everything nowadays in our world; it brought an impressive change even in the educational sector. Due to that change, the role of faculty must be redefined to meet those changes which are challenging to HEIs, and one of them is to adopt e-learning or distance education. Faculty should be prepared to support students by updating their IT knowledge and skills even though a student can get the required help from the technical support team, and they should be up to date with the changes in course requirements.

Faculty training is one of the nine quality measurements since it will deliver classes and support students in e-learning education (Vlachopoulos, 2020). In SQU, a Center for Education Technology (CET) trains and improves its faculty skills in using technology to deliver better education quality to students (Al Musawi & Abdelraheem, 2004).

In the US, the Commission of Higher Education has classified faculty support as one of the five quality measurements of e-learning (Jung, 2011).

Rockwell, Schauer, Fritz, and Marx (2000) stated that faculty are the focal point in teaching, whether in traditional education or e-learning, since the development of education and curriculum and their effectiveness depend on the faculty. Faculty can positively impact the quality of education when they are well trained and prepared (Micari & Pazos, 2012).

2.5 ICT Infrastructure

E-learning is considered an essential tool in education sectors today since IT infrastructure plays a vital role in the growth of an organization (Alsabawy, Steel & Soar, 2013). Abushammala, Qazi, and Manchiryal (2021) stated that, majority of the students in Oman can attend classes remotely since they have direct access to technology that serves them, although not every HEIs has the necessary IT infrastructure. As per the article on the telecompaper website, the Ministry of Technology and Communication (MCT) and the National Center for Statistics and Information (NCSI) stated that 94% of people in Oman have internet access

(Omani Residential Internet Access and Smartphone Ownership Dip by 1% from 2019 - Telecompaper, 2020).

ICT provides flexibility to e-learning students, giving them the ability to gain knowledge whenever they like, especially for married students and having house responsibilities. For those working and studying simultaneously, giving students the skills and knowledge to use the web application, especially nowadays with COVID-19 virus speeding, employers tend to interview graduate students using web applications such as Microsoft teams and Zoom. Moreover, ICT always provides access to students to a broader range of information sources with no restrictions (Ginns & Ellis, 2007).

Even when IT or ICT provides all the benefits mentioned above, some aspects will affect technology usage, such as ease of use. Ease of use is one is the main factors affecting the use of systems and technology in general, and the second important factor is the usefulness of the systems. People tend to use systems when they are of benefit and easy to use, if the system is hard to use, users, tend to see if the outcome of using the system is not satisfying compared to the effort of using the system, then they might not use it (Davis, 1989).

2.6 Quality of E-Learning education

Different people have a different definitions of Quality (Uppal & Ali, 2018). Quality According to Ehlers (2004), educational process quality can be divided into five items: Context quality, structure quality, process quality, output quality, and impact quality, and they have their way of measurement.

There is no clear definition of quality in higher education, but some elements determine quality, starting with processes, policies, or actions. Then the second element is accountability and continuous improvement (Schindler, Elivdge, Welzant & Crawford, 2015).

In Oman, OAAA has issued an ISAM to govern the standards and quality of delivered education to students as per their Vision. With the set of Institutional Standards Assessment (ISA), OAAA makes sure that HEIs meet the standards by following three elements: (1) Self-Assessment where the institution will fill an Institutional Standards Assessment Application (ISAA). (2) External Assessment where an external team will check the ISAA filled by the HEI and will prepare a Standard Assessment Report (SAR). (3) Accreditation Decision, Once the SAR is ready, it will be forwarded to a committee in OAAA for review and decision making

accordingly based on the results (Academic et al., 2016). Curriculum Design, Teaching and Facilitation, learning Experience, Instructional Design, Web Design, Course Presentation and the Six steps defined to measure the quality of on-line courses (Chao, Saj & Tessier, 2006).

2.7 Relationship between Curriculum and Quality of E-Learning Education

Chao, Saj, and Tessier (2006) stated that good quality education starts designing a quality course. Since the curriculum is one of the e-learning quality determiners, it has been one of the main criteria's the MOHE checks before starting any new program (Academic et al., 2016). The Commission of Higher Education's Institutions has set curriculum as one of the five quality components (Jung, 2011). Even in Europe, the curriculum design is part of the quality assessment tool provided to higher education institutes (Jung, 2011). For lecturers to meet the quality requirement of e-learning in terms of curriculum, they each need to develop their course/curriculum (Al-Gattoufi, Al-Naabi & Gattoufi, 2007). Sometimes it is good to hear from students about the curriculum design after each semester in order to be able to prepare a better design that will meet students' requirements leading to the better quality provided to students (Ellis et al., 2009).

In the UK, to assess the quality of the curriculum, they do benchmarking of standards to the educational curriculum related to higher education, they will take academic reviews and institutional audits (Pack, 2007).

2.8 Relationship between Faculty and Quality of E-Learning Education

One of the challenges in providing online or e-learning quality education is the change in the role of faculty. Faculty members need to adapt to the changes from traditional teaching to on-line or e-learning teaching to ensure quality education (Yang & Cornelious, 2005).

Deubel (2003) has stated that faculty attitude, motivation, and commitment have a high impact on the quality of e-learning. Lecturers must understand their students and how to attract them. Then, they will find ways or tools that will help them deliver education. Then, they must apply the appropriate techniques and put them into reality to produce better educational quality through e-learning.

By applying the write curriculum design, for the right students, with the right lecturer for that set of students, e-learning education can be of high quality and will be able to replace the traditional in-classroom education, stated Cooper (2000).

The relationship between students and faculty impacts the quality of e-learning (Micari & Pazos, 2012).

2.9 Relationship between ICT Infrastructure and Quality of E-Learning Education

Access to education is never the problem nowadays; the real issue is the quality of education delivered to students, its relevance, and how to keep knowledge up to date after learning it. ICT addressed those issues by enabling students to access different educational resources efficiently and at any time to keep up with the rapid changes. It offers more chances for quality learning. There are Six areas to improve to be able to deliver better quality of e-learning: (1) Coordination, (2) Technical support for teachers, (3) Teacher professional training, (4) Intelligent tutoring systems, (5) Monitoring and evaluation systems and (6) Developing lecturers support to students (Ra & Ping, 2018).

2.10 Conceptual Framework

This research tests the relationship between four main variables that were derived after the literature review and coming up with the research question and research objectives. The research examines the relationship between the variables based on student's interaction in the Sultanate of Oman. **Figure 2** below illustrates the conceptual framework of this research that will test the relationship between Curriculum, Faculty, ICT infrastructure, and quality of e-learning education. The curriculum, faculty, and ICT infrastructure are the Independent Variables (IV), and the quality of e-learning education is the Dependent Variable (DV).

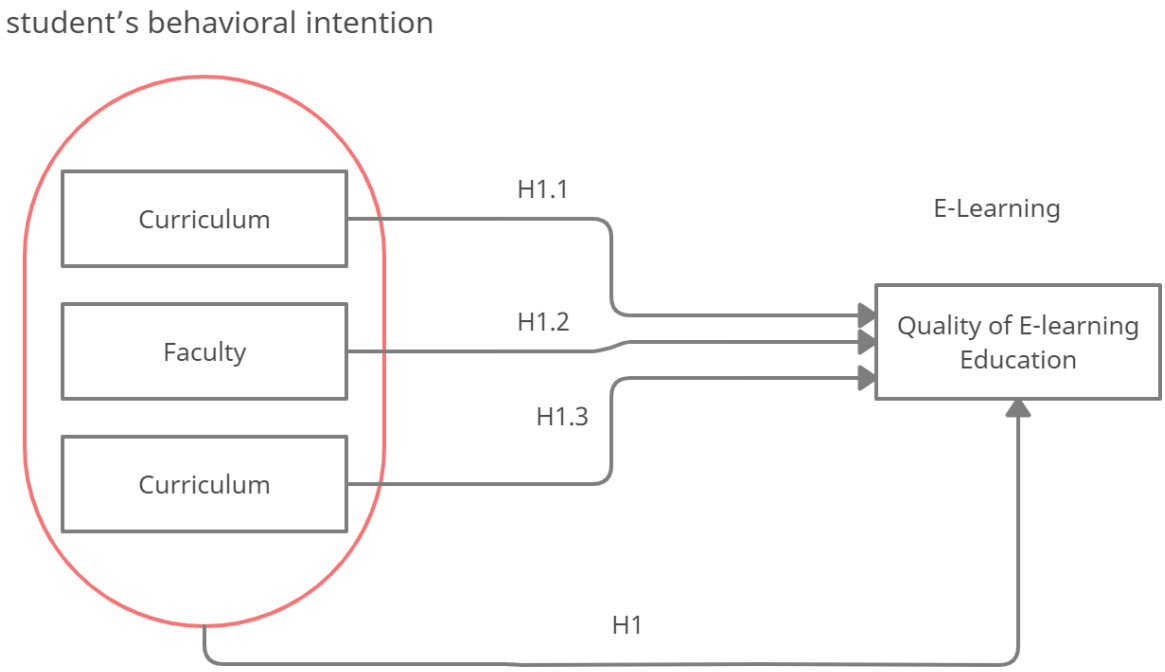

Figure 2. Conceptual Framework

Based on Literature Review

2.11 Research Hypotheses

Based on the in-depth review of previous literature and the conceptual framework, below are the research Hypotheses:

H_1: There is a significant relationship between student's behavioral intention and E-learning.

$H_{1.1}$ = There is a relationship between Curriculum and Quality of e-learning education.

$H_{1.2}$ = There is a relationship between Faculty and Quality of e-learning education.

$H_{1.3}$ = There is a relationship between ICT Infrastructure and Quality of E-Learning education.

2.12 Summary of Literature Review

A Summary of the literature review and how it contributed to the conceptual framework is highlighted in **Table 1.**

Table 1. Summary of Literature Review

Variable	Source	Contribution to the Study
Curriculum	(Academic et al., 2016)	Explained the importance of curriculum design and review by setting standards
	(PACK, 2007)	Gave an understanding of how to develop and maintain the curriculum
	(Mulenga, 2018)	Clarified the definition of curriculum in the Education sector
	(Curriculum Definition, 2021).	Gave a clear definition of curriculum
	(Al Jardani, 2020)	illustrated the factors of a successful e-learning experience and confirmed that Curriculum readiness is one of the factors.
Faculty	(Al Jardani, 2020)	illustrated the factors of a successful e-learning experience and confirmed that faculty readiness is one of the factors.
	(Yi, 2012)	It was confirmed that faculty play a significant role in E-learning.
	(Vlachopoulos, 2020)	Explaining the measurements of Education quality and confirming Faculty role

	(Al Musawi & Abdelraheem, 2004)	They explained the readiness of SQU for E-learning, the faculty's role, and how they were prepared in the university.
	(Rockwell, Schauer, Fritz & Marx, 2000)	Explained the role of faculty and challenges in distance learning.
ICT Infrastructure	(Alsabawy, Steel & Soar, 2013)	Explained the importance of IT infrastructure in the growth HEIs
	(Abushamala, Qazi & Manchiryal, 2021)	Explained the impact of COVID-19 on the education process in Oman and how are students ready
	(Al Jardani, 2020)	illustrated the factors of a successful e-learning experience and confirmed that technology is one of the factors.
	(Academic et al., 2016)	Setting standards of quality for the IT infrastructure to provide better education quality
	(Davis, 1989)	It was made clear that the system and technology should be helpful and easy to use
Quality of E-Learning education	(Ehlers, 2004)	Explained the definition of quality
	(Academic et al., 2016)	Illustrated the Standards that OAAA has set to meet Quality education.
	(Chao, Saj & Tessier, 2006)	Explained how to measure the quality of On-line courses
	(Al-Gattoufi, Al-Naabi & Gattoufi, 2007)	Explained how to reach quality education in e-learning

	(Oliver, 2005)	Explained the Quality assurance in learning and e-learning

Chapter Three

Methodology

3.1 Introduction

This chapter illustrates the methods used in this study. It aims to present the methodology overview, data source, Questionnaire procedures, research design, variable measurement, questionnaire design, final questionnaire, validity and reliability, and study population and sample.

3.2 Methodology Overview

UKEssays (2018) defined methodology as the theory of how research should be conducted, including the historical and conceptual assumptions on which research is founded and the implications for the method or methodologies used. This chapter highlights the light on the method of data collection and the design used in responding to the research questions.

3.2.1 Research Strategy

The main goal of the research is to achieve the research objectives by answering the research questions. Using a research strategy will help achieve the objectives with quality results and a well-documented report.

There are two research approaches basic or applied research. Basic research, known as pure research, focuses on a field of study to expand and add value. On the other hand, the applied research focuses on providing solutions to existing problems; it is follow-up research since it takes up the outcome of basic research and implements them in real life to come up with outcomes (Basic vs. Applied Research: 15 Key Differences, 2007).

This research is applied research; it will examine the relationship between student's behavioral intention (Curriculum, Faculty, and ICT Infrastructure) and e-learning (Quality of e-learning education).

Based on Soiferman (2010), there are two approaches to any research: the inductive and the deductive. The inductive approach takes the topic from a specific point of

view to a general point of view works from down to up, while the deductive approach takes the topic from the general point of view to a specific point of view working from up to down.

This research adopts the deductive approach where a problem was defined; hypothesis developed, measures are defined, data collected and analyzed.

Akhtar (2016) made clear that there are four types of research, Exploratory, Descriptive, Explanatory, and Experimental research. Exploratory research aims to shed light on a new phenomenon. Descriptive research aims to provide a clear description of the details of the study. Explanatory research is used when one type of study was not conducted earlier, and it explains the relationship between factors of a phenomenon. Moreover, the Experimental research is to test the relationship.

This research is descriptive research that will explain how students can play a role in e-learning in Oman during the COVID-19 pandemic and examine Curriculum, Faculty, and ICT Infrastructure's impact on the quality of e-learning education.

3.2.2 Research Epistemology

Several research approaches can be used, Positivist, interpretive, and critical. This is positivist research since it is quantitative research, and it shows the statistical analyses of the collected data.

3.2.3 Quantitative Verse Qualitative Research Methods

Roberts and Priest (2006) defined Quantitative research as the investigation that primarily relies on numbers, and it can be called Statistical research; and Qualitative research is the research that explores and gives explanations in words rather than using numbers.

This study is quantitative research where a questionnaire is distributed to Higher Education students around Oman to collect the data required for this study.

3.2.4 Research Design

Zikmund (1988) defines research design as a master plan indicating the strategies and procedures for collecting and analyzing the required information. Research design is the plan of the research (Akhtar, 2016).

Manheim (1977) mentioned that in addition to anticipating and specifying the seemingly countless decisions involved in collecting, processing, and analyzing data, research designs also present logical reasons for implementing these decisions.

This research was designed to examine the relationship between the factors affecting the student's behavioral intention (Curriculum, Faculty, and ICT Infrastructure) on E-learning (Quality of E-learning education).

3.3 Source of Data Collection

Data is the foundation of any study; it must be correct, relevant to the study, reliable, and accurate. There are two types of data, Primary and Secondary data. The primary data is the data that is collected directly from the source or targeted population. Secondary data is collected from other sources like books and research papers but not directly from primary sources (Rabianski S., 2003).

In this research, the primary data collection method is used where a questionnaire was developed by the researcher and distributed to students in HEIs.

3.4 Questionnaire Procedures and Design

As mentioned earlier, this study is quantitative, and the method of collecting data is through a questionnaire. To answer the research questions and meet the research objectives, the researcher has developed a questionnaire later distributed to students from different HEIs in Oman based on existing questionnaires and literature reviewed earlier to save time.

The questionnaire was given to five academics and non-academics as the first step of validity and reliability. All comments received from them were taken into consideration.

Once the questionnaire was amended as per the comments received in the first step, the questionnaire was sent to students for a pilot study as the second phase of validity and

reliability check. Once the second phase was completed, the questionnaire was then distributed to students in HEIs to collect the required data.

3.5 Variable Measurement

There are four variables in this research because of the research questions and objectives. As shown in **Figure 2,** there are three Independent Variables (IV): Curriculum, Faculty, and ICT Infrastructure, and one Dependent Variable (DV): Quality of E-learning education. The demographical questions were developed to understand the relationship between personal information and the variables.

A Likert five scale rate was used to rate the participant's answers in each variable question. The Likert five scale gave (1) Strongly Disagree, (2) Disagree, (3) Neutral, (4) Agree, and (5) Strongly Agree. **Table 2** shows the questionnaire items before validity and after modifications.

Table 2. Variable Measurements before and after modifications

N.o.	Items before modifications	N.o.	Items after modifications
Variable	Curriculum		
1	I believe that the material of the courses should be designed to make the topic clear and exciting. اعتقد ان تصميم المواد يجيب ان يكون واضحا و مثيرا للاهتمام	1	Understanding the topic is more important than the design of the curriculum. فهم المنهج الدراسي مهم اكثر من طريقة تصميمه
2	I believe that curriculum and teaching media should be relevant. اعتقد المناهج و وسائل التعليم عن بعد يجب ان تكون ذات صلة	2	Having a relevant curriculum and teaching material is essential. من المهم وجود مناهج و وسائل تعليمية ذات صلة

3	I believe that the voice media should be clear and easy to understand. اعتقد ان الوسائط الصوتية يجب ان تكون واضحة و سهلة الفهم	3	I can understand the audio media even if they were not of high quality. يمكنني فهم الوسائط الصوتية حتى لو لم تكن ذات جودة عالية
4	I believe that the video media was clear and easy to understand. اعتقد ان وسائط الفيديو يجب ان تكون واضحة و سهلة الفهم	4	It is important for me to have a clear video conference with the lecturer. من المهم لي ان يكون هنالك اتصال بالفيديو مع المحاضر
5	I will feel confident using e-learning if the contents are informative. سأشعر بالثقة عند استخدام التعلم الالكتروني اذا كانت المحتويات مفيدة	5	Having clear learning material is important for me. وجود مادة تعليمية واضحة مهم جدا
6	I will feel more confident if the contents are useful in explaining things. سأشعر بثقة زائدة اذا كان المحتوى التعليمي جيد في شرح الامور	6	Excluded
7	I believe I can handle a significant volume of work through the on-line courses. اعتقد انني استطيع العمل على عدت اعمال من خلال التعلم عن بعد	7	I can handle multiple homework’s through the portal. يمكنني التعامل مع عدد من الواجبات المنزلية عبر البوابة التعليمية
8	Having enough time to understand the topic is important. من المهم ان يكون لدي وقت كافي لفهم الموضوع	8	Excluded

9	There should be a clear interaction between students and teachers. يجب ان يمكون هنالك نقاش متبادل بين الطلاب و المدرس	9	Excluded
10	I believe e-learning can assist learning motivation. اعتقد انا التعلم الالكتروني يمكن ان يزيد التحفز للتعلم	10	Excluded
11		11	I can handle the digital format of the material better than the hard copy. استطيع التعامل مع النسخة الالكترونية للمنهج التعليمي اكثر من التعامل مع النسخة المطبوعة
Variable	Faculty		
1	I believe the teacher should have direct access to the teaching material. اعتقد ان المدرس يجب ان يكون لديه صلاحية كامله لمنهج الدراسة	1	I believe the lecturer should have sufficient teaching material. اعتقد أن المحاضر يجب أن تتوفر لديه موارد تعليمية كافية
2	I believe the teacher should be on time starting and finishing the on-line class. اعتقد ان المدرس يجب ان يكون منضبط في وقت بداء وانتهاء المحاضرة	2	Starting the class on time does not matter if the lecturer will be able to cover the material on time. وقت بداية المحاضرة غير مهم طالما يستطيع المحاضر اكمال المقرر الدراسي في الوقت المحدد

3	The teacher should be motivated to teach from distance to encourage students as well. على المعلم ان يكون متحمسا في للتدريس عن بعد ليحمس الطلاب على الحضور	3	My motivation to on-line classes is not related to the motivation of the lecturer. حافزي للتعلم عن بعد لا يتعلق بحافز المحاضر
4	I believe that the teacher should have academic knowledge. اعتقد ان المدرس يجب ان يكون لديه المعرفة الاكاديمية	4	Lecturer academic level is important in order to conduct classes. المعرفة الاكاديمية للمحاضر مهمة لتقديم المحاضرة
5	I believe that the teacher should have excellent communication skills. اعتقد انه يجب على المعلم ان يكون لديه مهارات اتصال جيدة	5	Lecturer's communication skills play major role in determining the quality of on-line learning. مهارة التواصل لدى المحاضرين تلعب دور كبير في تحديد جودة التعلم عن بعد
6	I believe that teachers should be focused on teaching only when teaching from a distance. اعتقد ان المعلمين يجب ان يركزوا على التدريس فقط اثنا التدريس عن بعد	6	Excluded
7	I believe teachers should put efforts to create contents for E-Learning student. اعتقد ان على المعلم ان يضع مجهود لصنع منهج للدراسة الالكترونية للطلاب	7	Excluded

8	The teacher should have contact with all e-learning students. يجب على المعلم ان يكون على تواصل مع كل الطلاب الذين يدرسون عن بعد	8	Excluded
9	The teacher should prepare on-line activities that are not applicable in the traditional teaching method. يجب على المعلم ان يأتي بنشاطات عبر الانترنت وهذي بطريقة التدريس التقليدية النشاطات لا يمكن تطبيقها	9	I believe teachers should put efforts to create contents for E-Learning student. اعتقد انه على المعلم ان يبذل مجهودا لإعداد محتوى للدراسة الالكترونية للطلاب
10	The teacher should be able to generate a report after each teaching semester. يجب على المعلم ان يستخرج تقرير بعد كل فصل دراسي عن بعد	10	Excluded
Variable	ICT Infrastructure		
1	I have proper internet connection set up at home to access the e-learning. لدي خدمة انترنت جيدة في المنزل لاستعملها في التعلم الالكتروني	1	No Change
2	Internet speed at home is enough to attend on-line classes. سرعة الانترنت في المنزل جيدة لحضور محاضرة عبر الانترنت	2	no change
3	The e-learning system must be easy to use and to remember how to carry out tasks. من المهم ان يكون نظام التعلم الالكتروني سهل الاستعمال	3	It is important that the system is easy to use and not complicated.

			من المهم ان يكون النظام سهل الاستخدام و غير معقد
4	I believe that the system should do what I want it to do with no complications. اعتقد ان النظام يجب ان يفعل ما اريد منه ان يفعل من غير تعقيدات	4	its enough if I know how to submit my work in the system whether it was easy or hard. يكفي ان اعرف كيف اسلم عملي عبر النظام سواء كان سهلا او صعبا
5	I believe that the interaction between the student and the system should be clear and understandable. اعتقد ان التفاعل بين الطالب و النظام يجب ان يكون سهلا و مفهوما	5	Excluded
6	I believe that I will be satisfied if the system is easy to use. اعتقد انني سأكون راضيا اذا كان النظام سهل الاستعمال	6	Excluded
7	I believe that educational institutes should have an electronic library. اعتقد انه يجب توفر المكتبات الالكترونية لدى المؤسسات التعليمية	7	Having an electronic library is important for me. من المهم لي توفر مكتبة الكترونية
8	I believe that the electronic libraries should be reviewed and updated every year. اعتقد انه يجب تحديث مراجعة المكتبة الالكترونية وتحديث الالكترونية بشكل سنوي محتويات المكتبة	8	no change

9	I believe Sufficient time should be given to the student when borrowing a book from the library. اعتقد انه يجب اعطاء الوقت الكافي للطلاب عند استعارتهم اي كتاب من المكتبة	9	Excluded
10	I believe there should be proper categorization of books in the e-library. اعتقد انه يجب ان يكون هنالك تصنيف جيد للكتب في التخصص المكتبة الالكترونية على حسب	10	Excluded
Variable	Quality of E-Learning Education		
1	I believe having good guidance from instructor affects positively on the quality of e-learning. اعتقد ان التوجيه الجيد من قبل المعلم سوف يوثر ايجابيا الالكتروني على جودة التعلم	1	Getting guidance from faculty affect positively on the quality of e-learning. الحصول على التوجيه من أعضاء هيئة التدريس يتأثر إيجابيا على جودة التعلم الالكتروني
2	I believe encouragement and follow up of instructors affects positively on the quality of e-learning. اعتقد ان التشجيع و المتابعة المستمرة من قبل المعلم لها جودة التعلم الالكتروني تأثير ايجابي على التعلم الالكتروني	2	no change
3	Getting proper support from technical team when facing technical issues can determine the quality of e-learning service provided. الحصول على الدعم الفني عند الحاجة اليه يمكن ان يكون الالكتروني نقطة لقياس خدمة التعلم	3	Poor technical support affects negatively on the quality of e-learning. يوثر ضعف الدعم الفني بشكل سلبي على جودة التعلم الالكتروني

4	Having a user-friendly system can indicate good quality e-learning service. وجود نظام واضح و سهل الاستعمال مؤشر على جودة خدمة التعلم الالكتروني	4	no change
5	Good communication tool within the system is a good measure of the quality of e-learning. وجود اداة تواصل فعالة في النظام يعد من القوائم الاساسية الالكتروني لقياس جودة التعلم	5	وجود أداة تواصل فعالة في النظام يعد معيارا جيدا لجودة التعلم الالكتروني
6	Quality of e-learning can be measured by its contents. جودة التعلم الالكتروني ممكن ان تقاس بمحتوياته	6	Excluded
7	It is important that there is proper feedback on the results of e-learning by end of each class in order to be able to measure the quality of teaching electronically. من المهم اخذ اراء الطلاب بعد نهاية كل محاضر الكترونية لقياس مدى جودة التدريس الالكتروني	7	Excluded
8	I believe that having the proper administrative support when required is very important in determining the quality of e-learning. اعتقد ان الدعم الاداري الممتاز من العوامل الاساسية عند الالكتروني قياس جودة التعلم	8	Excluded
9	Having a tool to assist the quality of E-learning is important. من المهم وجود الية لقياس مدى جودة التعلم الالكتروني	9	no change

10	Meeting the criteria set by MOHE has a positive impact on the quality of e-learning. إن تلبية المعايير التي وضعتها وزارة التعليم العالي له تأثير التعلم الإلكتروني إيجابي على جودة	10	Excluded

3.6 Questionnaire Design

McLeod (2018) defined a questionnaire as a set of questions that aim to gather information from respondents, and it is faster in collecting data than other methods.

When developing the questionnaire, the research should ensure that the questions are straightforward and there is no ambiguity. Moreover, the question should be clear and understandable to all targeted populations.

Since the questionnaire was developed from a literature review and previous questionnaires, a validity check was conducted to ensure the newly developed questionnaire were clear and valid.

3.6.1 Questionnaire Translation

Mainly, the questionnaire is in the English language. Since most of the targeted audience or the sample selected is native Arab and their native language is Arabic, the questionnaire was translated to Arabic for better understanding.

3.6.2 Pre-Testing Procedures

To check the validity of the questionnaire, it was distributed to experts for their review and comments. Three of them are Ph.D. holders from the academic field and two experts in the industrial field, one working in Human resources in an educational institute and the other in Talent management in Human Resources.

They tested the questionnaire to ensure that it is related to the topic, easy to understand by students in different academic levels, and if the variables selected are valid. After receiving the comments from each validator, a new questionnaire was developed, considering all the comments. The comments came

recommendations that aimed to merge some questions, exclude some questions, and not change questions. The number of questions was minimized from 30 to 25 questions.

For the first variable, "Curriculum," seven factors out of 10 will be examined. For "Faculty," 6 factors will be examined out of 10 same for the third and fourth variables, "ICT Infrastructure" and "Quality of e-learning education."

3.7 Final Questionnaire

Based on the face validity results, a new questionnaire was developed and was distributed into six main sections. In the first section of the questionnaire, a small introduction and thank you letter to the students. The second section was the demographical questions to understand the background of the students. In the third, fourth, fifth, and sixth sections came the questions regarding the main variables of the study, with a total of twenty-five questions that developed after the face validity check.

Attached in **Appendix 1** is the questionnaire sent to students for the pilot test to examine the validity and reliability of the second phase.

3.8 Validity and Reliability

Using google forms, the questionnaire was developed, and a link was sent through the WhatsApp application to 50 students to examine the validity and reliability. The 48 responses received from a student were entered in the SPSS v26.0 application to test their responses.

3.8.1 Pilot Study

A total number of 48 students participated in the pilot study that was conducted. They were selected randomly by distributing the questionnaire in the WhatsApp application. The goal was to understand how students found the questions and any suggestions to improve the questionnaire. Their answers were entered in SPSS to measure the Cronbach's Alpha to test the reliability of the answers.

3.8.2 Validity

Vaughn and Daneil (2012) defined validity as the truthfulness of content. Moreover, they mentioned that there is more than one way to measure the validity, one way is to check if the contents are relevant to the topic, rationality, consistency, related to the topic, and it can be distributed to the targeted sample or not. It is not enough to stick to one way of validity (Vaughn & Daniel, 2012).

The validity check for the developed questionnaire by the researcher was checked twice. First, it was distributed to Academic and non-academic professionals, and then a pilot study was conducted.

3.8.3 Reliability

Reliability, as defined by Check and Schutt (2017), is the check of data consistency, if the data is reliable, there are fewer chances of errors, and if the data is unreliable, there will be more chances of errors.

Based on the put from the 48 students from different HEIs in Oman, the researcher calculated the reliability using SPSS to get the Cronbach Alpha. The data is more reliable when the Cronbach alpha is near one and less reliable when near 0. **Table 3** shows the value of Cronbach alpha for each variable.

Table 3. Variables Cronbach Alpha

No.	Variable	No. of items	Cronbach Alpha
1	Curriculum	7	.561
2	Faculty	6	.617
3	ICT Infrastructure	6	.575
4	Quality of e-learning education	6	.698

3.9 Study population & sample

Sampling is the process of selecting a targeted group that will help gather the required data for the research. The two types of sampling are Probability and non-probability sampling. (Lamarche et al., 1982). Probability sampling was used in this research to collect the data.

Chapter Four

Data Analysis and Findings

4.1 Introduction

This chapter illustrates the descriptive analysis of the Demographical and research variables. Moreover, the normality, reliability, and hypothesis tests will be explained, followed by the summary of results and hypothesis at the end of the chapter.

4.2 Descriptive Analysis of Personal Demographical

The goal of initiating the descriptive analysis of personal demographics is to understand the background of the targeted population in research.

There are eight demographic variables in this research, (1) Age "Indicates the age range of the students," (2) Gender "Indicates the student's sex," (3) Marital Status "Indicates if the student is married or single," (4) Level of Education "Indicates students current academic level," (5) Living Area "Indicates where the student is living," (6) Education Sponsored by "Indicates who is sponsoring the student education," (7) Type of institution "Indicates if the institute is private or government," and (8) Educational institute "Indicates the name of the HEI."

4.2.1 Age

The majority of the participants are in the age range of 18 – 24, with 37.90%. **Table 4** illustrates the distribution of participants based on the age range. This reflects all students from different HEIs in Oman. The mean age is 1.95, and the standard deviation is 0.876.

Table 4. Population distribution based on Age

Description	Age Range	Frequency	Percentage	Mean	Std. Deviation
Age	18 - 24	91	37.90%	1.95	0.876
	25 - 29	77	32.10%		
	30 - 39	65	27.10%		
	40 and above	7	2.90%		
	Total	240	100%		

4.2.2 Gender

As the result of demographic analysis indicated, most of the participants are female students with 50.40%. This indicates that females tend to complete their higher education after graduating from school more than males. The mean gender is 1.5, and the standard deviation is 0.501. **Table 5** illustrates the distribution of participants based on gender.

Table 5. Population distribution based on Gender

Description	Gender	Frequency	Percentage	Mean	Std. Deviation
Gender	Male	119	49.60%	1.5	0.501
	Female	121	50.40%		
	Total	240	100%		

4.2.3 Marital Status

The results indicated that the majority of the participants are single, with a percentage of 60%. The mean of Marital status is 1.4, and the standard deviation is 0.491. **Table 6** illustrates the distribution of participants based on marital status.

Table 6. Population distribution based on Marital Status

Description	Status	Frequency	Percentage	Mean	Std. Deviation
Marital Status	Single	144	60.00%	1.4	0.491
	Married	96	40.00%		
	Total	240	100%		

4.2.4 Level of Education

The majority of the participants are undertaking their bachelor's degree, as the analysis indicated. The percentage of bachelor students is 54.20%. The mean level of education is 2.03, and the standard deviation is 0.678. **Table 7** illustrates the distribution of participants based on the level of education.

Table 7. Population distribution based on the level of education

Description	Certificate	Frequency	Percentage	Mean	Std. Deviation
Level of education	Diploma	51	21.30%	2.03	0.678
	Bachelor	130	54.20%		
	Master	59	24.60%		
	Total	240	100%		

4.2.5 Living Area

As the data analysis indicated, most of the population lives in Muscat, representing 69.60%. **Table 8** illustrates the distribution of participants based on their living areas.

Table 8. Population distribution based on Living area

Description	Governorate	Frequency	Percentage
Living Area	Muscat	167	69.60%
	Al Batinah	16	6.70%
	A'Sharqiyah	27	11.30%
	Al Dahera	6	2.50%

	Musandam	6	2.50%
	Dhofar	7	2.90%
	Al Dhakhileya	11	4.60%
	Total	240	100%

4.2.6 Education Sponsored by

There are four types of sponsorship in Oman; MoHERI, representing 45.40%, sponsors most participants. **Table 9** illustrates the distribution of participants based on education sponsors.

Table 9. Population distribution based on sponsorship

Description	Sponsored by	Frequency	Percentage
Sponsorship	Self-sponsored	106	44.20%
	MOHRE	109	45.40%
	Private Sector company	12	5.00%
	Public Sector company	13	5.40%
	Total	240	100%

4.2.7 Type of Institution

There are two types of HEIs in Oman, Government, and Private institutions. Based on the data analysis results, majority of the population are in Private institutions. **Table 10** illustrates the distribution of participants based on the type of institution.

Table 10. Population distribution based on Institution

Description	Type of institution	Frequency	Percentage
Type	Government	97	40.40%
	Private	143	59.60%
	Total	240	100%

4.2.8 Educational Institute

Out of all the HEIs in Oman, Students from SQU represented the majority of the population with 18.30%. **Table 11** illustrates the distribution of participants based on the educational institute.

Table 11. Population distribution based on educational institute

Description	Institution name	Frequency	Percentage
Institution	Sultan Qaboos University	44	18.30%
	A'Sharqiyah University	30	12.50%
	The University of Technology and Applied Sciences	37	15%
	Muscat College	28	11.70%
	Modern College of Business and Science	37	15.40%
	Gulf College	24	10%
	College of Banking and Financial studies	10	4.20%
	Other HEIs (Private & Government)	30	
	Total	240	100%

4.3 Descriptive analysis

The main variables of this research are presented in this section: curriculum, Faculty, ICT Infrastructure, and Quality of e-learning education. A five-point Likert Scale is used to measure the variable going from down to up, (1) Strongly disagree, (2) Disagree, (3) Neutral, (4) Agree, and (5) Strongly agree. The options were given numbers in SPSS as following, (1) Strongly disagree, (2) Disagree, (3) Neutral, (4) Agree, and (5) Strongly agree, and they are Nominal. In order to understand the average of each category, we calculate the mean average by applying the following formula, "5 (highest number) – 1 (Lowest number) = 4, and then dividing 4/5 = 0.80". **Table 12** illustrates the mean average:

Table 12. Five Likert Scale Gap Width

Categories	Mean Average
Strongly Disagree	1.00 – 1.80
Disagree	1.81 – 2.60
Neutral	2.61 – 3.40
Agree	3.41 – 4.20
Strongly Agree	4.21 – 5.00

4.3.1 Curriculum

There are seven items under curriculum; a total number of 240 responses were received. As Shown in **table 13**, the mean of the seven items is 3.72, which means that most of the responses are in the category of "Agree." Items number 1,4 & 6 are in the range (3.41 – 4.20), which means that students agree that understanding the topic is more important than the design; it is important to have a video conference with the lecturer, and they can handle multiple homework is through the portal. Items 2 & 5 are in the range (4.21 – 5.00), which means that students strongly agree that having explicit and relevant material is essential. Then, Items 3 & 7 are in the range (2.61 – 3.40), which means that students are neutral, meaning that they do not agree or disagree with their ability to understand audio with low quality and handle the digital format of the material. Detailed responses are included in **Appendix 2**.

Table 13. Descriptive Statistics of Curriculum

Curriculum	Minimum	Maximum	Mean	Standard Deviation
Curriculum 1	1.00	5.00	3.89	0.972
Curriculum 2	1.00	5.00	4.52	0.564
Curriculum 3	1.00	5.00	2.71	1.1
Curriculum 4	1.00	5.00	3.83	0.942
Curriculum 5	1.00	5.00	4.33	0.927
Curriculum 6	1.00	5.00	3.48	0.924

Curriculum 7	1.00	5.00	3.34	1.05
Total Average Mean				**3.72**

4.3.2 Faculty

There are Six items under faculty; a total of 240 responses were received. As shown in **Table 14**, the mean of the Six items is 4.1, which means that most of the responses are in the category of "Agree." Items 1,4,5 & 6 are in the range (4.21 – 5.00), which means that students strongly agree that the lecturer should have sufficient teaching materials, the lecturer's academic level and communications skills are essential, and the lecturer should put efforts to create suitable contents for E-learning students. Items 2 & 3 are in the range (2.61 – 3.40), which means that students are neutral, meaning that they do not agree or disagree with the statements where the class should start on time and their motivation to online classes is not affected by the motivation of the lecturer.

Table 14. Descriptive Statistics of Faculty

Faculty	Minimum	Maximum	Mean	Standard Deviation
Faculty 1	1.00	5.00	4.5	0.672
Faculty 2	1.00	5.00	3.1	1.238
Faculty 3	1.00	5.00	3.35	1.143
Faculty 4	1.00	5.00	4.46	0.719
Faculty 5	1.00	5.00	4.61	0.603
Faculty 6	1.00	5.00	4.58	0.558
Total Average Mean				**4.1**

4.3.3 ICT Infrastructure

There are Six items under ICT Infrastructure; a total of 240 responses were received. As shown in **Table 15**, the mean of the Six items is 3.9, which means that most of the responses are in the category of "Agree." Items 1, 2, 3, 5 & 6 are in the

range (3.41 – 4.20), which means that students Agree that they have a proper internet connection with the proper speed at home, they agree that knowing how to submit their work through the system is enough, they agree that it is essential to have an electronic library and it should be reviewed and updated every year. Items 4 is in the range (4.21 – 5.00), which means that students strongly agree that the system should be easy to use and not complicated.

Table 15. Descriptive Statistics of ICT Infrastructure

ICT Infrastructure	Minimum	Maximum	Mean	Standard Deviation
ICT 1	1.00	5.00	3.59	1.102
ICT 2	1.00	5.00	3.6	1.145
ICT 3	1.00	5.00	3.45	1.119
ICT 4	1.00	5.00	4.62	0.552
ICT 5	1.00	5.00	3.98	0.831
ICT 6	1.00	5.00	4.17	0.78
Total Average Mean				**3.9**

4.3.4 Quality of E-learning education

There are Six items under Quality of E-learning education; a total of 240 responses were received. As shown in **Table 16**, the mean of the Six items is 4.52, which means that most of the responses are in the category of "Strongly Agree." Items from 1 to 6 are in the range (4.21 – 5.00), which means that the students strongly agree that guidance from faculty has a positive effect on the quality of e-learning, encouragement, and follow-up from lecturers have a positive effect on the quality of e-learning, poor technical support from faculty can effect negatively on the quality of e-learning, the user-friendly system indicates good quality of e-learning, good communication tool within the system is affects positively on the quality of e-learning and having an assessment tool is essential to assist the quality of e-learning education.

Table 16. Descriptive Statistics of Quality of E-learning Education

Quality of E-Learning education	Minimum	Maximum	Mean	Standard Deviation
QoE 1	1.00	5.00	4.39	0.729
QoE 2	1.00	5.00	4.59	0.549
QoE 3	1.00	5.00	4.56	0.651
QoE 4	1.00	5.00	4.54	0.684
QoE 5	1.00	5.00	4.5	0.634
QoE 6	1.00	5.00	4.59	0.572
Total Average Mean				**4.52**

4.4 Normality Test

There are two ways to test if the data is normally distributed; the first way is Graph's analysis using Q-Q plots and frequency distribution. The second way is the normality test using the D'Agostino-Pearson omnibus, Shapiro-Wilk, and Kolmogorov test. (Testing For Normality - Clearly Explained - YouTube, 2020)

4.5 Reliability Test

Using the IBM SPSS tool, the collected data from students from different HEIs in Oman was tested for its reliability using Cronbach Alpha. **Table 17** illustrates the Cronbach alpha for each of the research variables; when the alpha value is near 1, it means that the data is more reliable than when the alpha is near 0.

Table 17. Cronbach's Alpha for Research Variables

No.	Variable	No. of items	No. of Responses	Cronbach Alpha
1	Curriculum	7	240	0.532
2	Faculty	6	240	0.463

3	ICT Infrastructure	6	240	0.614
4	Quality of e-learning education	6	240	0.829

4.6 Hypothesis Test

In statistics, hypothesis testing is a means of testing a claim made about a population parameter. The way the data is analyzed and its answer influence the hypothesis testing methodology (Majaski, 2020).

Chi-square, correlation, and linear regression tests were used in this study. IBM SPSS application was used to analyze the collected data.

As Majaski (2020) stated, there are two types of hypotheses, the null and the alternative hypothesis.

- Null hypothesis (H0): the null hypothesis is always valid until proven wrong by a significant relationship between variables (Hayes, 2020).
- Alternative hypothesis (H1): alternative hypothesis means a significant relationship between variables (Alternative Hypothesis-Definition, Types and Examples, 2019).

4.6.1 Pearson Correlation and Linear Regression

We must understand the relationship between variables and how one variable can affect the other variable. Pearson correlation explains the relationship between the variables and how strong this relationship is. The sign of the value measures the strength of the relationship; if the value is "-1" or "+1," it means that it is a perfect relationship. If the coefficient value turns to be "0", this means there is no relationship between the variables; in other words, a change in one variable will not affect the other variable. We can say If the coefficient value is "+," there is a strong relationship between variables, and when a change happens to one of the variables, it will cause a change in the other variable, or it will have high chances of changing the other variable. If the coefficient value is "-, "there is a weak relationship between variables, and when a change happens to one of the variables, it will not

cause a change in the other variable, or it will have low chances of changing the other variable (Frost, 2018).

As stated by Frost (2018), In regression analysis, P-values and coefficients are used to identify the statistically significant relationships in your model. Statistical significance is determined by the p-values of the coefficients that describe the mathematical relationship between the independent and dependent variables.

Below is an analysis conducted to check the correlation between the variables and the relationship between them to confirm whether the hypothesis is correct or wrong using the Pearson correlation coefficient, linear regression, and multiple regression tests.

4.6.1.1 Correlation between Curriculum and Quality of e-learning education

- **Null Hypothesis:**

  H_0: There is no relationship between Curriculum and Quality of e-learning education.

- **Alternative Hypothesis:**

  $H_{1.1}$: There is a relationship between Curriculum and Quality of e-learning education.

  As shown in **Table 18**, the value of Pearson correlation is 0.052, and P-value is 0.213 for the samples of 240. In this case, the p-value of 0.213 is > 0.05, which means there is no significant relationship between curriculum and quality of e-learning.

Table 18. Correlation between Curriculum and Quality of E-learning Education

	Quality of e-learning education		
	Pearson Correlation	Sig. (1-Tailed)	N
Curriculum	0.052	0.213	240

As shown in **Figure 3** below, the R^2 value is 0.003, which means that the relationship between curriculum and quality of e-learning education is positive.

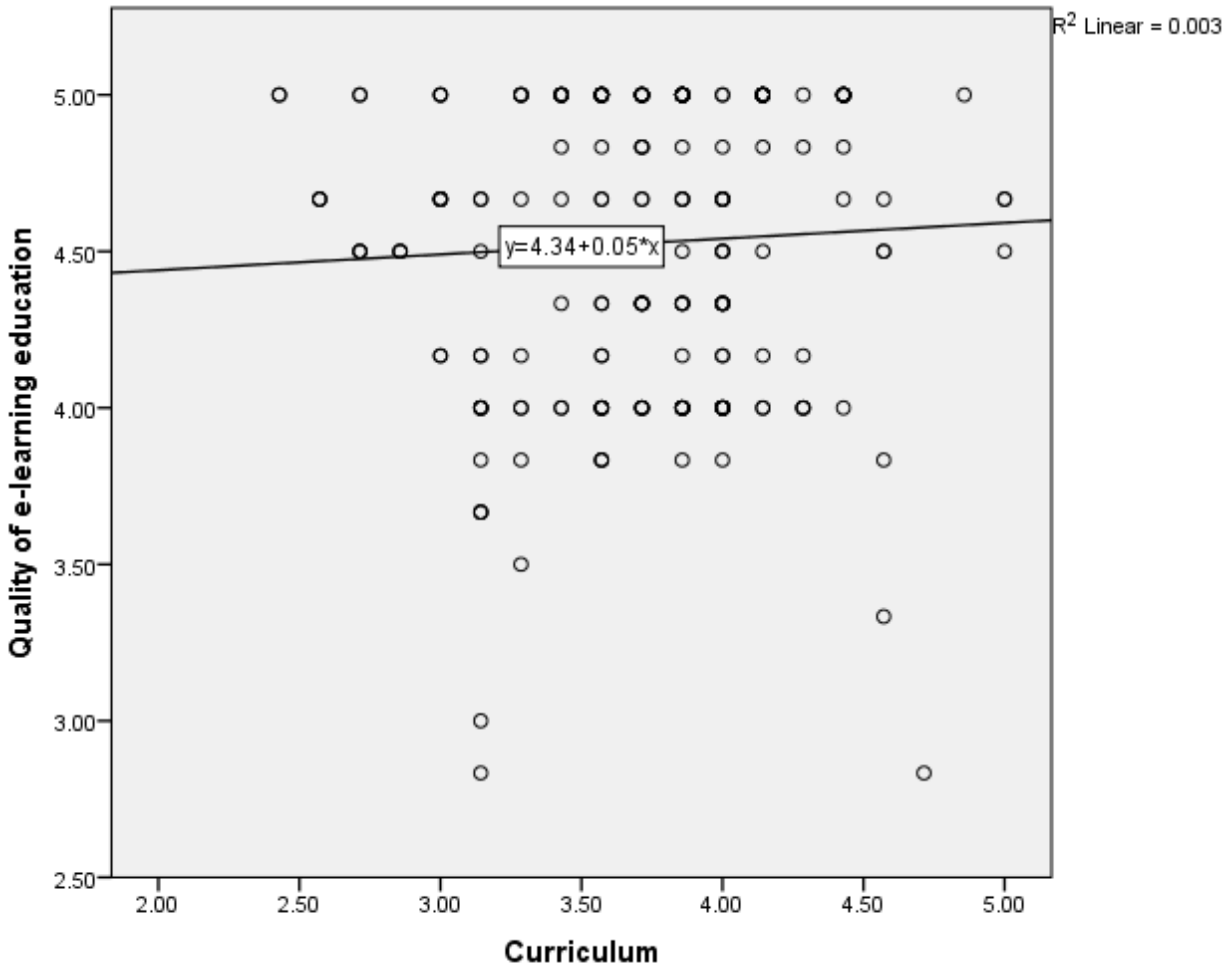

Figure 3. Correlation between Curriculum and Quality of e-learning education

So, the null hypothesis H_0 is tested and rejected as the results show a relationship between curriculum and quality of e-learning education, although it is weak but positive, which means that the alternative hypothesis is accepted.

4.6.1.2 Correlation between Faculty and Quality of e-learning education

- **Null Hypothesis:**

  H_0: There is no relationship between Faculty and Quality of e-learning education.

- **Alternative Hypothesis:**

  $H_{1.1}$: There is a relationship between Faculty and Quality of e-learning education.

  As shown in **Table 19**, the value of Pearson correlation is 0.518, and P-value is 0.000 for the samples of 240. In this case, the p-value of 0.000 is < 0.05, which means there is a significant relationship between faculty and the quality of e-learning.

Table 19. Correlation between Faculty and Quality of E-learning education

	Quality of e-learning education		
	Pearson Correlation	Sig. (1-Tailed)	N
Faculty	0.518	0.000	240

As shown in **Figure 4** below, the R^2 value is 0.269, which means that the relationship between faculty and quality of e-learning education is positive.

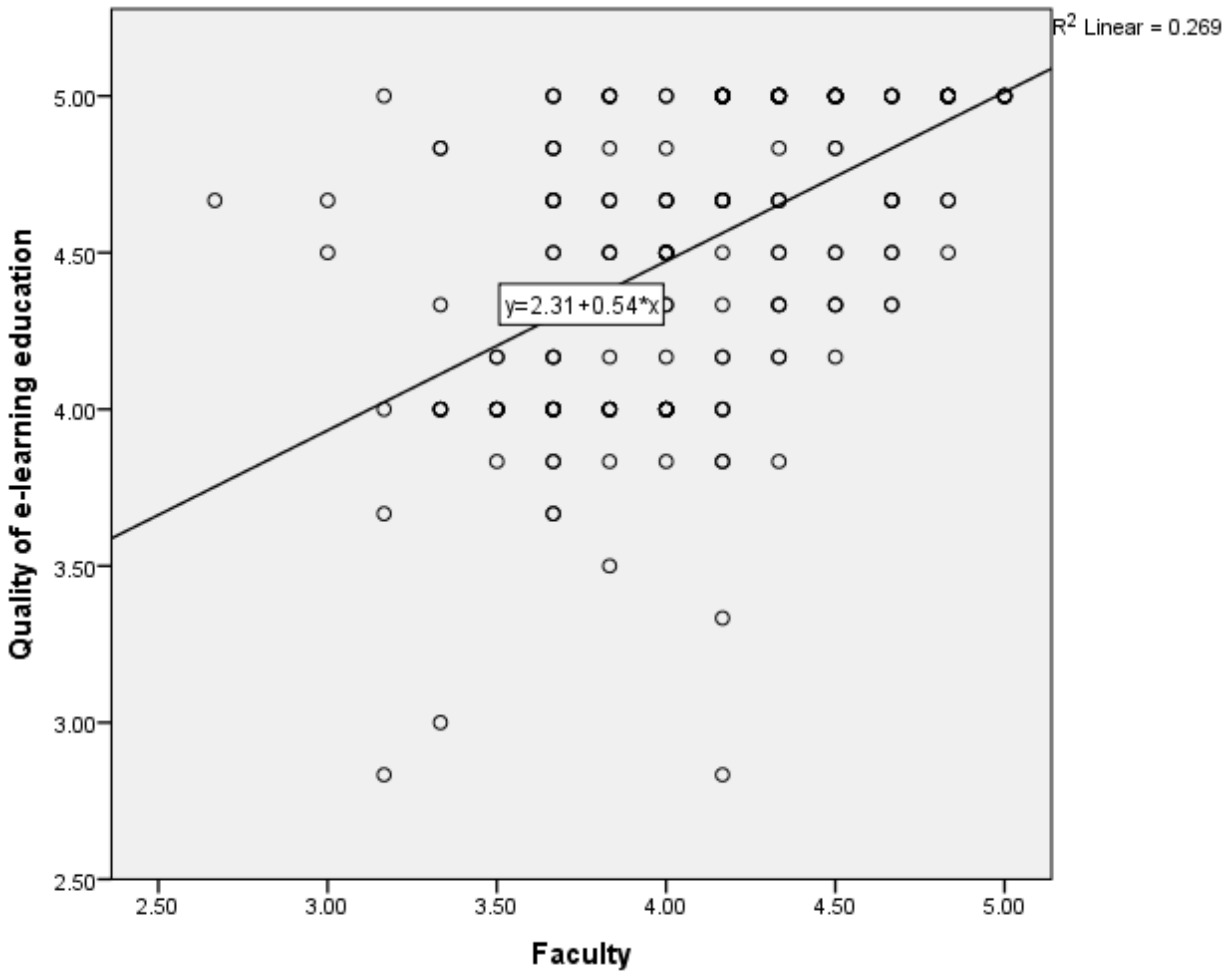

Figure 4. Correlation between Faculty and Quality of e-learning education

So, the null hypothesis H_0 is tested and rejected as the results show a significant positive relationship between faculty and quality of e-learning education which means that the alternative hypothesis is accepted.

4.6.1.3 Correlation between ICT Infrastructure and Quality of e-learning education

- **Null Hypothesis:**

  H_0: There is no relationship between ICT infrastructure and the quality of e-learning education.

- **Alternative Hypothesis:**

  $H_{1.1}$: There is a relationship between ICT infrastructure and the quality of e-learning education.

  As shown in **Table 20**, the value of Pearson correlation is 0.097, and P-value is 0.067 for the samples of 240. In this case, the p-value of 0.067 is > 0.05, which means there is no significant relationship between ICT infrastructure and the quality of e-learning.

Table 20. Correlation between ICT Infrastructure and Quality of E-learning Education

	Quality of e-learning education		
	Pearson Correlation	Sig. (1-Tailed)	N
ICT Infra	0.097	0.067	240

As shown in **Figure 5** below, the R^2 value is 0.009, which means that the relationship between ICT Infrastructure and the quality of e-learning education is positive.

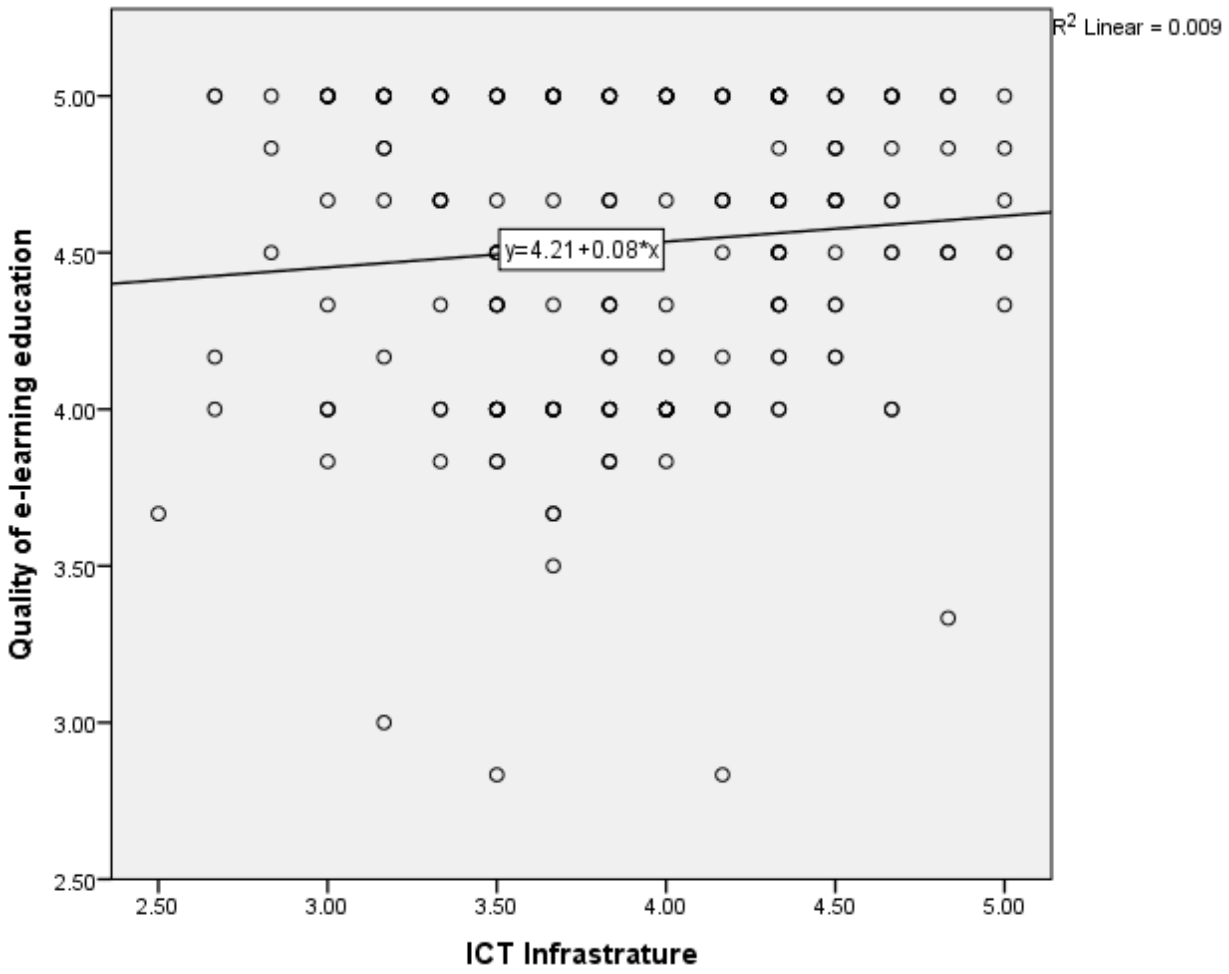

Figure 5. Correlation between ICT Infrastructure and Quality of e-learning education

So, the null hypothesis H_0 is tested and rejected as the results show a relationship between ICT Infrastructure and the quality of e-learning education, although it is weak but positive, which means that the alternative hypothesis is accepted.

4.7 Summary of Findings

Table 21 illustrates the summary of findings.

Table 21. Summary of the Findings

No. Hypothesis	Hypothesis	Test Results
$H_{1.1}$	There is a relationship between Curriculum and Quality of e-learning education.	There is no significant relationship between curriculum and quality of e-learning education, but the relationship is positive and weak
$H_{1.2}$	There is a relationship between faculty and the Quality of E-learning education.	There is a significant relationship between faculty and the quality of e-learning education
$H_{1.3}$	There is a relationship between ICT Infrastructure and the Quality of E-Learning education.	There is no significant relationship between ICT Infrastructure and quality of e-learning education, but the relationship is positive and weak

Chapter Five

Conclusion and Recommendation

5.1 Introduction

This chapter is the conclusion of the research findings and results. The recommendation is given to HEIs, and the limitations of the study are listed along with future implications related to the same study.

5.2 Conclusions

This research shows the relationship between factors affecting students' behavioral intention (Curriculum, Faculty, and ICT infrastructure) and E-learning (Quality of E-learning education).

The population targeted in this research were students from different HEIs in Oman. A total of 240 student's responses have been collected and analyzed using the SPSS application, and the hypothesis was tested using the same tool.

In Oman, Curriculum is one of the primary education quality determinants, and it has a section of its own in the OAAA quality checklist (Academic et al., 2016). From the outcome of the data analysis, a conclusion arrived as there is a positive relationship between curriculum and its influence on the quality of e-learning education. Although the relationship was not significant, this means that curriculum infect is a quality determinant.

As Al Jardani (2020) stated, lecturers must be ready to move to the e-learning method to make it successful. The outcome from the data analysis in this research showed a significant positive relationship between faculty and the quality of e-learning education.

Alsabawy, Steel, and Soar (2013) have concluded that IT infrastructure plays a critical role in the success of e-learning. The outcome of this research regarding the relationship between ICT infrastructure and quality of e-learning education shows a positive relationship between ICT infrastructure and quality of e-learning education based on student feedback.

We can conclude our research with there is a relationship between student's behavioral intention and e-learning, and the relationship is positive.

5.3 Recommendations

As the results of the data analysis showed, there is a positive relationship between Curriculum, Faculty, and ICT infrastructure, and Quality of E-learning education. HEIs should conduct surveys after each semester to collect students' feedback to enhance their e-learning service quality. The curriculum must be designed simply and easily for students to understand and participate in the online class. Moreover, regular reviews should be conducted on the curriculum to ensure the contents are up to date and address market needs.

Proper training should be conducted to faculty to support students either technically or from the educational perspective. Faculty play a significant role in providing a better e-learning experience to students. Sharing short videos and simple instruction guidelines with students is an excellent idea to help them understand how to use and navigate communication applications like Microsoft Teams and through the e-portal.

Collaborating with Internet Services Providers (ISPs) such as "Omantel, Ooredoo, and Awasr" to provide special internet modems that may work by SIM cards will help facilitate education for students and enable them to connect to the e-portal and their online classes with ease from home especially those students who do not have a proper internet connection at their living areas.

In Oman, the primary education path was always the traditional way, the in-classroom education in the HEI Campos; this led to having a library in the Campos and accessible only during the working hours of the institute. With the spreading of the COVID-19 virus and stopping the classroom education in HEIs, the physical libraries are closed and of no use to students; having an electronic library will help students reach e-books that will help them in their studies. Therefore, it is recommended that an e-library is developed and reviewed regularly to make sure the contents in the library are up to date and to make sure that lecturers upload valuable articles.

5.4 Limitations and Future Studies

This research was commenced and conducted when the COVID-19 virus started spreading in a wide range in Oman; this dramatically impacted the education sectors where HEIs and other educational institutions had closed their doors till further notice to avoid spreading the virus between students and faculty members. This lockdown meant that students would no longer be attending school or HEIs on-premise. This brought up the first limitation to this research: the difficulty of reaching out to students and collecting their feedback on the questionnaire. The only approach was to send the questionnaire line through WhatsApp and get it spread all around Oman and through Omani forums.

Moreover, the population addressed in this research were only students in HEIs in Oman, which excluded students in schools and excluded parents.

As for future studies related to the same topic, it is recommended to gather a more significant number of feedbacks from students so that there will be a better understanding of students which will reflect positively on the quality of e-learning education provided. Also, parent's point of view should be taken into consideration since they are the ones who are taking care of the students and their needs, understanding their capabilities, and taking notes from their view regarding the E-learning service is essential since they are the once physically closer to the students and their feedback will help improve the quality of e-learning education.

References

Overview Ministry of Higher Education, Scientific Research and Innovation. (2019). Retrieved May 19, 2021, from https://omanportal.gov.om/wps/wcm/connect/en/site/home/gov/gov1/gov5governmentorganizations/mohe/mohe

6 ways to deploy ICT for quality education. (2018). Retrieved May 29, 2021, from https://blogs.adb.org/blog/6-ways-deploy-ict-quality-education

Academic, O., Authority, A., Academic, O., Authority, A., Academic, O., & Authority, A. (2016). Institutional Standards Assessment Standards Manual Institutional Assessment Standards Manual Institutional. Institutional Standards Institutional Standard, January, 22.

Akhtar, M. I. (2016). Research design Research design. Research in Social Science: Interdisciplinary Perspectives, September, 68–84.

Al-Gattoufi, S., Al-Naabi, S., & Gattoufi, B. (2007). Readiness For Shifting From A Traditional Higher Education Learning System To An E-Learning System: A Case Study From The Sultanate Of Oman. Journal of College Teaching & Learning (TLC), 4(11), 55–60. https://doi.org/10.19030/tlc.v4i11.1523

Al'Abri, K. (2019). Higher Education Systems and Institutions, Sultanate of Oman. In Encyclopedia of International Higher Education Systems and Institutions (pp. 1–4). Springer Netherlands. https://doi.org/10.1007/978-94-017-9553-1_489-1

Al Musawi, A. S., & Yousif Abdelraheem, A. (2004). E-learning at Sultan Qaboos university: Status and future. British Journal of Educational Technology, 35(3), 363–367. https://doi.org/10.1111/j.0007-1013.2004.00394.x

Alsabawy, A. Y., Cater-Steel, A., & Soar, J. (2013). IT infrastructure services as a requirement for e-learning system success. Computers and Education, 69, 431–451. https://doi.org/10.1016/j.compedu.2013.07.035

Alternative Hypothesis-Definition, Types and Examples. (2019). Retrieved June 16, 2021, from https://byjus.com/maths/alternative-hypothesis/

An inspiration to us all - Oman Observer. (2021). Retrieved May 18, 2021, from https://www.omanobserver.om/article/16521/LIFE AND TIMES OF SULTAN QABOOS/an-inspiration-to-us-all

Basic vs Applied Research: 15 Key Differences. (2020). Retrieved June 2, 2021, from https://www.formpl.us/blog/basic-applied-research

Carroll, M., Razvi, S., Goodliffe, T., & Al-Habsi, F. (2009). Progress in developing a national quality management system for higher education in Oman. Quality in Higher Education, 15(1), 17–27. https://doi.org/10.1080/13538320902731328

Chao, I. T., Saj, T., & Hamilton, D. (2020). International Review of Research in Open and Distributed Learning Course Quality Standards. International Review of Research in Open and Distributed Learning, 11(1), 5.

Chao, T., Tami Saj, I., & Tenier, F. (2006). Establishing a ual" Review for Online Courses: A formal review of online courses measures their quality in key areas and reveals changes needed for improvement, if any. EDUCAUSE Quarterly, 3(3), 32–39. http://www.educause.edu/ir/library/pdf/eqm0635.pdf

Curriculum Definition. (2021). Retrieved May 22, 2021, from https://www.ride.ri.gov/InstructionAssessment/Curriculum/CurriculumDefinition.aspx

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly: Management Information Systems, 13(3), 319–339. https://doi.org/10.2307/249008

DeRouin, R. E., Fritzsche, B. A., & Salas, E. (2005). E-learning in organizations. Journal of Management, 31(6), 920–940. https://doi.org/10.1177/0149206305279815

Difference Between Faculty and Staff (with Comparison Chart) - Key Differences. (2017). Retrieved May 22, 2021, from https://keydifferences.com/difference-between-faculty-and-staff.html

Donoghue, J. O., & Worton, H. (2002). A Study Into The Effects Of eLearning On Higher Education Gurmak Singh. Learning, 133(3), 547–553. http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=12443913

Ellis, R. A., Ginns, P., & Piggott, L. (2009). E-learning in higher education: Some key aspects and their relationship to approaches to study. Higher Education Research and Development, 28(3), 303–318. https://doi.org/10.1080/07294360902839909

Frost, J. (2018). Interpreting Correlation Coefficients - Statistics By Jim. Interpreting Correlation Coefficients. https://statisticsbyjim.com/basics/correlations/

Ginns, P., & Ellis, R. (2007). Quality in blended learning: Exploring the relationships between on-line and face-to-face teaching and learning. Internet and Higher Education, 10(1), 53–64. https://doi.org/10.1016/j.iheduc.2006.10.003

Gu, J. C., Lee, S. C., & Suh, Y. H. (2009). Determinants of behavioral intention to mobile banking. Expert Systems with Applications, 36(9), 11605–11616. https://doi.org/10.1016/j.eswa.2009.03.024

Hayes, A. (2020). Null Hypothesis Definition. Investopedia. https://www.investopedia.com/terms/n/null_hypothesis.asp

Jung, I. (2011). The dimensions of e-learning quality: From the learner's perspective. Educational Technology Research and Development, 59(4), 445–464. https://doi.org/10.1007/s11423-010-9171-4

Lamarche, V. C., Cook, E. R., & Baillie, M. G. L. (1982). Sampling strategies. Climate from Tree Rings, 2–8. https://doi.org/10.4324/9781315233024-5

Majaski, C. (2020). Hypothesis Testing Definition. Investopedia. https://www.investopedia.com/terms/h/hypothesistesting.asp

Mestrovic, D. (2017). Service Quality, Students' Satisfaction and Behavioural Intentions in STEM and IC Higher Education Institutions. Interdisciplinary Description of Complex Systems, 15(1), 66–77. https://doi.org/10.7906/indecs.15.1.5

Micari, M., & Pazos, P. (2012). Connecting to the Professor: Impact of the Student–Faculty Relationship in a Highly Challenging Course. College Teaching, 60(2), 41–47. https://doi.org/10.1080/87567555.2011.627576

Ministry of Higher Education, Scientific Research and Innovation. (2020). Retrieved May 18, 2021, from https://www.omaninfo.om/pages/209/show/800

Mulenga, I. M. (2018). Conceptualization and Definition of a Curriculum. Journal of Lexicography and Terminology, 2(2), 1–23.

Muthurman, S., Veerasamy, R., & Al-Hazaizi, M. (2020). E-learning to enhance educational competitiveness in the sultanate of Oman. International Journal of Innovation, Creativity and Change, 11(2), 84–92.

Of, C., & Acm, T. H. E. (2004). CLASSROOM. 47(5), 74–79.

Omani residential internet access and smartphone ownership dip by 1% from 2019 - Telecompaper. (2020). Retrieved September 20, 2021, from https://www.telecompaper.com/news/omani-residential-internet-access-and-smartphone-ownership-dip-by-1-from-2019--1339428

Osman, M. E. (2020). teaching at Sultan Qaboos University Global impact of COVID-19 on education systems : the emergency remote teaching at Sultan Qaboos. Journal of Education for Teaching, 00(00), 1–9. https://doi.org/10.1080/02607476.2020.1802583

Pack, P. D. F. (2003). Curriculum design and development.

Rabianski S., J. (2003). 68Bfe6580297494936F0126Ed5D3D017.Pdf.

Rockwell, K., Schauer, J., Fritz, S., & Marx, D. (2000). Faculty Education, Assistance and Support Needed to Deliver Education via Distance. Online Journal of Distance Learning Administration, 3(2).

Salim, K., & Jardani, A. (2020). E-Learning in Higher Education ; Challenges and Opportunities. 14(11), 57–64.

Sangrà, A., Vlachopoulos, D., & Cabrera, N. (2012). Building an inclusive definition of e - learning : An approach to the conceptual framework | Sangrà | The International Review of Research in Open an … Building an inclusive definition of e - learning : An approach to the conceptual framework. International Review of Research in Open and Distributed Learning, 13(2), 145–159. https://doi.org/10.19173/irrodl.v13i2.1161

Schindler, L., Puls-Elvidge, S., Welzant, H., & Crawford, L. (2015). Definitions of Quality in Higher Education: A Synthesis of the Literature. Higher Learning Research Communications, 5(3), 3. https://doi.org/10.18870/hlrc.v5i3.244

Shraim, K. (2008). Students ' Readiness Towards E-learning . A case study of Virtual Classrooms for secondary education in Palestine. 1–11.

Tawafak, R. M., AlFarsi, G., Jabbar, J., Malik, S. I., Mathew, R., AlSidiri, A., Shakir, M., & Romli, A. (2021). Impact of Technologies During COVID-19 Pandemic for Improving Behavior Intention to Use E-learning. International Journal of Interactive Mobile Technologies, 15(1), 184–198. https://doi.org/10.3991/IJIM.V15I01.17847

Testing For Normality - Clearly Explained - YouTube. (2020). Retrieved June 18, 2021, from https://www.youtube.com/watch?v=02I84i8Knas

Uppal, M. A., Ali, S., & Gulliver, S. R. (2018). Factors determining e-learning service quality. British Journal of Educational Technology, 49(3), 412–426. https://doi.org/10.1111/bjet.12552

Vaughn, B. K., & Daniel, S. R. (2012). Conceptualizing validity. In Measurement in sport and exercise psychology. (pp. 33–39). Human Kinetics.

What is IT Infrastructure? - Definition from Techopedia. (2020). Retrieved May 22, 2021, from https://www.techopedia.com/definition/29199/it-infrastructure

Yang, Y., & Cornelious, L. (2005). Ensuring Quality in Online Education Instruction: What Instructors Should Know? Annual Prosseding of the Association for Educational Communications and Technology, 1, 847–860.

البوابة التعليمية. (2012). Retrieved May 18, 2021, from https://home.moe.gov.om/pages/6/show/12

تطور التعليم في سلطنة عمان: التعليم قبل النهضة. (2012). Retrieved May 18, 2021, from http://sskh1.blogspot.com/p/blog-page.html

Appendix

Appendix 1: Questionnaire

Item #	Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Curriculum						
1	Understanding the topic is more important than the design of the curriculum.					
2	Having a relevant curriculum and teaching material is important.					
3	I can understand the audio media even if they were not of high quality.					
4	It is important for me to have a clear video conference with the lecturer.					
5	Having a clear learning material is important for me.					
6	I can handle multiple homework's through the portal.					
7	I can handle the digital format of the material better than the hard copy.					
Faculty						
1	I believe the lecturer should have sufficient teaching material.					
2	Starting the class on time does not matter if the lecturer will be able to cover the material on time.					
3	My motivation to on-line classes is not related to the motivation of the lecturer.					
4	Lecturer academic level is important in order to conduct classes.					
5	Lecturers' communication skills play major role in determining the quality of on-line learning.					
6	I believe teachers should put efforts to create contents for E-Learning student.					
ICT Infrastructure						
1	I have proper internet connection set up at home to access the e-learning.					
2	Internet speed at home is enough to attend on-line classes.					

3	Its enough if I know how to submit my work in the system, whether easy or hard.					
4	It is important that the system is easy to use and not complicated.					
5	Having an electronic library is important for me.					
6	I believe that the electronic libraries should be reviewed and updated every year.					
th						
1	Getting guidance from faculty affect positively on the quality of e-Learning.					
2	I believe encouragement and follow up of instructors affects positively on the quality of e-learning.					
3	Poor technical support affects negatively on the quality of e-learning.					
4	Having a user friendly system can indicate good quality e-learning service.					
5	Good communication tool within the system is a good measure of the quality of e-learning.					
6	Having a tool to assist the quality of E-learning is important.					

Appendix 2: Detailed Questionnaire Responses

Item #	Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Curriculum						
1	Understanding the topic is more important than the design of the curriculum.	6	14	50	101	69
2	Having a relevant curriculum and teaching material is important.	0	1	5	103	131
3	I can understand the audio media even if they were not of high quality.	30	84	68	42	16
4	It is important for me to have a clear video conference with the lecturer.	3	14	70	87	66
5	Having a clear learning material is important for me.	4	11	19	73	133
6	I can handle multiple homework's through the portal.	10	20	77	111	22
7	I can handle the digital format of the material better than the hard copy.	18	24	83	88	27
Faculty						
1	I believe the lecturer should have sufficient teaching material.	1	4	6	92	137
2	Starting the class on time does not matter if the lecturer will be able to cover the material on time.	29	54	51	75	31
3	My motivation to on-line classes is not related to the motivation of the lecturer.	17	38	70	75	40
4	Lecturer academic level is important in order to conduct classes.	0	7	11	87	135
5	Lecturers' communication skills play major role in determining the quality of on-line learning.	0	2	9	69	160
6	I believe teachers should put efforts to create contents for E-Learning student.	0	1	5	87	147
ICT Infrastructure						
1	I have proper internet connection set up at home to access the e-learning.	15	25	49	105	46
2	Internet speed at home is enough to attend on-line classes.	18	22	49	99	52
3	Its enough if I know how to submit my work in the system, whether easy or hard.	14	37	58	90	41
4	It is important that the system is easy to use and not complicated.	0	0	8	76	156
5	Having an electronic library is important for me.	2	2	67	97	72

6	I believe that the electronic libraries should be reviewed and updated every year.	1	2	44	102	91
th						
1	Getting guidance from faculty affect positively on the quality of e-Learning.	1	3	20	94	122
2	I believe encouragement and follow up of instructors affects positively on the quality of e-learning.	0	0	7	85	148
3	Poor technical support affects negatively on the quality of e-learning.	1	1	12	75	151
4	Having a user friendly system can indicate good quality e-learning service.	2	1	11	78	148
5	Good communication tool within the system is a good measure of the quality of e-learning.	0	3	9	92	136
6	Having a tool to assist the quality of E-learning is important.	0	0	10	79	151