E-LEARNING INFLUENCE IN DEVELOPING FUTURE EMPLOYMENT SKILLS FOR UNDERGRADUATES IN OMAN

A thesis submitted by

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Abstract

E-learning is a relatively recent concept as an educational system that enhances students' learning and teaching environments by making them more functional and skill-oriented. Accordingly, in Oman, most studies that investigate the relationship between education, employability, and skills have emphasised the importance of enhancing the skills of higher education students, because the skills of most graduates do not fulfil market expectations.

The purpose of this research is to determine the extent to which E-learning plays a significant role in developing and enhancing the skills of university students in Oman in order to prepare them for future employment, as perceived by the stakeholders. The sample of students and graduates from colleges of technology in Oman and the research framework have been designed in accordance with the study's aim and objectives. The existing gaps were identified in the research context and formed the basis of the researcher's questions and justifications. The conceptual framework was produced in the early stages of the investigation to arrange the research ideas and fulfil the research purpose of this study.

The research employs a mixed method approach by conducting the first stage of the investigation through semi-structured interviews with a variety of stakeholders from labour market, education, and government sectors. The collected data were used to measure the extent of the skills gap between colleges and the labour market and the role of E-Learning in developing student skills. The next stage of the investigation was to understand how E-learning can be used to bridge the existing skills gap by exploring the E-learning dimensions of use, features, quality, and support in developing student skills. These scopes were measured through the E-learning different elements and the theoretical frameworks of IS Theories. An online survey questionnaire was administered to students, lecturers, E-learning coordinators, and technical support staff in colleges of technology in Oman.

The findings of this research indicated that although student skills improvement is overall positive, among Omani graduates, however, the results confirmed that new graduates lack communication, IT literacy, and English language skills as well as other essential soft and interpersonal skills. In terms of E-learning as an educational service within the college system, the stakeholders see it as an important and effective instrument in making the students' educational environment more valuable and functional to provide students with more opportunities to develop their skills. The findings confirmed that E-learning will continue to play an important role in skills training and social influence, facilitating conditions, and digital literacy can all have a positive effect on user behavioural intention, yet all stakeholders must align their goals and objectives for the professional growth of Omani students to meet the market demands.

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List of Abbreviations and Acronyms

HE:	Higher Education
CoT:	The Colleges of Technology
HEIs:	The Higher Education in Oman
GAs:	Graduate Attributes
CDP:	Course Delivery Plan
DOI:	Diffusion of Innovation
TAM:	Technology Acceptance Model
UTAUT:	Unified Theory of Acceptance and Use of Technology
GCM:	Graduate Capital Model
CF:	Conceptual Framework
GCC:	Gulf Cooperation Council
MoHERI:	The Ministry of Higher Education, Research, and Innovation
MoE:	The Ministry of Education
OAAA:	Oman Academic Accreditation Authority
HEAC:	The Higher Education Admission Centre
HRD:	Human Resource Development
NCSI:	the National Centre for Statistics and Information (Oman)
OGSS:	The Department of Graduate Students Survey at the MoHERI
OJT:	On-the-Job Training
MoM:	the Ministry of Manpower
UTAS:	the University of Technology and Applied Sciences
UNDP	The United Nations Development Programme
LMS:	Learning Management Systems
MOOC:	Massive Open Online Courses
IS:	Information Systems
UNESCO:	United Nations Educational, Scientific, and Cultural Organization
TA:	Thematic Analysis
EHS:	Environmental Health and Safety
CC:	College Council
ETC:	Educational Technology Centre

Chapter 1: Introduction

1.1. Overview

Most of the many information technology (IT) advancements achieved over the past 25 years have been made to meet the user needs in terms of offering greater flexibility and simpler ways to use IT. Given the rapid development in this field, the relationship between IT and learning is constantly changing and expanding. Therefore, the term electronic learning or E-Learning is used to describe the electronic ways to deliver better, easier, and more flexible education to learners. Different types of technology devices and applications are currently being used in this novel E-learning environment. Many recent studies have explored the use of E-learning environments for teaching and improving the skills of the university students in different countries (Al-Fraihat et al. ,2020; Nia and Kurniawan, 2019; Tawafak, Romli, and Arshah, 2019; Musawi, 2017). Also, there are other studies that have highlighted the importance of improving the skills set of higher education (HE) students, so that graduates are able to meet the expectations of their future employers (Goodwin et al., 2019; Suleman, 2018; Tawafak et al., 2018; Belwal et al., 2017).

As a researcher and academic, I am aware that E-learning offers certain definite advantages related to student and graduate skills. I have used this knowledge to investigate the role of E-learning as a part of the college study system in Oman to develop the skills set of college students with a focus on preparing them for future employment. This research is also aimed to examine the extent in which colleges are involved in developing the skills set of undergraduate students in their course of study.

This research will be divided into two parts: the first part will cover skills development and the role of the college, and the second part will discuss E-learning as a technological tool for developing student skills. Thus, this study will strive to examine the perceptions of the stakeholders toward the college study system, evaluating and developing a set of skills for undergraduates, and enhancing E-learning to develop student skills. The skills to be investigated include computing, communication, teamwork, English writing, time management, and the ability to work under pressure. I would like to clarify at this point that E-learning has many elements that may also support other types of skills; however, the skills highlighted above are based on my personal interest and are the skills required in the labour market of Oman.

This research is a unique contribution to knowledge in this field of research and selected the colleges of technology (CoT) in Oman as the study site. CoT include seven colleges which fulfil the standards of other leading technological institutions that are committed to building a sustainable infrastructure, skilled human resources, and an excellent student body to meet the changing demands of HE and the local job market (OAAA, 2010). The main aim of these CoT is to produce graduates who have the professional and personal skills to start their employment with confidence, contribute effectively to Oman's on-going economic progress, and to provide the market with the technicians, accountants, Information technology operators, and other technical occupations it requires (MoM, 2018). In the last decade, CoT have become pioneers in providing a quality education and are reputed to take the issue their students' and graduates' skills and knowledge very seriously, section 2.3 of Chapter 2 provides information about the study sample CoT. There are several factors that have influenced my choice of E-learning for developing set of employability skills in the case of CoT in Oman as a research topic. One of these factors is the researcher being familiar with both the teaching and learning environment of the CoT in Oman. Another factor is the lack of existing research studies to examine employability and the use of E-learning systems in CoT in supporting student skills development. To the best of my knowledge, no research on a related topic that combines the domains of employability, the use of E-learning systems in CoT, and skills development has been completed so far. Thus, investigating the current state of the CoT E-learning system and picturing its future development can assist to outline the system's advantages as well as drawbacks. As a result, the research will highlight those significant elements that will enhance the role of E-learning in skills development.

1.2. Background

During the 1990's the creation of the World-Wide-Web (the web) revolutionised IT by creating internet communication. The new technology allowed information to be delivered and received instantly. This development resulted in the implementation of web technology for education also known as E-learning. Initially, E-learning was not flexible, and learning and learning support were only available through very few mediums (Quan-Haase, 2005). Over time, E-learning became more flexible and more easily deliverable with the creation of cheaper and better electronic teaching materials. At present, it includes different types of multimedia, such as text graphics, animation, audio, video clips, and video conferencing (Costley, Lange and Lange, 2017). Nowadays, different platforms and devices are being used as part of innovative E-learning systems. As a result, the environment of E-learning has developed and can be used today by students to ensure

easy access to information, sharing and exchanging of information, time reduction, flexibility of time and place, connectivity, and better resolution of problems (Bayona, Chavez and Sicha, 2018).

The terms ‘skills of graduates’ and ‘graduate skills’ are used in most countries in the field of university education. These terms refer to skills and personal qualities that students are expected to have acquired by the end of their study course. Some universities have identified common attributes that are available in all qualifications, and specific courses might also focus on subject-specific knowledge and skills that are enhanced through study. Examples of such skills include report writing, laboratory work, computer programming, critical thinking, confidence building, and the ability to evaluate (Tzanakou and Behle, 2017). It was noted that many universities in the UK and other countries around the world offer study schemes to help students to develop job-related skills. These schemes involve opportunities for work-related learning and self-career development training on issues such as communication, self-awareness, and entrepreneurship (Swinney and Williams, 2016).

In terms of using E-learning and skills development, Camilleri and Camilleri (2019) explored the potential of such online learning technologies. They argued that students can develop their knowledge, skills, and learning performance informally through connectivity technology. Further, if learning occurs across formal and informal channels, the students of tomorrow will have to continue using technology in their future jobs. Prahani et al. (2020) examined how the use of online learning education applications and different modules makes it easier for students to transfer what they learn to solve real-life problems when presenting contextual learning activities. Students are also able to integrate reading, writing, language, and communication skills throughout the curriculum in meaningful ways and apply them to real-life materials, problems, and tasks.

In Oman, several studies have examined the improvement of graduate skills. According to Gonzalez et al. (2008), Oman is facing a number of human resource challenges, one of which being that the education system does not produce workers with the skills required by employers. To address such concerns, Oman has implemented several policies to expand its economy and social development. Likewise, steps are being taken to develop the human capital of Omani nationals (Oman Supreme Council for Planning, 2016). According to a survey conducted by the Department of Graduate Students Survey in the Ministry of HE in Oman, the gap between higher education institutions (HEIs) and the labour market still exists; employers are still not satisfied with the skills of fresh graduates, which is why they do not

recommend hiring them (OGSS, 2016). Thus, a functional approach must be taken to address the reasons for unemployment among recently graduated Omani nationals. One of them is the need to promote education and training to ensure that new graduates and job seekers are given the necessary skills so that they are employable in the major industries (Al–Maskari, 2018).

Through various types of online learning management systems such as WebCT, Moodle, and other portals, E-learning platforms are being integrated into the Omani educational system and used by many colleges and universities. Lecturers are encouraged to place their courses online to ensure that the quality of E-learning meets the institution's goals (Musawi, 2017).

In the case of testing the benefits of using E-learning in skills development for university students in Oman, Malik et al. (2019) have developed a two-version online application (E-learning and M-learning) for undergraduates that is aimed at enhancing problem-solving skills in IT courses. Before the introduction of this application, the students focused more on programming knowledge rather than problem-solving strategies. However, after implementing the application, there was a measurable improvement in the attitudes and behaviour of the students towards the exercise questions, and the students' problem-solving skills were elevated. The course also encouraged teamwork and collaboration in classrooms and motivated the students to complete the exercises at their own convenience and in their own time. This means that incorporating technology into learning and teaching resources such as E-learning and M-learning is adopted by students, and it can help them achieve a variety of skills if they are supported with suitable practices and guidance.

1.3. Problem Identification and Research Aim

In summary, the previous section has attempted to provide a brief of the background relating to E-learning and students skills development for future employability from different perspectives.

The section has also highlighted that one of Oman's human resource difficulties is that the education system is not producing graduates with the skills expected by the local employers who are not fully satisfied with the skills of the new graduates. As a result, there are many Omani graduates who are still a job seeker. Accordingly, Oman has implemented several policies to expand its economic and social development and address these issues. Similarly, Omani human capital is being developed. Oman has excelled in

training and developing its national human resources according to its Omanisation policy that aims to increase the number of local employees.

However, Oman still has the problem of low employment, especially among HEI graduates at the bachelor, advanced diploma, and diploma levels in engineering, IT, business, culture, natural sciences, health, education, and law (NCSI, 2019). As evidenced in several studies, the unemployment of graduates from HEIs is linked to many factors including lack of employability skills. More specifically there is an absence of skills for various occupations, which poses a major hindrance to local national recruitment. On the other hand, there is the issue of a lack of consensus among the stakeholders regarding their respective roles and responsibilities (Al Hinai , 2018 ; Naqvi et al., 2018; Belwal et al., 2017; Al Yaqoubi, 2017; Baporikar and Shah, 2012).

Several studies have identified the factors that need to be addressed to help solve the problem of unemployment among university graduates in Oman. They have also noted that this problem requires a national employment strategy that includes replacing non-Omani employees with Omani employees, especially in occupations such as technicians, professionals, and skilled workers (Oman Supreme Council for Planning, 2016). In addition, education and training outputs need to be aligned with the local labour market needs (Al–Maskari, 2018; Belwal et al., 2017). Some studies have also indicated that education and training are prioritized in Oman's human development initiatives and the government projects and policies, for example, the National Education Strategy for 2040 emphasizes the need to transform the Omani silk sector (Education Council Report, 2012).

As proposed in those studies, resolving the issue of unemployment among Omani graduates requires a functional approach, such as the importance of promoting education and training to ensure that new graduates and job seekers are employable in the local industries. Also emphasised is the fact that higher employability requires the local universities to create and introduce curriculums that support long-term growth and encourage students to improve their skills through experience and collaboration.

With this in mind, E-learning should be incorporated into the college education system to strengthen the skills set of undergraduate students. In the following sections, therefore, the positive outcomes of employing E-learning in skill development for university students in Oman will be discussed. Further explanation of all aspects of these features will be given in chapters two and three. The aim of this study is to investigate, as a part of the college study system, what stakeholders' perceptions of the state of student skills development in Oman. Furthermore, the stakeholders' perceptions towards the role of E-

learning in building and enhancing student skills will be explored. The focus of the research is also on examining the perceptions of stakeholders towards specific skills such as computing, communication, teamwork, English writing, time management, and ability to work under pressure. These skills have been identified as those skills that are required for employability, and the stakeholders, based on their work type and responsibility, have been asked to evaluate the significance of these skills in general and with the support of E-learning usage. Thus, this research is intended to explore the role of the Omani college study system in building student skills and identifying the importance of improving student employability skills to meet the labour market needs in Oman. On the other hand, it is meant to highlight the involvement of IT services in HE and examine how these available services (including E-learning) might improve student employability skills. And after identifying the problem, the problem has been linked to the research question and the conceptual and theoretical concepts underlying this research, and the sample of students and graduates from CoT in Oman has been selected.

1.4. Research Argument and Researcher's Point of View

1.4.1. Research Question

The previous studies have highlighted how important it is to improve the current skills of HE students as they do not meet the expectations of employers. The HE system of Oman, therefore, faces a considerable challenge to improve the skills set of graduates and to close the gap between the HE system and the Omani market requirements.

Based on my work experience as an academic working in one of the local colleges, I am aware that the majority of the classes taught are committed to knowledge (theory and practice), objectives, and assessment, with the goal of developing student skills. My attention was particularly drawn to the use of E-learning by students and teaching staff. My college has long been implementing an E-learning system, and all lecturers (regardless of specialisation) are encouraged to utilise it. The lecturers are required to post all course materials and assessments to the E-learning portal, which is a mandatory practice. In real life, however, some lecturers have yet to adopt E-learning, and students have yet to embrace it.

Therefore, this research will seek to profit from several research areas to identify more specific deficiencies in human skill development, particularly for undergraduate students in Oman. This can be addressed by defining the skills gap and the labour market's expectations of student skills. It is also critical to comprehend the colleges' role in

developing student skills. Additionally, the research will establish that HEIs in Oman are committed to developing student skills that reflect local market demands. The research will concentrate on GAs and student skills as well as introduce E-learning as one of the technology services that may aid in closing the skills gap. It will also aid in arriving at a better understanding of the functions, purposes, advantages, strengths, and weaknesses of E-learning in the development of student skills that can be gained from the perceptions of those engaged in HE, such as students and academic staff.

Thus, I hope that this study may be used to identify the skill gap among university graduates and the resources necessary to close them based on the expectations of all stakeholders, including employers, graduates, college top management, and decision makers. I also hope that this study will support the current efforts to improve the quality of E-Learning services in Oman to develop student skills. Furthermore, I think that this research may be used to propose practical solutions for enhancing undergraduate skills in Oman, so that all college and university graduates are employable and can enter the workforce with confidence in their professional skills and technical know-how.

As an Omani researcher and academic staff, I believe that conducting research that integrates student skill development using technology, particularly E-learning, is an important topic that deserves more attention because technology needs to play a more pronounced role in education. The current COVID-19 epidemic has, from my observation, made it evident that professionals in all fields of business need to be IT savvy and able to work from home. Especially for universities E-learning has played a pivotal role in ensuring that public education continued even in the most adverse of circumstances. E-learning has enabled academic institutions to reap significant benefits, not just for students and faculty, but for society as a whole. It is thus the right time to conduct this study on the importance of E-learning in developing student skills.

After researching the relevant topics such as the use of E-learning and skills development, I have found that some studies support the use of E-learning in improving student skills. I have realized that certain advantages of E-learning can be identified in the form of graduate and student skills, so I used this to raise my ***research question***, which is:

What are the perceptions among stakeholders of E-learning, as part of the college study system, towards developing a set of future work-related skills for university students in Oman?

The developed research question is built on other aspects that have been mentioned earlier in this chapter. These aspects include the Omani college study system, the labour market, and the national plan for human resources development. Thus, college administration, academic and E-learning coordinators and technical support staff, students, graduates, employers, and policy and decision makers are the stakeholders that are involved in this study. The chosen stakeholders represent the categories that are noted in this study, and their perceptions constitute the input to drive this research and produce the results. Thus, to achieve the aim of this research question the following ***sub-sequential questions*** have been created:

1. What are stakeholders' perceptions about student skills and the need of the labour market? This question seeks to achieve a profound understanding of the skills needed in the job market and the evaluation of the skills set addressed in this study.

2. What are stakeholders' perceptions about the college study system and its key role in improving student skills to prepare them for future employment? This question aims to explore the college strategies and resources available in the study environment and their support in enhancing student skills.

3. What are stakeholders' perceptions about the functionality of E-learning in the college study system? This question explores the function, usage, and advantages of E-learning in the college study framework.

4. What are stakeholders' perceptions about accepting the use E-learning to develop student skills? The goal of this question is to address the strengths and weaknesses of E-learning as well as the attitudes of students towards adopting it as a tool for skills development.

5. What are the students, lecturers and E-learning technical team and coordinators perceptions towards E-learning for development student skills in communication, English writing, teamwork, time management, the ability to work under pressure, and computer skills? This question aims to obtain an outcome on the confidence in using E-learning in the development of the addressed skills.

1.5. Justification of the Research Question and Positionality

How did I get the idea for my research? Why did I need to investigate student skills improvement through the support and the use of E-learning?

Beside my academic role as an IT lecturer, I held the position of a deanship for student affairs in my college. This role addresses the concerns and issues of students in various areas. For instance, I used to receive students' comments or questions about E-learning and its uses. Some of these concerns are explained in the examples and conversations described below:

- A student might come and say, "My final exam is done, and until today I haven't gotten my coursework mark, which is out of 50". In this case my answer would be: "The marks are available on the E-learning web page". Most probably the student replied, "I don't use E-learning services. I'm not an IT student, so I don't know how to use it properly. I don't have time to check it". *This example shows that this student has an issue with using technological tools, takes no initiative in self-learning, and cannot manage his/her time very well.*

- Another student might find it difficult to catch up with the course lecturer or other classmates and might have some points related to the course that need further clarification. In this case I would ask the student, "Did you try to raise your concerns on the chat or discussion board of the course?" The answers in most cases would be "I did not know that there was a chat or discussion group on there"; "I didn't think about that option"; "I'm waiting for the technician or my classmate to teach me how to use the group chat"; or "The course lecturer didn't teach us how to use it". There might also be a few positive responses such as "I've done that already, a long time ago, but nobody answered me." *This example shows issues with communication, independence, and technology use*.

- Another student might have difficulty to meet the course teacher during his/her office hours and will keep calling the office number and receive no response. I would advise the student to drop the teacher an email using the official college email address. Most of the replies from the students were as follows: "I'm not using my college email"; "I use the E-learning portal and I sent the lecturer a private message, but I didn't get any reply"; or the student might ask why the college has not linked the email to the E-learning page. *Here it can be seen that the student is ready to use the email if it is linked to the E-learning system, and the course will add more advantages such as improving communication skills and keeping official records and official accounts.*

- I have taught an IT course attended by students from different undergraduate levels. The course delivery plan (CDP) included a part related to GAs which have to be explained to the students at the beginning of each term. When I asked the students

whether they were aware about GAs, I was usually surprised at their answers. Only few students knew about GAs, while the majority did not know anything about them and thought they were not important. *Based on this personal experience I believe that there is a huge gap in the students' awareness about GAs. The students are not concerned about them, but they should be. If they understand the importance of the skills or attributes graduates are expected to have, they realize that an important part of being a student involves acquiring a definite set of employable skills. They need these skills to find employment and are well-advised to give GAs much more attention during their studies. Here, a part of this concern is related to a lack of awareness and dependency skills.*

- As an IT lecturer I know that a significant number of students will not comply with the deadline that I publish on the E-learning portal for certain tasks. Some students will always ask to be given extra time for their submission because they have too many projects to complete at the same time. *This indicates a time management problem on the part of the students.*

- Upon entering my class, I am used to hearing students say, "I've sent you a question via WhatsApp, but I haven't got any text back". I would reply with something like, "If you have any questions about the course, I'd prefer you to send me an email or an E-learning message". The typical reply from the student would be: "I don't even know what my college email account is, I've never used it, and I hardly use the E-learning platform". *This shows a lack of communication skills and commitment from the students.*

Other interests that encouraged me to focus on students' skills development are addressed in the points detailed below:

- From my own work experience I am aware that the department of student affairs supports non-academic activities such as theatre, poetry, photography, student advisory board, drawing, scouting, media and communication, and the like. As the department supervisor I frequently deal with students who are involved in these groups and I am always surprised and amazed how they manage to properly plan, prepare, and organise their college events. All these students studying in various academic fields show that they have lots of talent, creativity, and skills to boot. They can carry out their event tasks in a very professional and efficient manner and gain valuable experience in the practice of various skills such as teamwork, communication, time management, and leadership. The problem here is that joining such non-academic activities is optional, and the

students cannot be forced to join these activities, which means that many of them will miss out on such valuable opportunities.

- The last point I would like to highlight is the labour market requirements for skilled and qualified graduates. When meeting with employers and policy and decision makers in different events and workshops, they stressed the importance of improving the life or soft skills of students during the course of study. Most college graduates exhibit a lack of these important general skills and are, therefore, not employable, despite their good grades.

Also, I would like to state clearly about theories and models I have chosen for this study. When I was doing my master's research, I used some of the IS theories in technology, such as the Diffusion of Innovation (DOI) and the Technology Acceptance Model (TAM) that I adopted when examining e-government services from the citizens' perspective in Oman. Because this research aimed to investigate stakeholders' perceptions about the role of E-learning in developing student skills, I used the wider IS theory in technology, the Unified Theory of Acceptance and Use of Technology (UTAUT), to understand stakeholders' perceptions of E-learning and student skills development. I also realised that more emphasis should be placed on digital literacy which I described as an effective digital tool to acquire technological knowledge, attitudes, and communication skills. As this study examined undergraduate skills development, while IS theories and digital literacy are concerned about technology and the IS system, I chose the Graduate Capital Model (GCM) for academic institutions as a support example to explain graduate attributes or skills and their relationship to employment.

Following the above description of the research study, it is important to note that the purpose of this study is to investigate the perceptions of stakeholders towards E-learning as a component of the college study system. E-learning can be used to develop a set of future work-related skills for university students in Oman to meet the employers' expectations. This study is purely academic in nature and is not designed or intended to serve as a business model.

1.6. Overview and Outline of Thesis

Chapters	Content
Chapter 1: Introduction	This chapter summarizes what the thesis is about. It presents the aim of the research, the researcher's main argument and research questions. The justification for the research topic, the positionality of the researcher, the objectives, and the research approach of this study are succinctly mentioned.
Chapter 2: The Context of The Research	This chapter offers background information on Oman, the research site. It discusses the Omani HE system, relevant policies and employability, the skills gap among graduates, E-learning, and Oman's experiences in the light of the COVID-19 pandemic. It also provides information about the study sample (CoT) and presents research aims and questions as well as the study's implications for Oman. The research conceptual framework, brief and justification are also expressed.
Chapter 3: Literature Review	This chapter reviews the literature and provides important concepts about skills, HE frameworks, along with other essential aspects of E-learning. Additionally, models such as GCM about graduates and employability are explored. A critical evaluation of the usage of E-learning and an evaluation of its value in terms of digital literacy and information systems theories such as UTAUT are stated, in addition to a personal evaluation and reflections.
Chapter 4: The Research Methodology	This chapter centres on the research methodology, specifically the interviews and online survey questionnaires used to collect data for the multi-method design. It also covers the research framework, paradigm, study methos, strategy and sample size, validity and reliability, ethical considerations, data management and confidentiality, data analysis as well as the employed techniques and tools.
Chapter 5: Findings	The main purpose of this chapter is to describe the research findings based on the data acquired from the qualitative semi-structured interviews and quantitative online survey questionnaires. It explores four themes in relation to the research questions and the findings linked to the conceptual framework aspects. In the chapter, I also express my thoughts on the results of the research findings.
Chapter 6: Discussion	This chapter discusses the findings from the preceding chapter and makes relevant comparisons to the literature review and theoretical frameworks. The comparison reveals that almost all the results are relevant and supportive of the literature review. The findings are used to answer the research questions and fulfilling the research aim.
Chapter 7: Conclusion	The final chapter presents the overall conclusion of the study as well as its contribution to knowledge, implications for practice and recommendations, strengths and limitations, and suggestions for future research.

***Table 1*:** Overview and Outline of The Thesis

Chapter 2: The Context of the Research

2.1. Introduction

This chapter offers background information on the research site, Oman. It discusses the HE system in Oman, relevant policies in HE related to employability, the skills gap among graduates, E-learning in Oman, and local experiences of E-learning during the COVID-19 pandemic. It also provides information about the study sample CoT and presents research aims and questions as well as the implications of this research for Oman. And this research conceptual framework, brief and justification are also stated.

2.2. Oman

2.2.1. Country Background

The Sultanate of Oman is one of the developing countries in the Middle East and located in the southeast of the Arabian Peninsula, between latitudes 16˚40' and 26-20' north and longitudes 51˚50', and 59˚40' east. It borders the UAE and the Kingdom of Saudi Arabia to the west, the Republic of Yemen to the south, the Strait of Hormuz to the north, and the Arabian Sea to the east (Omaninfo, 2019).

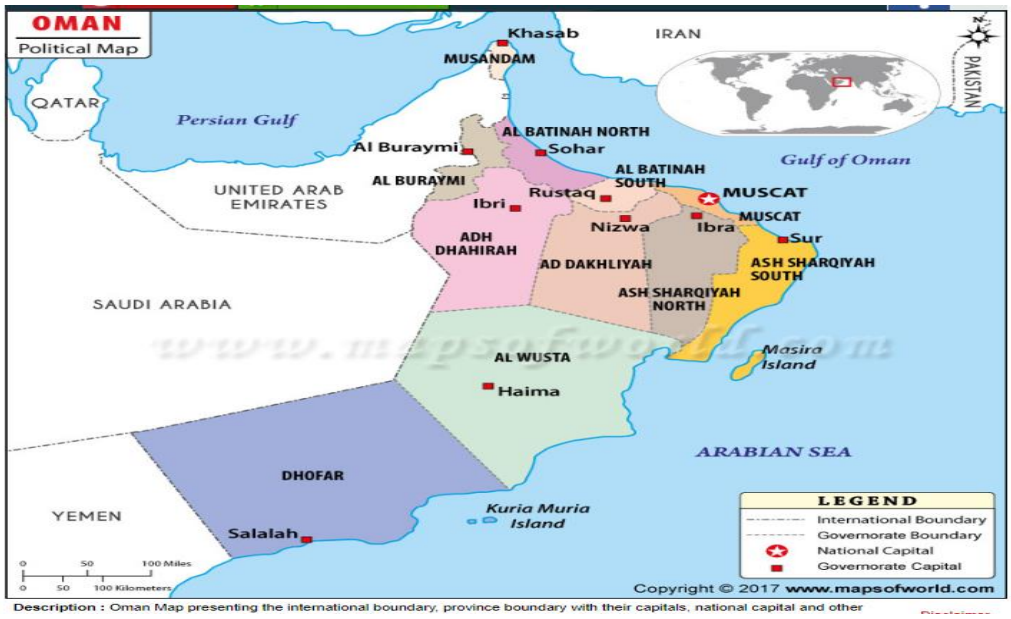

Figure 1: Map of Oman (2017) (Source: Maps of World)

Oman occupies a total area of about 309,500 square kilometres and includes different terrains that vary from plains to highlands and mountains. The coastal plain overlooking the Gulf of Oman and the Arabian Sea forms the most important plain of Oman, the area

of which amounts to 3% of the total landmass, while the mountains make up 15% or the total area (CIA, 2019). Oman is divided into 11 governorates: Muscat, Dhofar, Musandam, Al Buraimi, Al Batinah South, Al Batinah North, Adh Dhahirah, Ad Dakhliyah, Ash Sharqiyah South, Ash Sharqiyah North, and Al Wusta. Each region has one or more regional centres, which brings the total to 12 (The Ministry of Foreign Affairs, 2019). The country's climate is hot and dry with temperatures that reach to 127°F (53°C) in summer, but with milder temperatures in winter (ThoughtCo, 2019). In February 2019 Oman recorded a population of 4,669,073 people, nearly 55% being Omani citizens and 45% are foreign residents. Most of Oman's population are young people aged 18 to 45, and the largest number of people live in the capital city of Muscat (NCSI, 2019). Oman is a member of the Gulf Cooperation Council (GCC) that was founded in 1981. The GCC is made up of six countries, the other members being Saudi Arabia, the United Arab Emirates (UAE), Kuwait, Bahrain, and Qatar (Ramazani and Kechichian, 1988). The aim of the GCC is to promote coordination, integration, and independence among the six member countries in all areas with a view to achieve unity. Like many of the GCC countries, Oman's economy is strongly dependent on oil and gas (Sultanate of Oman, 2019).

2.2.2. The HE System

In the early 1970s, His Majesty Sultan Qaboos bin Said took the leadership of Oman. Since then, significant progress has been made in providing 'education for everyone'. His Majesty's commitment to education is demonstrated in this famous statement: "*Let there be learning, even under the shade of trees*".

The Ministry of Higher Education, Research, and Innovation (MoHERI) was established in 1994. Until then, the former ministry of education had supervised six public colleges that offered bachelor's degrees (Al Bandary, 2005). Since the end of the 20th century, HE in Oman has undergone rapid development, and today it covers medicine, engineering, natural sciences, IT, business, law, and a variety of other programs at diploma, bachelor's, and master's degree level (Education Council, 2014). Therefore, HE in Oman has grown substantially over the last decades. As of 2020 MoHERI supervises a total of 60 HEIs in the form of 31 public universities and colleges, and 29 private HEIs (MoHERI, 2020). According to Al'Abri (2019), the table below provides further details on the public and private HEIs in Oman:

Responsible authority	Institutions	Number of institutions
Ministry of Higher Education	College of Education	1
	Colleges of Applied Sciences	5
	Private Universities and Colleges	29
The University Council (Independent)	Sultan Qaboos University	1
Ministry of Health	Oman College of Health Sciences	1 (8 campus around the Governorates)
	Higher Health Specializations Institute	1
Ministry of Manpower	Colleges of Technology	7
	Vocational College for Marine Sciences	1
	Vocational Colleges	7
Ministry of Awqaf and Religious Affairs	College of Shariah Sciences	1
Central Bank of Oman	The College of Banking and Financial Studies	1
Royal Oman Police	The Royal Oman Police Academy	1
Ministry of Defense	National Defense College	1
	Sultan Qaboos Military College	1
	Royal Air Force Technical College	1
	Military Technological College	1
Total	60	

Table 2 **:** Public and Private HEIs in Oman

According to a report by the Ministry of Education (MoE) (2014), additional councils and centres in the fields of education, research, careers guidance and training, academic accreditation, statistics, and Information, and HE admission have been established to set clear policies, rules, and guidelines for HEIs. This is to support more development in HE according to the government's directions in providing high quality education and learning to all citizens of Oman. The councils and centres mentioned above collaborate with both public and private HEIs in Oman to meet international standards. Tawafak et al. (2018) emphasised that all public and private HEIs must meet the international standards in education as approved by the Oman Academic Accreditation Authority (OAAA) to link student skills to learning outcomes.

Baporikar and Shah (2012) agreed that all HEIs in Oman can achieve international HE standards by adopting the imported curriculum, recruiting international and expatriate faculty, and introducing English, as example, as the primary medium of instruction. Baporikar and Shah (2012) further clarified that to obtain a satisfactory result, the quality of education offered must be in line with 21st century knowledge and skills. Based on

these goals, most universities and colleges in Oman have equipped themselves with new technologies, laboratories, instruments, and other resources to meet the requirements of global education standards and provide high-quality education to all Omani students. For example, the governmental regulations committed all private HEIs to affiliate with recognized foreign universities to comply with international education standards in Oman.

In light of the above, Al Harthy (2011) already confirmed a decade ago that most private colleges and universities have affiliated with universities in the UK, USA, Australia, and India. The study explained that the academic affiliation arrangement is necessary to assist the local academic institutions in all technical and educational fields including the development of curricula, the monitoring and assessment of the academic performance of colleges and universities, and the award of degrees. Local HEIs have recently started to focus their attention on GAs, and this is because of three key reasoning factors: pressure to produce highly qualified graduates, increased supply of graduates and rivalry among students and institutions for their employment, and the recent drive OAAA (Belwal et al.,2017).

2.2.3. HE Enrolment Policy

Public HE undergraduate programs in Oman are free for its citizens who are legible to apply to government scholarships. The student guidebook (2018) of the Higher Education Admissions Centre (HEAC) states that students must fulfil the following conditions:

- Omani national, qualification of high school level or its equivalent, between 16 and 25 years of age when entering the program and meeting all the program requirements.
- Employees in the public or private sector must provide a ‘no objection certificate’ from their employer to be registered as full-time students.
- Submit enrolment application via the HEAC online system.

An article published in the Oman Observer (2019) highlighted that the Omani government offers 29,732 internal scholarships for Omani citizens each year. Additionally, there are 1,643 aboard scholarships available for those eligible. Besides, the government also offers 243 internal undergraduate programme places for persons with disabilities. Moreover, as part of the national postgraduate scholarship programme, the government offers 200 postgraduate scholarships abroad each year, the specific requirements are announced every year (HEAC, 2019).

2.2.4. Omanisation, Employability, Graduates Skills Gap, and Education System

Since Omani's native population is very small, it is necessary to deny foreign nationals the right to be employed in positions that can be filled by Omani nationals. In view of this fact, the government policy of Omanisation was decreed in 1988. The policy aims to replace foreign workers with trained Omani workers (Ansari and McGlade, 2017). This policy helps limit the number of expatriates working in Oman to avoid the many social, political, and economic drawbacks associated with it (Das and Gokhale, 2010).

Since the 1990s, the government has committed itself to the professional training and development of all its citizens. For example, the economic conference 'Oman Vision 2020' held in Muscat in June 1995 highlighted the government's primary goal to develop the national human resources (Donn and Issan, 2007). Accordingly, the importance of human resource development (HRD) was given utmost priority for all the successive five-year development plans until 2040. In his address to the nation in 2016, His Majesty the late Sultan Qaboos Bin Said emphasized the need for HRD and the achievement of the national goals. As stated in the Oman Supreme Council for Planning report (2016, p.3):

> *Development is not a goal in itself; rather, it exists to build man who is its means and producer. Therefore, development must not stop at the achievement of a diversified economy. It must go beyond that and contribute to the formation of the citizens capable of taking an active part in advancing progress and comprehensive development. Such goals can be achieved through the improvement of the citizens' technical and professional abilities, the stimulation of their creative and scientific capabilities, and the improvement of their diversified skills. All this must be directed towards serving the country and achieving the happiness of all citizens.*

Ennis and Roberts (2018) pointed that over the past decades Oman has achieved a high level of efficiency and competency in training and developing national human resources. Omanisation has led to an increasing share of Omani employees in the public sector. 2015 data shows that 81% of expatriates living in Oman work in the private sector, but only 4% work in the public sector. Further, the investigation into employability shows that of a total of 45,711 unemployed Omani nationals, 27,606 are HE graduates who have undergraduate degrees such as a bachelor's degree, advanced diploma, or diploma, and they have the status of job seekers in engineering, IT, business, culture, sciences, health, education and law (NCSI, 2019). On the other hand, an article published in Shabia Oman Newspaper (2016) pointed out that according to the National Centre for Statistics and

Information (NCSI), the Oman labour market needs more local employees specialised aerospace, radio, aircraft radar, mechanic welding, and hydraulic engineering. Another article published in Al-Watan Oman (2017) added that the labour market required more data analysts and statisticians, programming engineers, network engineers, internet and cybersecurity engineers, and other professionals in hospitality media content creation. The following information includes a summary of the total national and foreign workforce employed in Omani sectors, together with their level of qualification and specialisations (NCSI, 2017).

Work Status	# of People
Omani workers in public sector	229510
Omani workers in private sector	466167
Foreign workers in public and private sectors	**1982406**
Unemployed Omani nationals	**45711**
Retired Omani nationals	53794
Deserved	33948
Not yet employed nationals / aged below 15, or enrolled students	1857537
Total	***4,669,073***

Number of foreign employees with BA, advanced diploma, and diploma: **102,868**. They work in engineering, IT, education, health sciences, business administration, marketing, accounting, and hospitality.

Number of local job seekers with BA, advanced diploma, and diploma in engineering, IT, business, culture, sciences, health and education and law: **27,606**

Table 3: Oman Populations' Work Status (source: NCSI, 2017)

Consequently, many studies have confirmed that unemployment in Oman is a serious problem. The most frequently cited factor is the high presence of expatriate employees; however, it is assumed that the main reason is the low standard of education in Oman. Belwal et al. (2017) and Al-Harthi (2011) agreed that almost 50% of Omani graduates are not confident of their skills. Baporikar and Shah (2012) examined the issue of employability in Oman and found two significant factors: Omani graduates depend on the government to provide job opportunities and job security, and local HEIs need to offer better education.

And the term 'skill' is regarded as "highly ambiguous … in that it is used to mean both a learned sequence of activities involved in performing a particular task … and the recognised capacity to respond to the unexpected and the unpredictable (1991, p. 15)" (Brewster and Tyson cited in Burns, 1997, p.240). In Oman, many studies pointed to the non-employability of HE graduates due to lack of skills and knowledge (Al Hinai , 2018 ; Naqvi et al., 2018; Belwal et al., 2017; Al Yaqoubi, 2017; Baporikar and Shah, 2012). In addition, Al-Lamki (2000) and Ansari and McGlade (2017) suggested other reasons behind the low volume of the

Omani workforce, such as the lack of coordination and planning between education (training and development) and labour market requirements; this constitutes a major impediment to local national recruitment. Belwal et al. (2017) further explained that the stakeholders are not clear about their respective roles and responsibilities or the process of matching graduate attributes with employability skills, Omani graduates of HE lack the skills needed for work.

According to Ansari and McGlade (2017), the real challenge is the low rate of Omani nationals employed in the private sector; Omani graduates must be qualified to join the private sector or be oriented towards self-employment and entrepreneurship, particularly in SMEs. There are approximately 60 governmental and private HEIs in Oman, yet no clear training programmes, in particular for soft skills, and there are some challenges in developing a closer relationship with the business community. As a result, the gaps in the education system between current and future needs are very clear and require much more engagement (Belwal et al., 2017).

As stipulated by the Oman Supreme Council for Planning (2016), this requires a national employment strategy to replace the foreign workforce with Oman citizens, especially in occupations such as technicians, professionals, and skilled workers. Further, the path of education and required training outputs needs to be adjusted and aligned with labour market needs as outlined in the National Education Strategy for 2040 framework.

Regarding this issue, Belwal et al. (2017) suggested that to enhance employability universities need to upgrade their curriculums according to international recognition standards and increase awareness among students about the significance of those employability skills for their future. Consequently, the issue of education and training has become part of the core strategy of human development in Oman, and both received special attention plans. Regarding the government projects and policies, one of the main objectives of the National Education Strategy for 2040 is the need to change the skills development for Omani people (Education Council Report, 2012). More details about the main objectives of the National Strategy for Education 2040 are shown in the figure on the next page:

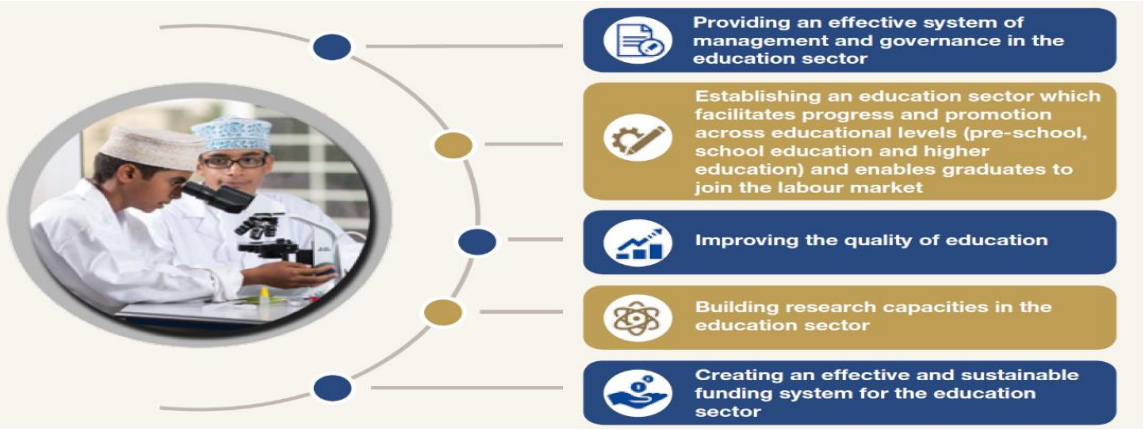

Figure 2: The Objectives of Oman National Strategy for Education 2040 (Education Council Report, 2018, p.21)

Thus, the National Education Strategy for 2040 stipulates that a dynamic education system that meets the needs of the labour market and society must include a new set of requirements will be introduced in the next phase. A main element that needs to be included is student skills development (Education Council Report, 2012 and 2018). To achieve this goal the outcomes of the education system must include a set of skills and competencies that meet the needs of dynamic international labour markets. Belwal et al. (2017) stressed that all stakeholders in HE and the labour market need to jointly determine the skills needed for the development of student skills and the employment of graduates.

Accordingly, skills development should be prioritized in the attempts to reform the national educational system. Since the country is currently moving towards Oman Vision 2040, in the field of education this vision includes the development of a stimulating education and vocational training system to provide a skilled and productive workforce. The aim is to create a dynamic labour market and a positive working environment that will serve to grow productivity and improve the overall efficiency of the economic system (Education Council Report, 2018).

2.2.5. The Graduate Survey Department – MoHERI

The Department of Graduate Students Survey (OGSS) was established in 2013 by the MoHERI to track studies and produce reports on Oman labour market needs of human resources in terms of the required skills, specializations, and qualifications (MoHERI, 2020). As explained on the official webpage, one of the Department's primary goals is to assist the HE system standard in terms of developing student skills that will prepare the graduates for the labour market (OGSS, 2017). In April 2016, the graduate survey department conducted a national survey to investigate the required skills by employers in

the private sector. The survey participants were CEOs and/or HR managers from 33 different sectors, and the survey was completed by a total of 445 employers (OGSS, 2016). The findings indicated that the most important skills sought in the labour market are life skills in communication, time management, working under pressure, teamwork, attitudes and work passion, and English language (OGSS, 2016).

The information discussed in the previous sections showed that Oman places a strong focus on human development for a range of factors, including addressing the problem of unemployment among Omani graduates. However, the challenge of the skills gap among HEI graduates is that they enter the work market with a set of inadequate skills that do not meet employers' expectations. One of the key objectives of Oman's HEIs is to strengthen student skills and competencies to meet labour market demands, as the country works toward achieving Oman Vision 2040, with the objective to create qualified graduates who can satisfy local labour market needs through integrating education and training. New standards will be established to fulfil these objectives and advance Oman's Vision 2040. This study tries to work in line with the government's plans in terms of education and student skills development and thus proposes incorporating more technology into all educational activities, with a focus on E-learning. This study strongly believes that Oman is a good place to investigate graduate skills and E-learning because the issue of graduates lacking employability skills is a widespread phenomenon in the country. This helps the study to incorporate real-life practice factors to suggest solutions that support decisions for the future development of student skills. To provide a clear representation of E-learning in Oman and is benefits to the educational environment, the following section will discuss the current status and prospects of E-learning in the country, in addition to the points highlighted at end of this chapter on page 49, summarizing how this study will be of benefit to local HEIs.

2.2.6. E-learning in Oman

According to Heo and Yi (2008), a learning system is an active process whereby learners create new understandings. They do this with the use of new digital world technology like the internet during active searching, testing, conversation, and reflection of the knowledge gained. Therefore, the term 'electronic-learning' or 'E-learning' is given to the use of different electronic packages and ways to deliver better, easier, and more flexible education to students (Klein and Ware, 2003).

In Oman, many organizations acknowledge the importance of improving HE objectives and results, and the need to fulfil international education standards. Therefore, the use of E-learning was considered to enhance teaching and learning by expanding the education services offered to students, especially those who cannot gain access to their institutions for various reasons such geographical distance (Al-Hajri, Ghayas, and Echchabi, 2018).

Musawi (2017) evaluated the continued development and expansion of MoHERI. In the recent years, many courses have been connected to a broad spectrum of learning options via intranets and the internet. More and more public and private schools have taken up this technology service to form a comprehensive and connected learning community.

According to Tawafak et al. (2019), the availability of several applications and technologies to enhance the educational process in HEIs is highly recommended. Online models are easy to use, readily accepted by students, and improve academic performance. In addition, students and teachers can meet online and carry out interactive study activities to test and evaluate student performance.

From the above section, it can be learned that E-learning has already become widely adopted in local HEIs, and the local universities and colleges are now combining their traditional teaching strategies with new E-learning initiatives. In the following sections, I will address some of the factors identified by leading E-learning scholars in Oman, including the observed opportunities and challenges. I also find this to be a good opportunity to speak about Oman's online learning experience during the COVID-19 pandemic.

2.2.6.1. Opportunities

Various studies are being carried out and reviewed on E-learning education in Oman, some of which have highlighted opportunities for HE learners to use online learning and teaching technologies. According to Musawi (2017), HEIs are now equipped with learning resource centres and computer labs as well as environmental life skills, music, and multi-purpose rooms. These new facilities help students to integrate theory and practise, thinking and function, education, and life comprehensiveness, while also developing interactive self-learning skills in all areas.

Tawafak, Romli, and Arshah (2019) expanded on how the use of various academic programmes can help improve the online assessment of the knowledge and skills of students. The implementation of online programmes in E-learning models like Massive Open Online Courses (MOOC), or Moodle will increase the performance of the faculty through the attached declaration facilities, announcements to sections, assessment and evaluation techniques, and open access to electronic material.

Although most undergraduates own mobile devices and smartphones, most of them have noticed that their level of mobile learning (M-learning) is excessively high. Qoussini and Al-Tabib (2019) explained how mobile learning is often used by undergraduates for a wide range of activities and purposes. M-learning offers invaluable insights (e.g., support for interactive learning systems) into various educational technologies. Thus, to encourage learners to communicate with others and develop new knowledge and skills, it is possible to use the available communication and interaction features of mobile devices.

2.2.6.2. Challenges

Musawi (2017) observed that some researchers have defined common concerns regarding the use of online learning delivery: student attributes, ICT environment concerns, support for students, and sincere activities, the need to increase investment in human and technical resources, and cultural values and preferences. These factors can serve as obstacles to E-learning systems. Al-Hajri and Echchabi (2017) added that although E-learning is becoming an increasingly popular IT resource in Oman, local E-learning environment still experiences some difficulties, such as high cost and lack of adoption.

Also, educational institutions have to possess the required infrastructure to implement online learning, and technology infrastructure is a major concern in this respect; only the best infrastructures can support the required mobile application operations (Sarrab, Al Shibli and Badursha, 2016). Musawi (2017) conceded that Omani HEIs continue to review their strategies and provisions and consider technological solutions to address some of the urgent challenges that they are facing. Thus, coordination at the national level is required to establish unified policies, processes, and guidelines to ensure that quality institutions produce quality graduates.

2.2.6.3. COVID-19' Pandemic and Online Learning Experiences in Oman

The advancement of technology and the use of the internet have changed many life aspects across the world, at many levels and in all areas of society. For example, since the Coronavirus pandemic, online learning has become a very significant part of the tools and applications used by any student. Almost all international HEIs have announced plans for online courses to be attended by their students.

An article published in the Oman Observer (2020) analysed the opinions shared by the faculty of universities and colleges regarding the COVID-19 pandemic and the use of online learning. The article stated that within first three months of the pandemic it was becoming clear that E-learning improves students' level of engagement and independent learning skills. Some faculty members thought that their students were more engaged in the online environment, offered more feedback, and raised more questions. Besides, some lecturers had clearly underestimated the willingness of their students to adopt online learning. The students proved to be more willing and ready to adapt to online education and had the flexibility needed for online and blended learning which is instrumental in developing lifelong learning skills (Oman Observer, 2020).

Under these restrictive COVID-19 conditions, Slimi (2020) completed a paper reflecting on the experience of online learning and teaching in Oman. The results showed that this experience was a great opportunity for students to learn new skills and think differently about online learning and teaching. Furthermore, COVID-19 has made the world aware of the potential implementation of technological education systems and artificial intelligence which demonstrated their usefulness in many areas of public life, not only in education. The experience has also led to the reinforcement of innovative methods of learning and teaching. This has also not gone unnoticed, as many students have acquired independent learning skills in problem-solving, communication, digital interaction, and IT. However, some of the obstacles encountered are associated with network issues and internet connectivity. Finally, difficulties faced with regards to student collaboration, autonomy, and dependence, as well as educational policies, cultural and technological infrastructure issues, were mentioned.

Incidentally, COVID-19 and the increased use of online tools, devices, platforms, and apps seem to have not only enabled students to become more independent learners, which is an important goal in HE, but also encouraged teachers to improve their own professional

skills. Al-Matari and Al-Maqbali (2020) acknowledged that during the last year the Microsoft educational community platform introduced new and attractive methods into the curriculum. This application has helped teachers as well as students to develop future-ready skills by focusing on skills development or the use of different technology elements in the learning process. It also offers a wider selection of training courses for each syllabus. Individual users can now to view the rewards and points they have earned in their profile and can share their training transcripts with others.

2.3. CoT

The colleges of technology (CoT) in Oman were affiliated to the Ministry of Manpower (MoM) under the supervisor of the General Directorate of Technological Education. These colleges are allocated in the Muscat, Al-Musanna, Nizw, Ibra, Salalah, Shinas, and Ibri regions. They provide 35 programmes, and have about 35,000 students enrolled in different academic fields (e.g., engineering, information technology, business studies, applied science, and fashion and design), with about 4,000 staff (MoM, 2018). Each college has two centres to support students' career formation: the English Language Centre and the Educational Technology Centre.

The University of Technology and Applied Sciences (UTAS) was established by His Majesty Haitham bin Tariq the Sultan of Oman in decree no. 76/2020 on 12th August 2020. According to the decree, the university must be granted a legal identity, and financial and administrative independence. The decree also says that the university shall include the College of Education in Rustaq, the College of Applied Sciences with its Directorate-General at the MoHERI, and the CoT with its Directorate-General at the MoM. Furthermore, all teaching and academic staff and employees from the above colleges, along with their employment status and financial allocations, is to be moved to the university (Muscat Daily, 2020).

Based on this merger, the colleges are now managed by UTAS. Until today, the same study system and programmes are offered, and no further changes gave been made.

The CoT student education programme starts with the general foundation programme undertaken by students to prepare them for their specialization. The qualifications offered are diploma (two years), advanced diploma (three years), and technological bachelor (four years). Once students have completed all courses in a particular major, they move on to complete on-the-job training (OJT) as part of the graduation requirements OJT aims to provide students with relevant opportunities following their specialization where students gain practical experience in a real-world workplace to improve their

knowledge, skills, and other intended attributes. Most CoT graduates are employed in the local labour market as technical support in the public and private sectors (MoM, 2018). To establish the required educational atmosphere and engage the students in the creation of educational processes, CoT encourage students to join various non-academic activities, research projects, and other events and organise active groups, student councils, and annual student gatherings. The colleges are maintaining good relations with the students by listening to their views, welcoming their suggestions, and creating new channels of contact (educouncil, 2016).

Thus, the colleges' motto is '*Where Technology is invented*', its vision is '*To be at the forefront of higher education institutions in technological education nationally and regional*', and its mission is '*To provide high quality learning, training, and research environment towards developing technological, innovative and entrepreneurial capabilities to meet the ever evolving social and economic needs*' (HCT,2019; ACT,2019; ICT,2019; IBRICT.2019). According to the colleges' official websites (UTAS Muscat,2020; UTAS-Nizwa, 2020; UTAS-Musanna,2020; UTAS-Ibra, 2020) their shared three principal goals are:

1. To anchor the college's identity of technological education within the context of an effective and productive institutional structure.
2. Promote an environment that encourages applied research, innovation, and consulting in various fields of technology.
3. Continue to establish institutional relationships with all stakeholders in all related fields.

Referring to these goals, the colleges believe that it is essential to promote the following values:

1. **Integrity** – to reflect ethical practice in all transactions, relationships, and procedures.
2. **Professionalism** – to implement negotiated rules and regulations, to follow defined protocols including codes of ethics and standard operating procedures, and to work tirelessly to achieve established outcomes.
3. **Knowledge Pursuit and Excellence** – to develop lifelong learning excellence in the learning, application, and innovation and technological knowledge.
4. **Participation and Collaboration** – to strengthen participation and partnership links within and outside the College of Technology.

2.3.1. GAs

The term GAs refers to a variety of skills beyond those unique to the discipline, such as life-long learning, generic, transferable, or soft skills. Much of the focus on promoting GAs has emerged recently (Oliver and Jorre, 2018). According to Mahon and Murphy (2019), GAs are considered as HEIs programme outcomes and are coupled with values such as lifelong learning and the ability to learn independently. GAs determine the educational outcomes framework as decided by the university system and are more comprehensive than 'employability' because they help improve knowledge, citizenship, and job skills (Hill, Walkington, and France, 2016).

To achieve the CoT motto, vision, and mission seven GAs were developed and approved by the MoM and CoT. The following table includes these GAs:

GA	Group of Skills
Effective Communication	Active listening, critical reading, confident speaking, and focused writing
Scholastic Rigor and Practical Competence	Creative thinking, problem solving, analytical thinking, time management, dexterousness, and knowledgeability
Teamwork	Collaboration, tolerance and flexibility, planning, organisation, and time management.
Lifelong learning	Research skills, critical thinking, inquisitiveness, goal setting, commitment, and adaptability.
Autonomy and Accountability	Work independently, confidence, responsibility, transparency, reliability, and authenticity
Innovation	Imagination, aspiration, problem-solving, solution-integration, visionary, and perseverance
Entrepreneurship	Creativity, initiation, risk-taking, resilience, inspiration and persistence

Table 4: GAs of CoT (Source: HCT,2020; NCT, 2020; ACT,2020; ICT, 2020)

From the GAs it follows that the colleges aim to produce graduates who are well disciplined and responsible, capable of working in teams and of taking the lead role, can relate their knowledge and skills to the work environment, and communicate effectively in spoken and written English. In addition, CoT graduates should be able to evaluate, think critically, and solve problems, and recognise the importance of lifelong learning and are committed to self-development. To achieve these aims and to assess the students' attainment of GAs, the technical colleges must take the following actions:

- Review and evaluate the programs curriculum development, the course learning outcomes and framework.
- Incorporate the GAs in all programme objectives and course learning outcomes.
- Map the GAs to each CDP.

Thus, it can be confirmed that developing and improving student skills is included in all important CoT targets. All programmes and courses provided by these colleges are carefully developed to produce graduates who are equipped with the necessary skills that are needed for their employment in the future. Most courses are designed in a way to support GAs development; however, there is no specific course which instruct the students in these skills. On the other hand, the colleges offer different types of activities and the use of new technological tools to fill this gap. For example, to achieve the student learning objectives and GAs through courses and programs, a set of activities are facilitated by providing access to educational materials through the library, E-learning and open educational resources, co-curricular activities like guest lectures, field visits, workshops, symposiums, and other such activities.

2.3.2. E-learning at CoT

E-learning is one of the technological tools the colleges have introduced to meet students' needs and provide courses and programmes that provide proper instruction and training in all available specialisations. E-learning is now a compulsory element in all courses and at all levels. E-learning helps students to connect their different types of study materials in a more efficient and transparent way, which makes learning more attractive, independent, and satisfactory. The current E-learning system allows students to access or submit their course activities (e.g., CDPs, course materials, assignments, online quizzes, and practical tasks). Also, the E-learning environment includes a discussion board that allows students to communicate with their peers, lecturers, and other staff.

Currently, CoT accommodates a student population of about 40,000 students. In response to the COVID-19 pandemic, all HEIs were instructed to suspend all activities, including CoT. As did all schools and universities worldwide, CoT in Oman switched to online learning in 2020 to complete the remaining curriculum remotely. The colleges use several applications, including Moodle, as the main window for engagement between students and E-learning systems. The applications are expected to develop student skills and allow

students to learn future work skills, while also turning the conventional educational process from dictation to engagement and creativity (UNA, 2020).

To complete the course assessments for the academic year 2019/2020, the colleges announced via their official social media accounts that all evaluation would be available on the E-learning platform Moodle. The colleges believed that the required completion of the course assessments could be fulfilled through the use and help of E-learning, and through online communication between lecturers and students (HCT, 2020; IBRCT, 2020; ICT, 2020; NCT, 2020). The colleges provided guidance and instruction to students on how to handle E-learning activities, and they encouraged students to make full use of online learning. It was in the student' best interest to complete the remaining programme assessments for the academic year, and it was a good opportunity for students to embrace the culture of self-learning (ICT, 2020).

Based on my personal observation of the colleges' social media official accounts in 2020, I wish to highlight some points that the students raised on Twitter regarding their use of the E-learning platform. The students welcomed the opportunity to complete their academic year assessment with the help of E-learning, but there were some issues regarding the use of the platform. Students had some difficulty using the platform because it was overused and did not respond or the page froze, so they were not able to complete some of their work. Also, the page view for mobile devices was not enabled (ACT, 2020; HCT, 2020; IBRCT, 2020). Furthermore, some students suggested that it was better to record classes and upload them to the platform so that students could access them in their own time and at their own convenience. They also found it disappointing that there was no assessment available for their practical classes (SHCT, 2020). Some of the other problems involved difficulties in accessing the internet due to poor connectivity, and other students pointed out that they do not own computers or laptops that would help them access the platform, and they were also dissatisfied with the high cost of the internet (HCT, 2020; IBRCT, 2020; SHCT, 2020).

Upon closing this section discussing the research context, it is safe to conclude that HEIs in Oman aspire to support the development of undergraduate skills in meeting the demands of the local labour market. HEIs have adopted government plans to build human resources and human skills and provide effective skill training solutions to tackle unemployment challenges. However, there are several obstacles that still need to be addressed, such as the lack of skills of graduates who, in most cases, do not fulfil the

expectations of employers. This specifically applies to the study's research sample. CoT are designed to produce skilled graduates for the Omani labour market; therefore, they must appropriately identify the types of skills classified as GAs that are needed in the job market. E-learning, on the other hand, is already a significant aspect of the delivery of lessons in all CoT courses. However, there are several factors that need to be considered to fully benefit from technology in education and develop employability skills: purpose, functions, components, challenges, opportunities, equipment, quality, students' attitudes, and students' acceptance.

Since the focus of this research is to explore the role of E-learning in developing employability skills as part of the college education system, addressing the theoretical frameworks of UTAUT, digital literacy, GCM, and all of the necessary E-learning components, benefits, and drawbacks can be applied to answering the research question. These subjects will be presented within the theoretical frameworks and in more detail in the literature review in Chapter 3. After providing the context for the study, I thought the following section would be a proper place to discuss the conceptual framework of this research. The conceptual framework diagram can assist in conveying the concept of skill development for students in Oman by incorporating all other E-learning elements, including the theoretical framework for this study.

2.4. Research Conceptual Framework

Since this research is interpretative in nature, the conceptual framework (CF), has been created in the early stages of the research. This has also helped organize this research ideas and achieve the research aim. According to Adom, Hussein, and Adu-agyem (2018), CF is used to link all thoughts and ideas expressed in the research to explain and structure the research path and grounds. As a result, the research findings become more meaningful and more acceptable to the theoretical constructs in the research field. Through CF, it is possible to add many benefits to the study such as explaining the research problem, presenting an integrated way of looking at the problem under study, describing the relationship between the main concepts of the study, and providing a picture or visual display of how the ideas in the study relate to one another, and the series of actions which will be carried out as the research is conducted (Adom, Hussein and Adu-agyem, 2018). Thus, the diagram below shows this CF proposal that I have designed based on the research problem, the research questions, and all the variables included in this report.

As shown in the figure below, developing student skills and competencies to fulfil labour market demands is considered a major goal of Oman's HEIs. These goals are also emphasised as ways to strengthen Oman's human resources. Oman's Vision 2040 is an example of such a plan. It aims to produce qualified graduates who can match the needs of the local labour market. One of its main objectives is for education and training to work in tandem to fulfil the country's plans and policies as well as the needs of employers. However, many researchers believe that one of the many challenges that Oman faces today is a lack of skills among HEI students and graduates. As a result, the students graduate from college with an insufficient and undeveloped set of skills that does not meet the employers' expectations. CoT have been chosen as the study's research sample. CoT aspires to produce well-grounded graduates with the required professional and personal skills to the labour market. Accordingly, its study programs and courses have been developed and planned to meet the learning objectives and outcomes of the students. On the one hand, one of the critical steps taken by CoT was the establishment of their own seven GAs in the form of effective communication, academic rigor and practical competence, teamwork, lifelong learning, autonomy and accountability, and innovation and entrepreneurship. These college GAs are associated with all the courses offered. On the other hand, CoT provide a variety of tools and technological services to help students and instructors achieve the program and course objectives and outcomes.

E-learning is used by students at CoT to integrate different types of study resources more efficiently and transparently, thus making it more attractive, independent, and satisfactory. The goal of this research is to look into the role of E-learning in developing employability skills as part of the college study system. And give that this research combined areas in technology tools, services usage, and skills development at the university level as perceived by the stakeholders, I found that UTAUT, digital literacy, and GCM can be put to useful application in answering the research question.

The Research Conceptual Framework

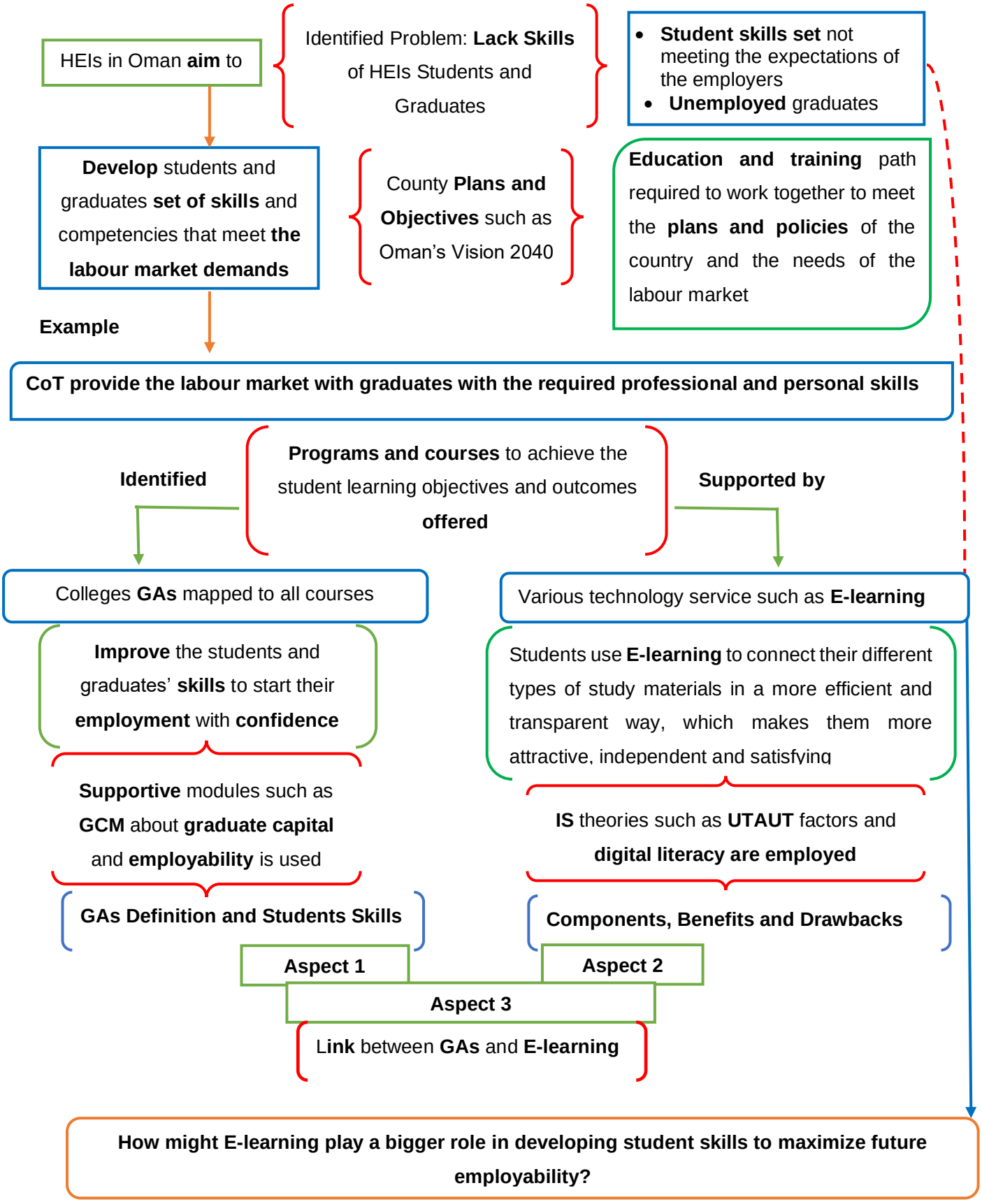

Figure 3: Conceptual Framework

As stated in CF, the study seeks to answer the research question how E-learning might play a significant part in improving student skills to maximize the students' future career opportunities and to meet labour market demands, while increasing the students' chances of acquiring employable skills. Thus, as indicated in the conceptual framework, the study considers three areas of CoT factors, namely:

- **Aspect 1**: Definition of GAs and the relationship between GAs and student skills. This feature tries to establish a clear description of GAs and their relevance to student skills. As a result, the study found that certain modules such as GCM on graduates' capital and employability are capable of relieving these GAs parts.

- **Aspect 2**: Factors and variables of E-learning such as components, benefits, and drawbacks fall within a wider scope that supports investigating the E-learning areas of utilization, features, quality, and support in developing student skills, in addition to IS theories such as UTAUT and digital literacy as a preferred option to achieve this goal.

- **Aspect 3**: This is considered the most important factor that connects with the other two aspects and helps determine the relationship between GAs and E-learning. The justification for looking for a relationship between GAs and E-learning is that the GAs of CoT are established to enable students and graduates to enhance their skills and become more employable. As a result, it is necessary to investigate the extent of the connection between GAs and some of the technology services such as E-learning in terms of skill categorization and the areas in which E-learning is deemed appropriate for increasing student skills.

The outcomes of these relationships between GAs and E-learning concerning GCM, UTAUT, and digital literacy theories are addressed as part of the findings presented in Chapter 5 on pages (212 to 216) and connected to the explored themes wherever needed. A more extensive description of the results as well as sources can be found in the discussion of Chapter 6 on pages (221, 223 and 245 to 247). Furthermore, in the conclusion chapter seven, I clarified my position on these findings and provided the reasoning.

2.5. Brief and Justification

To summarise the above information, the E-learning framework includes features that allow students to upload and download their course activities independently. Also, E-learning involves several contact networks between students and lecturers, information on guidance, announcements, and immediate alerts. Furthermore, E-learning is one of the resources available that offers students a learning environment where they have a variety of choices of ways in which to practice their skills.

From my point of view, E-learning is a great tool which can be used to improve the learning experience of students. If used adequately, it can be used to develop student skills. E-learning needs to be used according to the personality and academic profile of the student, so that all of these factors can assist students in becoming more employable. The COVID-19 pandemic has illustrated how IT can be used to adapt education to a changing environment and overcome sudden challenges.

Incidentally, COVID-19 and the use of technological tools, computers, platforms, and apps in all fields have helped the global public to go on with their life by working from home. Not only have individuals become more autonomous, but they have also had opportunities to learn new skills. An example of the use of technology tools and services is Zoom. Zoom was launched in 2012 as a conference host with a small number of video participants. Initially, it required a great deal of funding to offer the best features, privacy, security, and employee training, and satisfaction to make Zoom a successful app. It was during the pandemic, however, that Zoom became the company behind the most popular video chat app, almost defeating all other similar apps (Canaan, 2020).

I also benefitted from the use of technology and the development of skills. When I first used Zoom, I was not aware of all of its features and advantages, but soon I became more confident in my skills by attending several meeting webinars. In terms of opening video and audio, conversations, exchanging files, discussions in the breakout rooms, typing in the chat-box, and being punctual, it added a lot to my communication, teamwork, technical proficiency, time management, and English skills. I am sure that during the pandemic, everybody was forced to improve their IT skills. The question that arises is how we can use new educational resources such as E-learning, to develop student skills in line with your requirements and needs.

Therefore, as the aim of this study was investigated: **What are the perceptions among stakeholders of E-learning, a part of the college study system, towards developing a set of future work-related skills for university students in Oman?**

I hope that this study will help Oman HE in benefit from the following points:

- Building students skills, especially undergraduate students in Oman
- Since in Oman, HEIs strive to develop student skills in line with job market needs, it is proposed that using E-learning will help students to achieve them.
- It is necessary to know where the skills gap lies and what the expectations of the labour market in relation to, HE student skills are. It is also important to understand the role of CoT in building student skills and determine how technological tools such as E-learning might be used to bridge the skills gap. Thus, I hope that this study can be help identify graduates' skills according to the expectations of the stakeholders (e.g., employers, graduates, CoT management, and other decision makers.
- Also, it is necessary to know the functions, usage, advantages, strengths, and weaknesses of E-learning in developing student skills. These aspects can be verified based on the perceptions of the people involved, such as students and academic staff. I hope that this knowledge will help drive future decisions to optimize the E-learning services available in Oman.

2.6. Summary

The context of the research has been discussed in this chapter, addressing relevant issues such as Omanisation, employability, student skills gap, and education system, in addition to presenting an overview of Oman and its HE system. It has also touched on the status of E-learning in Oman and some of the opportunities and difficulties related to its use. Further discussed have been the recent online learning experiences during the COVID-19 pandemic. Following that, information about the study sample such as the CoT education system, GAs, E-learning, and research CF have been provided. The rationale for undertaking this research as well as the research question have been presented, concluding with the benefits that this study seeks to produce for Oman.

Chapter 3: Literature Review

3.1. Introduction

This chapter is divided into of two parts that review the literature and explain important concepts related to skills, HE frameworks along with other essential aspects of E-learning. Additionally, theories such as UTAUT about IS and GCM about graduates and employability are explored. And a critical evaluation of the usage of E-learning and its value in terms of digital literacy and IS theories such as UTAUT are presented.

Part One:

3.2. Skills

To understand different skills, it is useful to start with the competence concept. According to Hendarman and Cantner (2018), different concepts of competency have been proposed. They describe competency as knowledge, skill, and ability linked to high job performance such as problem-solving, critical thinking, and leadership, in addition to other aspects such as motives, beliefs, and values. Competency is understood as 'an underlying characteristic' of an individual that is causally linked to criterion-referenced effectiveness or performance in a job or situation. This indicates that competency is a more permanent aspect of personality and can predict behaviour in a wide range of circumstances and professional duties. Skills are considered as part of competency; therefore, they are considered necessary to an individual's job performance.

The fourth sustainable development goal of the United Nations Development Programme (UNDP) focuses on quality education. It suggests that by 2030, there will be a substantial increase in "the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship" (UNDP, 2020). According to Wolfe et al. (2017), skills are not necessary for technological effectiveness alone; they are also necessary for social types of interaction, the ability to perceive the world around us, and to make sense of it. Skills are necessary for the society and the economy, and individual employees are expected to meet certain international standards. Skills are essential for the performance of an organisation. For example, companies invest in developing the skills of their employees through training, because these skills contribute positively to the performance of the company. Further, higher levels of employee skills are linked to a higher average level of labour productivity (Hendarman and Cantner, 2018).
To maximise economic productivity and social outcomes, people must be readily and sustainably employable in the continually advancing and fast changing information and

knowledge-intensive economy. Thus, in parallel with their knowledge and skills that are relevant to their discipline or occupation, they should hold generic skills, attributes, and qualities that are transferable to different situations and areas of work (Bridgstock, 2009). Singh, Thambusamy, and Ramly (2014) highlighted that there are two factors that make up the employability equation: technological knowledge or hard skills and soft skills or generic skills. These generic skills support the hard skills in the workplace and deal with other resources that employees need to operate correctly.

3.2.1. Skills Categories

3.2.1.1. Hard Skills

Hard skills often depend on the context in which they are employed. They are associated with the technical aspects of a job and needed to perform certain tasks. Hard skills are often considered part of acquired knowledge, mostly cognitive, and driven by the intellect of a person (Hendarman and Cantner, 2018). According to Heery and Noon (2017), they are competencies such as “numeracy, literacy, foreign language fluency, and specific job-related technical abilities (operating a machine, creating a spreadsheet, touch-typing, driving, dressing a wound, and so forth)”. Usually, these skills are relatively easy to measure and certified in some form of qualification.

In what follows a brief overview of the different categories of generic skills, soft skills, and employability skills will be provided.

3.2.1.2. Generic Skills

Generic skills are described as transferable skills that are key to employability at some level. They are also called core skills, key skills, transferable skills, and underpinning skills (Bridgstock, 2009). Singh, Thambusamy, and Ramly (2014) emphasised that generic skills are not technological skills (also referred to as hard skills) or knowledge of the material of a particular discipline or specialised field. Suleman (2018) listed other names such as key skills, key competencies, core skills, generic competencies, transferable skills, employability skills, and survival skills. It is important here to note that these similar terms exist, so as not to falsely assume that they mean different things.

3.2.1.3. Soft Skills

Soft skills are “personal attributes that enable someone to interact effectively and harmoniously with other people” (Nagy, 2019, p.6). Soft skills indicate a dynamic mix of

cognitive and meta-cognitive skills, interpersonal, analytical, and functional skills that allow people to adapt in their work and act positively, so that the challenges of their professional and daily lives can be dealt with effectively (Succi and Canovi, 2020). Moreover, improving certain soft skills such as interview skills can increase one's chances of being employed and promoted (Nagy, 2019).

3.2.1.4. Employability Skills

Employability skills are defined as the skills that are specifically applicable to job acquisition. They include general and discipline-specific skills needed for work performance and career management. Employability skills can be categorised under self-management and career building and involve information literacy, working with technology, written and verbal communication, working in teams, and numeracy (Bridgstock, 2009).

3.2.2. Employability Skills and HE

For the past few decades, HEIs have been pressured to equip graduates with skills needed in professional work. Researchers have sought to find the right skills set for maximum employability in the modern labour market (Suleman, 2018). According to Minocha, Hristov and Reynolds (2017) universities all over the world have become the main source of human resources for companies and industries who are looking for skilled graduates. For instance, in the UK most universities follow best practices to improve their graduates' employability. However, according to Hays Global Skills Index, a large percentage of graduates are employed in non-graduate positions, thus contributing to recurring skill gaps and mismatches. Minocha, Hristov and Reynolds (2017) added that all colleges worldwide should agree on the same policies and guidelines to guarantee that all graduates are required to develop suitable workplace skills and gain work experience as part of their degree programs.

Albeha et al. (2020) study indicated that HEIs are concerned with how to improve skills development for graduate employability and must, therefore, adopt suitable strategies and policies. However, HEIs need to increase their effort before being able to fully implement these policies. The study analysis also revealed the limitation of papers discussing the necessity of creating institutional and governmental policies that support the widespread adoption of initiatives meant to advance employability skills in the sector. In their investigation into the extent to which Nigerian HEIs support the growth of graduate skills and employability, Nwajiuba et al. (2020) noted that while collaboration between HEIs and

industry is modest in Nigeria, there are many HEIs there that lack the pedagogy, resources, and infrastructure required to teach employable skills.

And according to Okolie et al. (2020) who investigated how to improve generic skill learning to increase graduate employability, many HEIs in Nigeria do not support the teaching of high-level generic skills in their curricula. Poor learning conditions, a lack of professionals with prior industry expertise, and an overreliance on teaching practical knowledge are some of the factors related to this phenomenon. Further, more cooperation is required to integrate the various levels of the educational curriculum and ensure that the HE curriculum development is aligned with the market needs. The study also acknowledged the importance of the implications for policies on employability skills development in HEIs.

The existing literature points to a lack of consensus in regard to the set of graduate skills that best fit the current demands of the job market; however, most studies concluded that soft skills such as interpersonal, communication, and teamwork skills are essential.

Many studies showed that the main employability skills identified by employers for undergraduates are oral and written communication, leadership, teamwork, conflict management, ability to take initiative, transparency, decision-making, problem-solving, and critical thinking (Hart Research Associates, 2013; Drummond and Rosenbluth, 2015 cited in Goodwin et al., 2019). Additionally, Olivier et al. (2014) reported that the required skills can be clustered into six major areas: foundation skills (e.g., written, and oral communication), problem-solving and critical analysis, adaptive capability, autonomous learning, creativity, or ability to innovate and generate new ideas, teamwork, IT skills, relevant employability skills (e.g., coping with pressure, being flexible, and meeting deadlines).

Employers tend to give more importance to employability skills than degree qualifications (Goodwin et al., 2019). Canada, Australia, and the United Kingdom have taken notice of this pattern and have invested in the disciplinary competence and employability skills of their undergraduate students by offering them training and preparing them for employment. Such funds allocated in education and training help equip students with the skills necessary to improve their productivity and increase their future earnings (Suleman, 2018). Similarly, universities in Ghana are found to produce students who lack the employability skills required to work effectively in the corporate world. Statistics show that there are still gaps between what higher education offers its students and what the market

needs (Damoah, Peprah and Brefo 2021). The study confirmed that the skills gap has widened, and employers are not satisfied with the skills of the local graduates.

However, the definition of employability is much more nuanced and closely tied to GAs. Therefore, all involved stakeholders need to explore and encourage the relationship between both (Belwal et al., 2017). Most studies have provided essential guidance for the universities on the ways in which they can improve the employability skills of their students. But, these studies do not address the key issue, namely how programs and courses can transform employability skills into learning outcomes and how students can practice these skills (Goodwin et al., 2019). It is added that universities incorporate employability skills into curricula to address the gap between student skills and student knowledge. When the target skills are integrated in the course learning outcomes, students are more likely to acquire the necessary employability skills.

3.3. Definitions of the Skills Investigated in the Study

The skills to be explored in this study are part of the required employability skills and include communication, English writing, teamwork, time management, ability to work under pressure, and computing. Each skill is explained and defined in the sections below.

3.3.1. Communication

Good communication is about understanding instructions, learning new skills, making requests, asking questions, and relaying correct information. These are the most basic tasks that an individual should be able to complete to qualify as a potential employee. Therefore, prospective employers expect prospective employees to be able to use a variety of verbal and written methods to communicate clearly and concisely and communicate information to others in a straightforward and clear manner (Osmani, Weerakkody, and Hindi, 2017) and express their thoughts and opinions clearly and convincingly, both orally and in writing (Succi and Canovi, 2020).

3.3.2. English Language Writing

English writing skills play a vital role in education and employment. Thus, students need to pay attention to accuracy to ensure correct punctuation, grammar, and spelling in their writing and expand their vocabulary. They should also be able to produce written content that is appropriately structured, so that they convey the desired message to the recipients (Quvanch and Na, 2020).

3.3.3. Teamwork Skill

Teamwork refers to working effectively with individuals of diverse cultures, ages, and genders (Osmani, Weerakkody, and Hindi, 2017). This is considered as one of the most crucial soft skills for employment. Hence, some HEIs have integrated teamwork into their curricula, so that students can practice this skill during their learning trajectory (Hashim, 2015).

3.3.4. Time Management

Coordinating one's time is a key ability in the highly disruptive and competitive world of work today (Osmani, Weerakkody, and Hindi, 2017). However, it is not considered as an inherent ability that someone is born with and can be learned (Sainz, Ferrero, and Ugidos, 2019).

3.3.5. Ability to Work Under Pressure

In a professional setting, it is highly important to be able to deal with issues that might arise due to resource or time constraints, problems with the task, inadequate expertise to complete the work, or unexpected changes (Centre, 2020).

3.3.6. Computing Skills

Computing or information technology (IT) skills refer to the ability to use operating systems, software, and area-specific applications (Beetroot, 2020). Employees are expected to find and use suitable technology to resolve different tasks and problems in their working environment (Osmani, Weerakkody and Hindi, 2017). Several countries have recognised IT skills as survival skills in the modern job market which are essential to sustained economic growth (Talja, 2005).

3.4. HE Framework

The purpose of HEIs has not changed much over time. For instance, Harvard College was founded by a group of Puritans in 1636 to create "a learned clergy and a lettered people" (Rudolph, 1962, p. 6 cited in Chan, 2016) and serve the needs of society. In the 19th century, John Dewey considered HE as a way to sustain liberty and democracy when he declared that "democracy must be born anew each generation, and education is its midwife" (Dewey, 2008, p. 139, cited in Chan, 2016). According to Green (1994), HE aims to promote economic and social growth by developing a skilled and professional workforce. This can be achieved by producing graduates to meet the needs of the industry

and service organisations and by promoting further research. Monkut (1998) defines HE as a route to learning, training, and IT where a large student population interacts with their educators, departments, and universities.

According to Chinta, Kebritchi, and Elias (2016), HE constitutes a part of society, and the HE framework is based on context, input, process, and product. The diagram below displays the different inputs of such a system (e.g., high-school graduates entering the system), and the values added in the transformation process (e.g., learning processes). Ultimately, the system will generate the output (e.g., educated students capable of pursuing careers and adding value to society).

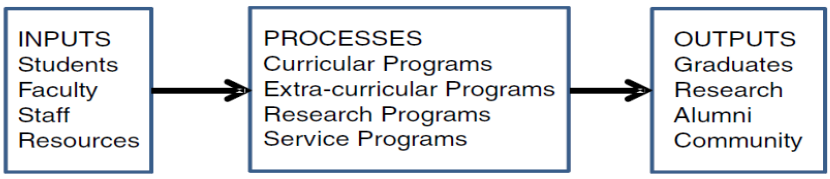

Figure 4: System View of HE Institution by Chinta, Kebritchi and Elias (2016, p.992),

HE is essential for economic and social growth and responsible for training people with the knowledge and skills required to support the public and private sectors (World Bank, 1994). One of the required aspects that HE needs to focus on is the research fields, Monkut (1998) explained that HEIs need to support research and contribute to society and education. At this point, research is extremely crucial as it enhances the performance of human capital and the dissemination of acquired knowledge. Through research HEIs generate new knowledge that allows countries to transfer expertise and disseminate the findings worldwide. HE can also assist the government and the industries with advice and consultancy services (World Bank, 1994).

In Nigeria, for example, Nwajiuba et al. (2020) investigation into the extent to which local HEIs support the growth of graduate skills and employability revealed that HEIs support the growth of graduate employability and skills. Nevertheless, the findings of the interviews conducted with representatives of public and private organizations, educational institutions, and non-governmental organizations emphasized that Nigeria must produce more graduates who are highly skilled and equipped to handle the challenges of escalating globalization. The study participants agreed that graduates with the necessary practical skills would play a significant role in developing the Nigerian economy.

For another prospective , Chan (2016) observed that HE is facing a big challenge in terms of the programmes that colleges and universities can offer as well as the skills needed for

society. Nabaho, Aguti, and Oonyu (2019) clarified that the quality of HE undergraduate experience is about the 'product of education' and that it needs values that allow students to demonstrate what they have learned. Chan (2016) added that today's society needs college graduates who are academic and knowledgeable and can make valuable contributions to their societies.

3.4.1. HE and Developing Student Skills

According to Green (1994), HE is meant to cater for the needs of a diverse student population. Graduate training is highly treasured, and it is strongly recommended that HEIs use their resources to develop relevant knowledge and skills for their graduates. Students should acquire a wide variety of discipline-specific and general skills focussing on communication, problem-solving, critical thinking, social skills, and intrapersonal skills at undergraduate level to lead a responsible, effective and innovative life in the future (World Bank, 1994).

Skills development that addresses areas such as communication, numeracy, problem-solving and teamwork and 'learning how to learn' should become a core goal for HE. These areas are essential skills for everyday and professional lives of individuals. In response, governments around the world have decided to finance initiatives and programmes that encourage the promotion and acquisition of these skills to improve graduates' employability within the available career guidance schemes (Mason, Williams, and Cranmer, 2009).

It should be noted, however, that a balance between learning subject skills and generic skills must be sought; skills such as teamwork, interpersonal communication, decision-making, problem-solving, leadership, analytics, and enterprise experience should be given the same importance as discipline-specific skills (Nabaho, Aguti, and Oonyu, 2019). Students should also learn how to evaluate information, find resources, and be aware that learning is a lifelong process that enhances skills like problem-solving, communication, critical analysis, and teamwork (Green, 1994). These skills have become very important in professional applications and careers, as employers want graduates who are good at time management and priority-setting, successful and effective team workers and communicators. They should be able to communicate effectively in writing formal reports, e-mails, and bullet-pointed summaries. Employers also value flexibility in performing various tasks according to changing situations and in critical analysis, problem-solving, and presentation skills (Yorke and Harvey, 2005).

Thus, strengthening the relationship between HE and the labour market has become a new institutional mission of HEIs (Suleman, 2018). Mason, Williams, and Cranmer (2009) clarified that from the employers' perspective, employability refers to 'work readiness' or the creation of skills, experience, attitudes, and commercial understanding that will enable new graduate employees to make valuable contributions to organisational objectives.
In other words, graduates need the skills to manage their careers and continue learning throughout their working lives. Chan (2016) adds that policymakers need to devise strategies where faculty members mentor college students in accordance with individual and career motives. They should encourage faculty to develop creative courses, curricula, and other activities that demonstrate knowledge in line with 21st century skills. The UK government, for example, has adopted such policies in order to improve this area. Successive governments in the UK have been moving towards economic competitiveness by increasing the number of universities and students and improving their qualifications and skills (upskilling) (James et al., 2013).

Green (1994) states that commending international standards in the form of HE programmes can produce a quality college system. These terms cover the goals for the knowledge, understanding, skills, attitudes, and facilities including staff, buildings, libraries, and equipment available to assist students in reaching those goals. This is evident from the fact that more universities use a mix of embedded and stand-alone teaching methods in their efforts to develop employability skills (Mason, Williams, and Cranmer, 2009).

Although the vast majority of programmes foster employability skills, most HEIs have yet to identify what those skills are or what non-cognitive factors are most important to the profession and workplace (Chan, 2016). Mason, Williams, and Cranmer (2009) recommended that in order to develop employability skills, HEIs need to distinguish between three different mechanisms: the assessment processes of such skills by departments, involvement of employers in the creation and delivery of courses, and the participation of students in work experience through courses and related programmes. Green (1994) demonstrates that some of the attributes that students should learn in HE programs are the appreciation of scholarship and its discipline. In other words, they must be interested in learning the subject and its goals. Nabaho, Aguti, and Oonyu (2019) added that graduates must demonstrate a higher level and a wider range of skills than when they entered college.

Regarding the support of technology in the development of student skills, some studies mentioned the benefit of using technological resources. Therefore, to remain relevant, academia responsible for educating future information technologists and computer specialists around the world must be aligned with the needs of the market environment. An example is highlighted by Vicinanza (2013) who studied the skills required of IT graduates since IT is a dynamic and fast-paced sector that needs to constantly reinvent itself. Vicinanza (2013) provided the experience of BlueWave Computing, an IT support vendor in Atlanta, Georgia. The company does not expect to find graduates with practical knowledge of specific vendor products; thus, the company looks for certain general skills and abilities in graduates, such as the ability to quickly track and solve problems, to offer clear communication and design, to deploy and manage multi-location computer networks, to evaluate computer system security risks, and to design business security strategies. According to the company, graduates need some form of training in the area of communications, project management, problem solving, leadership, proposal and report writing, systems documentation, and business labelling (Vicinanza, 2013).

Regarding the issue of improving graduate skills, New Zealand introduced a competitive environment model to motivate both universities and technical education facilities to compete for profitable graduates in 1999. The government made HE a priority, so that universities could develop academic programmes and technological education to improve and support the graduates' technical skills and soft skills (Stevens and Norman, 2016). As a result of this policy, Wellington has a vibrant technology industry today, supported by two universities that offer IT degrees, several technical colleges, and numerous private education establishments (Stevens and Norman, 2016).

In this regard, it is noted that many universities in the UK and other countries around the world have adopted schemes to help students develop employability skills. These schemes involve opportunities for work-related learning and self-career development training on issues such as communication, self-awareness, and entrepreneurship (Swinney and Williams, 2016). For example, the World of Work is digital career platform established in 2009 by Liverpool John Moores University (LJMU) and partners. The initiative has a network of 400 firms providing regular feedback to students on the core skills they want from new graduate hires. The engagement of employers with students also means that they are aware of the skills of new graduates and can encourage them to apply for positions in their respective firms (Swinney and Williams, 2016).

3.4.2. HE GAs and Employability

3.4.2.1. GAs

Scholars have offered different definitions for GAs which are labelled as generic, core, key, enabling, transferable, and professional skills and used in combination with other attributes, capabilities, and competencies (Green, Hammer, and Star, 2009). All these terms and requirements can be found on the graduate outcomes lists on HEI websites, including technological skills such as ICT skills. Oliver and Jorre (2018) argued that the boundaries between skills, attributes, and competencies are blurred and used synonymously. However, there is still a focus on the overlap and relations between these terms. Green, Hammer, and Star (2009) studied this critical relationship and differentiate between university learning and literacy experts who have formed two different camps: the camp of 'the generalists' and camp of 'the specifiers'. Both camps have major disagreements with regards to GAs.

Hill, Walkington, and France (2016) pointed out that the lack of a common understanding of GAs, the difficulty of relating GAs to various disciplinary backgrounds, and the pressure on academic staff to build the required aligned pedagogies and evaluation strategies make it so difficult to develop a universal framework for GAs. Oliver and Jorre (2018) explained that the qualities, abilities, and understandings that students should develop are labelled as GAs. Such attributes include but go beyond the disciplinary or technological knowledge that has usually formed the basis of most university courses.

According to the 2018 World Economic Forum report, skills such as critical thinking and creativity as well as active learning strategies will have evolved dramatically by 2022. Therefore, most employees will need updated skills in terms of future jobs by 2022 (Mahon and Murphy, 2019). Yorke and Harvey (2005) emphasised that getting a degree is only the beginning, and today's employers are looking at other qualities and job-related achievements. Employers have always required a set of other personal skills in the form of adaptability, flexibility, and desire to learn and continue learning. In taking these into consideration, a combination of skills, attributes, and knowledge should be included in the list before appropriate teaching, assessment, and evaluative strategies are developed.

A common set of GAs has already been adopted in many universities, which includes critical thinking skills, effective communication, leadership and teamwork, research and research skills, information and digital literacy, personal attributes, and personal values (e.g., ethical, moral and social responsibility, integrity, and cross-cultural awareness) (Hill,

Walkington, and France, 2016). Osmani, Weerakkody, and Hindi (2017) highlighted that the essential GAs identified in the literature include communication, teamwork, problem-solving, ICT, creativity, interpersonal skills, leadership, self-management, critical thinking, time management, and research skills. For example, regarding the importance of IT and communication skills, Yorke and Harvey (2005) pointed out that both skills are listed under the most important requirements. Graduates are expected to be proficient in IT, have experience with various applications, and be comfortable with different modes of electronic communication.

According to Daniels and Brooker (2014), GAs provide an identifiable way for HEIs to market their products and prepare their students for the tasks expected of them in the future workplace. If students are motivated to acquire these attributes, they can adapt to different contexts and achieve positive results through thinking sideways, facing challenges confidently, be willing to take responsibility, and moving their company forward (Yorke and Harvey, 2005).

Oliver and Jorre (2018) suggested that HE providers need to concentrate on the following areas of preparing graduates and training them successfully:

- Publishing the attributes on which they concentrate, aligning the focus with their students' needs and their institutions' goals.

- Explaining the meaning of student attributes and measuring the performance of student attributes.
- Ensuring that the attributes, as stated in the curriculum, student handbooks, and marketing materials, are understood in the context and communicated at the course level.
- Emphasising global citizenship, teamwork, and communication attributes and highlighting independence, critical thinking, problem-solving, and the basic skills of written and spoken communication.
- Discussing the work with stakeholder groups and combining them a common way wherever possible to make sure that the progress that is being made is visible.
- Ensuring the quality for the institutional environment on the graduate attributes by reviewing and refreshing these attributes regularly.

Hill, Walkington, and France (2016) pointed out that the process of implementing GAs exceeds the period of two academic years as they need to be incorporated into the course design and review processes. It is imperative to evaluate GAs in various forms such as

curriculum documentation, student perceptions, survey design, and alumni and employer responses. It is relevant that each discipline is responsible for conceptualising, mapping, designing, implementing, and assessing GAs. For this to work universities need to plan and implement a model to develop graduate attributes (Green, Hammer and Star, 2009).

Hill, Walkington, and France (2016) argued that mapping GAs by highlighting the student skills within the current course programs encourages a specific approach to the development of GAs. Measuring GAs is essential; otherwise, they will not be taken seriously by students or teachers. GAs evaluation helps students and educators to monitor their progress. One of the drawbacks of the current practice, however, is that GAs are often measured independently. If students are not aware of these expectations and are not actively involved as partners in the assessment process, the GAs evaluation plans will fail (Hughes and Barrie, 2010). To overcome such issues, HEIs should provide academic staff career development, reward and acknowledge their role in integrating GAs through curricula by providing better resources, and improve the relationship between academic and professional staff (Hill, Walkington and France,2016).

In summary, HEIs have developed a definite and practical approach to prepare graduates for the labour market. Employers' needs are voiced by a variety of sources including professional associations, employer groups, and institution-based liaison committees with employer representatives (Yorke and Harvey, 2005). Albeha et al. (2020) found that although employers have brought this issue to the attention of the government, academics still have a strong hold over skills training which remains dependent on individual assessment rather than a unified institutional approach. Also, further research is required to truly understand how to evaluate and develop this set of skills due to insufficient knowledge. In addition, HEIs need to prioritize the issue of skills development to promote and formalize the process of bridging the gap between HEIs' and employers' perspectives, supported by governmental and institutional policies.

This means that all stakeholders (e.g., academics as well as industry and government policymakers) need to work together to develop a set of policies through co-curricular activities that promotes a more student-centred relationship, effective curriculum alignment, and professional employability initiatives to nurture and sustain the production of in-demand GAs (Hughes and Barrie, 2010; Osmani, Weerakkody, and Hindi, 2017). And Nwajiuba, et al. (2020) study found that a university policy framework gives university councils full responsibility for institutional governance and the appointment of academic and non-academic staff. Such a policy framework encourages HEIs to contribute to the national

development through high-level training and inculcating those values that are crucial for the survival of the society, besides promoting scholarship, community service, national unity, and international understanding. In terms of the growth of graduate skills and employability, there is a need to revalidate curricula, teaching methodologies, and pedagogical approaches, especially those aiming to deliver key competencies and generic and employability skills, with a focus on the use of information technology, new forms of problem-based learning, and the study of real-life cases (Nwajiuba et al., 2020).

In their study on developing a model to examine employability skills that match workplace requirements and foster employability institutions in Hong Kong, Ng et al. (2021) found that HEIs should work closely with industry stakeholders to get employers engaged with work-integrating learning programs and train young graduates. To conduct successful work-integrated learning programs, institutions need to support the active engagement of faculty, academics, and employers as program stakeholders. Therefore, employer engagement plays a big part in developing students' skills. Employers must support students as they go from theory to practice by engaging with them as partners in the development of work-integrated learning programs (Ng et al., 2021). Hill, Walkington, and France (2016) further recommended to involve students in the design of their own GAs because they are relevant to their sense of self.

3.4.2.2. GAs and Employability

Employability means that students and graduates recognise, learn, and adopt skills, understandings, and personal qualities that make them more likely to find and construct value for paid or unpaid work that supports them, the workforce, the society and the economy (Oliver and Jorre, 2018). For students to gain relevant employment skills while pursuing an academic degree, universities need to incorporate attributes and skills of employability into their curriculum and offer training workshops to equip students with the right interpersonal and applied skills that are currently demand in the industry (Osmani, Weerakkody and Hindi, 2017). In Europe and other countries around the world, a strong sense of innovation and collaboration practices adopted in HE is considered essential to ensure graduate employability and skill building. The main issues regarding skills development and graduate employability are directly related to the gap between graduate skills and employability skills, undergraduate self-perceived employability, change to practice, importance of traineeship, and development of specific skill sets (Albeha et al., 2020).

According to Oliver and Jorre (2018), the 2015 HE framework in Australia specifies that students must show proof of the identified learning outcomes by the end of the

programme. These learning outcomes must include generic skills required for employment in the field, and independent and critical thinking skills appropriate for lifelong learning.

In a more specific example, a study by Kavanagh and Drennan (2008) explored the perceptions and expectations of accounting students and employers. The result showed that students are more aware of the employers' expectations in terms of their analytical, technical, and teamwork skills and 'real world knowledge'. However, students and employers reported that many of the essential non-technical and practical skills and attributes of academic accounting programs are not adequately established throughout the degree courses.

Thus there are two significant issues: the first issue is that curriculum should reflect an understanding of the labour market's needs, and the second issue is that students should be aware of their achievements and how they relate to the employers' needs (Yorke and Harvey, 2005). Curriculum growth should be focused on attributes that are required and important to the market and the industry (Osmani, Weerakkody and Hindi, 2017).

Considering the perspective of the employers, Yorke and Harvey (2005) stated that employers welcome graduates because they want bright, intelligent people who 'add value to what they do'. It is necessary to have subject-specific knowledge and understanding; on the other hand, the ability to transfer one's knowledge and understanding is crucial in this time of rapid change in disciplinary knowledge. Hughes and Barrie (2010) specified that employers are aware of specific GAs and often expect proof of the graduates' GAs achievement. In the media sector, for instance, successful graduates must demonstrate an increasing number of attributes. For example, they must be self-disciplined, accustomed to organisational politics and culture, and function successfully with a variety of other people (Yorke and Harvey, 2005). Osmani, Weerakkody, and Hindi (2017) stressed that universities should research employers' standards and criteria for skills and graduate quality. Universities, authorities, professional associations, accrediting bodies, and employers should also work together to regularly update and adjust the current curricula to the changing needs of the market. A national careers week (2019) tweet said, *"*When business, government and education collaborate, the quality of careers education improves greatly*".*

McMillan and Weyers (2011) explained that employers are looking to find graduates with transferred skills or skills that can be used in different situations. Combined with subject knowledge and other personal qualities, these skills can result in better employment and career opportunities. In this regard, McMillan and Weyers (2011) outlined

five areas of expertise: personal development skills, social skills, communication skills, technical skills, and academic skills.

3.5. GCM

The Graduate Capital Model (GCM) was created by Dr Michael Tomlinson, Associate Professor in the School of Education at the University of Southampton. GCM was the result of the founder's extensive expertise in employability. The university adopted the model to meet the needs of students by creating learning outcomes suitable for them.

Tomlinson (2020) explained that GCM is a conceptualisation of employability that looks at employability as a set of graduate resources that can be utilised in the labour market. Tomlinson's model includes five types of capital: human capital, social capital, cultural capital, psychological capital, and identity capital, as illustrated in the figure on the next page:

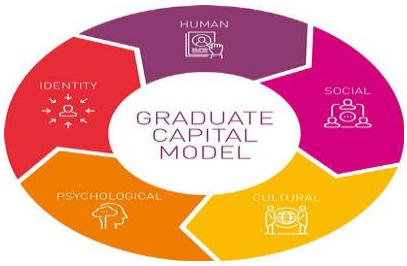

Figure 5: The Graduate Capital Model (GCM) (Source: The University of Southampton Webpage,2020)

According to the university, each type of capital is necessary to meet the employability needs of graduates; for example, human capital reflects the knowledge, practical skills, and confidence gained in preparation for the job market and search for job opportunities. Furthermore, through social capital graduates can examine the job market, create, and understand opportunities, build a network of contacts, and communicate with others efficiently and confidently. Cultural capital, on the other hand, demonstrates the value that graduates have acquired through extracurricular activities, the selection of techniques available to present themselves in a targeted manner (on paper, online, and in person), relevant field assessments, and the level of awareness and sensitivity to different cultural contexts. Besides, psychological capital helps graduates to manage uncertainty in the workplace and generate plans and personal strategies, thus showing adaptability and management during time changes and transitions. The fifth type of identity capital allows graduates to identify their skills, attributes, and experiences and evaluate themselves for their concepts to address the gaps (The University of Southampton Webpage, 2020).

As stated earlier, GCM can be used to describe GAs and their relationship to employment. Viewed from the academic perspective I believe that the classification is clear and straightforward. It makes the adoption of this CGM suitable, as it contains most elements required to meet the learning outcomes and labour market demands. It can also help reduce the overlap of GAs and employability skills of this study sample. As described in the above paragraph, I found that this model is logically structured around human, social, cultural, psychological, and identity capitals, each one with a clearly defined place and purpose. Although establishing, updating, and modifying GAs is a complex undertaking that may take years to complete, GCM serves as a benchmark for ambitious academic institutions. Currently, HEIs in Oman are working to fulfil the international standards in education, skills development, and market needs. Given its recency, however, this model will require sufficient space and practice for evaluation, and it may take a similar effort to study all aspects of GAs. Thus, from my perspective, I concluded that GCM offers many advantages to support this study's aims and objectives, while possessing none of the disadvantages of using it.

Part Two:

3.6. E-Learning Definition

According to Šumak et al. (2010), E-learning is a form of technology innovation supported by information and communications technology (ICT). Its services offer education and learning not limited to a specific time and place. Pardamean and Susanto (2012) stated that the concept of E-learning entails that learning can be performed anytime and anywhere, with the use of various types of technological tools and devices.

Nistal, Rodríguez, and Castro (2014) explained that an E-learning application is a webserver-installed piece of software that is used to operate, distribute, and supervise an institution's educational activities. Gautam and Tiwari (2016) added that E-learning is essentially a network that allows skills and knowledge to be transferred. E-learning refers to the use of the learning of electronic applications and processes, including web and computer-based learning, virtual classrooms, and digital collaboration.

Aparicio et al. (2016) found that E-learning covers the two areas of learning and technology. Learning is a cognitive process for acquiring knowledge, and technology is the tool that is used in the learning process. Nowadays, different platforms and devices are being used in E-learning systems. E-learning involves digital learning, which means

that it is used in the delivery of teaching materials in the context of education and training in online forums, webinars, and chats. This allows for the integration of interaction strategies between the subjects and the learning process (Costley, Lange, and Lange, 2017). As a result of continuous technological innovation, the environment of E-learning systems has been developed, which helps students to access information, share and exchange information, reduce time, enjoy time, and place flexibility, connectivity, and resolve problems better (Bayona, Chavez, and Sicha, 2018).

According to Salsabila, Abdurachman, and Marpaung (2019), the use of the internet and digital technology is one of the reasons for universities to be able to adopt E-learning. Today, E-learning is used as a tool for facilitating access to course materials in the lecture process. A recent study by Villesseche et al. (2019) indicated that E-learning is part of the educational design and has opened up new possibilities in the learning and teaching environment. Adopting E-learning is an effective solution for understanding learners, estimating learners' skills, and influencing their learning strategies to improve their performance.

3.6.1. E-Learning Functions

Šumak et al. (2010) observed that the use of E-learning has increased over the past decade because people can easily and quickly access their everyday tasks and activities through it. Also, it provides learners with an asynchronous and synchronous environment. Furthermore, students may carry out various activities through the use of E-learning, such as accessing their course materials, working on online quizzes, submitting tasks or assignments, and engaging and discussing with their peers and lecturers (Salsabila, Abdurachman, and Marpaung, 2019).

Nistal, Rodríguez, and Castro (2014) listed the main functions of E-Learning as follows: monitor and assess participants, services, educational materials, and activities; regulate access; and supervise the learning process and the advancement of users through different phases. A list of functions related to E-learning includes knowledge levels, training, usage, understanding of training skills, quality, content delivery, email and communication interaction, tasks/exercises, forums, examinations, self-assessment, surveys, group work, chat, calendar, FAQs, glossaries, learning paths, student portfolio, videos and podcasts, and student tracking (Nistal, Rodríguez and Castro, 2014). To meet all of these functions, institutional support is very important in E-learning installation, maintenance, platforms, and training on teaching methodologies for its principal features.

3.6.2. E-learning Components

E-learning components are offered in many formats, including experience-based learning arrangements and learners' community networks involving developers and experts. It helps establish transparent accountability for all interested users of the learning and teaching process (Salsabila, Abdurachman, and Marpaung, 2019). For successful online courses, Gautam and Tiwari (2016) listed five necessary components of E-learning. Each component plays an important role in designing an E-learning framework. These five components are shown in the following diagram:

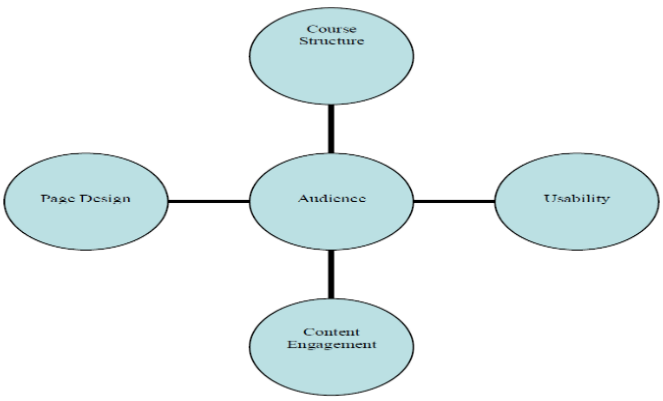

Figure 6: Five E-learning Components (Gautam and Tiwari, 2016)

Referencing to Gautam and Tiwari (2016), the following sections provide a summary of the concept of each component:

3.6.2.1. **Audience**: Students are a critical element in the process of developing online classes. When building an online course, the following considerations apply expectations, learning skills, hardware/software availability, learning environment, job responsibilities, and preferences.

3.6.2.2. **Course Structure**: This component relates to how E-learning is intended to be used in a course. A structured course should consider the following items: grouping material into logical modules, module size, integrating interactive concepts, and using images/graphics to illustrate ideas, or statements.

3.6.2.3. **Page Design:** To make navigation faster and quicker, the appearance must not obstruct the learning process or more graphics or photos than power texts. Also, a white area is useful when trying to integrate E-learning into the training, while objects and fonts should be consistent across the course and user-friendly.

3.6.2.4. Content Engagement: This component refers to how the learner communicates with the course content. It is recommended to use hyperlinks for more concepts, explanations, or descriptions, and to provide interactive graphics such as animations or simulations.

3.6.2.5. Usability: When performing usability analytics, the points to remember are that all connections should function reliably, the activities work as planned, and the material is reviewed to ensure that the grammar and spelling are correct. Furthermore, the graphs should be clearly visible, and the course functions are appropriate in the relevant server environments, in addition to a suitable screen resolution. Finally, the course goals and expectations have to be established.

From another point of view, Guragain (2016) argued that any factors such as the subject matter, the level of knowledge of the user, and the atmosphere around the audience influence the development of E-learning. Users also have different learning styles. The amount of data that the individual wishes to receive is another factor in the learning process. Users have to determine for themselves which information at any given time is important to them, and how much they can process. Kassymova et al. (2020) suggested that students should have the skills relevant in todays and tomorrow's world, and E-learning needs to be incorporated into the education system in anticipation of emerging technologies. HE puts due emphasis on active participation and involvement; thus, lecturers are expected to select teaching and learning resources that are interactive, available, and easily accessible online.

3.6.3. Benefits of E-learning

The use of E-learning in HE has many advantages and is considered as one of the best ways of learning in terms of its many benefits. Several researchers and scholars have studied the advantages and benefits of E-learning technologies as practiced in such institutions (Arkorful and Abaidoo, 2015). Salsabila, Abdurachman, and Marpaung (2019) explained that E-learning is a media form that allows accelerated learning to expand access to various educational resources and activates the process of teaching and learning among teachers and students. E-learning can assist the learning activity using different functions such as being 3D-based, easy to understand, making students more involved, developing and increasing motivation, supporting the learning activity and the skill of students, not deviating from the key objectives, being functional, and achieving the learning goals (Nia and Kurniawan, 2019). E-learning can be used to evaluate and develop

students' learning while improving their educational experience through interactive learning, globalisation, and the elimination of time and place (Arkorful and Abaidoo, 2015).

Some benefits of E-learning can be summarised in four categories as detailed below.

3.6.3.1. Self-Paced Instruction and Convenience

E-learning materials are placed online and can be accessed by learners at any time and from any place. They may not demand that the learner be physically present in the classroom. Students can also download and save learning materials from the framework for future purposes (Hismanoglu, 2011; Guragain, 2016; Gautam and Tiwari, 2016; Nia and Kurniawan, 2019; Lara and Rico, 2020). In E-learning systems, study materials can be revised more often than in classroom-based education systems. If study materials are put into a system, they can also be updated without modifying all of the materials, and it is possible to access and reuse the materials for a longer duration (Guragain, 2016).

3.6.3.2. Flexibility and Accessibility

Most of the study materials are kept online so that learners can access them whenever they wish. Students may also skip the study materials that they already know (Hismanoglu, 2011; Guragain, 2016; Nia and Kurniawan, 2019). E-learning platforms help build a global learning society, as anybody can access the study materials irrespective of their geographical location. Learners may also add to the research materials in the systems now available, which helps keep the materials up-to-date (Hismanoglu, 2011; Arkorful and Abaidoo, 2015;Guragain, 2016; Lara and Rico, 2020).

3.6.3.3. Communication and Information

E-learning motivates students to communicate, share their opinions, and appreciate them; it promotes collaboration and thus strengthens learning relationships. Also, it improves the effectiveness of knowledge and skills via easy access to a large amount of information (Arkorful and Abaidoo, 2015). Students have the chance to interact with their peers and teaching staff. With regards to their progress, students may contact their teachers in chatrooms or on discussion boards and ask them for guidance (Nia and Kurniawan, 2019).

3.6.3.4. Cost-Efficiency

For most students, E-learning is a more cost-efficient form of learning, as they can select from a wide variety of courses and make a choice based on their needs. It can also be

equally cost-efficient for universities because the materials can be reused once the learning platforms are set up (Guragain, 2016; Lara and Rico, 2020). Šumak et al. (2010) further pointed out that E-learning is necessary for providing cost-effective training for business employers. On this point, Gautam and Tiwari (2016) added that the cost of instructors, meeting room rentals, student travel and accommodation are quantifiable. Without causing any noticeable difference in the overall cost, the number of students in virtual classes or E-learning programmes may be very low or very high (Guragain, 2016).

3.6.4. Drawbacks of E-learning

3.6.4.1. Requires Motivation, Social Isolation, and Skills.

Some students are less inspired when using E-learning, so they are less likely to meet the set course goals. There also may not be a set timetable and deadlines which may cause a student to drop out of a course (Guragain, 2016). It may also be difficult to respond to the students' diverse needs. Some activities can be too complex for some students and too easy for others. Also, some teachers include E-learning activities in their courses that involve discussion or practice, while others find it more convenient to design E-learning tasks in which learners receive data through reading materials (Lara and Rico, 2020). Arkorful and Abaidoo (2015) expanded on this point by observing that the E-learning approach can be less successful than traditional methods of learning in terms of the limited explanation, information, and discussion provided. For some teachers and students, therefore, the learning process is much simpler face-to-face.

Hismanoglu (2011) and Guragain (2016) noted that the absence of a real classroom and classmates may not be suitable for every student. Students can often feel socially isolated by the lack of engagement with real people while studying and learning. Arkorful and Abaidoo (2015) emphasised that in order to reduce the isolation effects and lack of interaction, very high motivation, time management, and communication skills are necessary. Also, E-learning requires specific knowledge and skills for users to be able to use it effectively. In other words, a curriculum incorporated into an electronic learning system is useless without any computer skills (Dašić, Dašić and Šerifi, 2012).

3.6.4.2. Technology Issues

Using computer applications to access study materials in E-learning is not suitable for some individuals who do not have the skills to deal with such applications and need time to learn them (Hismanoglu, 2011). In addition, other technological reasons include weak

internet connection and computer failure, which can make the learning process difficult and time-consuming (Guragain, 2016). Arkorful and Abaidoo (2015) pointed out that E-learning can also result in certain websites being crowded or heavily used, which may result in unexpected costs, both in terms of time and money. Another issue highlighted by Guragain (2016) is that based on the availability of many learning systems, study materials may not be compatible with other platforms. For example, versions of applications on mobile devices are different from browsers on web pages.

3.6.4.3. Equipment Expenses

Over the long term, E-learning is the more cost-effective choice, but it may still be too costly for some institutions. The purchase of new appliances, computers, projectors or apps may not be feasible for some organisations, and the costs of producing training materials are also high in comparison with conventional approaches (Guragain, 2016). Dašić, Dašić and Šerifi (2012) claimed that even the best E-learning equipment to operate will still not be completely effective. Any system needs expensive technological support and steady growth in line with the development of the technologies used by it. Villesseche et al. (2019) highlighted that one of the most important challenges to be identified in implementing E-learning is training which depends on aspects such as staff, learners' needs, and budget availability.

3.6.5. E-learning Types

E-learning can be divided into three different types: web-supplemented courses, web-dependent courses, and mixed-mode courses. First, web-based courses focus on classroom-based teaching and include elements such as online presentations and lecture notes, email use, and access to online tools. Second, web-dependent courses demand that students use the internet for the main components of the curriculum, such as online discussions, evaluations, or online collaborative work, but without reducing the classroom time. Third, in mixed-mode courses the E-learning component replaces the time spent on online discussions, assessments or project work, as it reduces such face-to-face teaching and learning (Lancrin, 2005, cited in Hismanoglu, 2011). Bencheva (2010) offered four different resource types: online learning, distance learning, blended learning, and M-learning. A brief description of each type will be given below.

3.6.5.1. Online Learning

This type of E-learning is usually self-directed but may involve synchronous chat, web-

based sessions, and websites that can include text, graphs, animation, audio, video, chat panels, email, and online testing (Bencheva, 2010). Also, it does not support any face-to-face classes or meetings (Guragain, 2016).

3.6.5.2. Distance Learning

Distance learning is an innovative approach to education. Through remote educational technology, opportunities can be offered to individuals who are geographically distanced from traditional classroom environments (Glenn, 2001 ; El-Bakry and Mastorakis, 2009; El-Ghareeb, 2009; Guragain, 2016). Bencheva (2010) added that distance learning can also happen if the teacher and the learner are in the same location but not simultaneously.

3.6.5.3. Blended Learning

This type of E-learning has gained much popularity worldwide. It is considered as an attractive concept because it retains traditional learning based on pedagogical experience and has a lot of human loyalty. It also makes it possible to compromise the implementation of technology in the learning process in line with the 21st century trend of informatisation (Nazarenko, 2015). Blended learning combines face-to-face instruction with online activity. It aims to combine delivery modalities to provide the most effective and productive teaching experience. It is used to define a solution that combines many different delivery methods and mixes different activities such as face-to-face classrooms, live E-learning, and self-paced training (El-Bakry and Mastorakis, 2009; El-Ghareeb, 2009; Bencheva, 2010). Blended learning environments have been shown to capture the ideals of traditional classes and enhance the impact of positive learning experiences. The three most common concepts include the combination of modalities of instruction, methods of instruction, and online and face-to-face instruction (Tayebinik and Puteh, 2013). Guragain (2016) provided examples of this type of learning involving virtual classrooms, video conferences, online streaming, various online group games and social media, online blogs, and Wikipedia. It is highly interactive with the students themselves, or student to teacher, or even both. The figure below illustrates this idea (Bencheva, 2010):

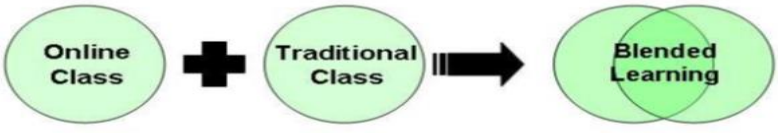

Figure 7: Blended Learning Idea (Tayebinik and Puteh, 2013).

3.6.5.4. M-Learning

Mobile learning or M-learning is E-learning through mobile computational devices. These mobile devices can be PDAs and digital cell phones, but generally it involves any device that is lightweight, autonomous, and bland enough to accompany users at every moment of their daily lives and can be used for any sort of learning (Trifonova and Ronchetti, 2003). Laroussi (2004), Sharples, Taylor, and Vavoula (2005) and Oliver (2007) added that mobile learning can be used flexibly because it can be used 'anywhere at any time'. It helps control individual skills and the stages of learning and promotes individual and interactive learning. Beyond the physical and time limits of an educational institution, students and teachers can interact without altering the educational content or their location. According to Bayona, Chavez and Sicha (2018), an M-learning environment enables students to benefit from advantages such as device usability, independence, simple knowledge access, sharing and exchanging information, time and space reduction, flexibility of time and place, connectivity, and better resolution of problems.

Prahani et al. (2020) examined how smartphone apps can help English language students develop their skills such as speech and critical thinking. In addition, the outcome of research by Kusmaryani, Musthafa, and Purnawarman (2019) revealed that many university students use mobile apps in their learning activities, such as online dictionaries, language interpreters, English speaking and grammar apps, speech-to-text software, WhatsApp, Google Chrome, Twitter, Weebly, and Gmail. Klimova (2019) added on the same topic that mobile app adoption leads to the advancement of all four English language skills (i.e., reading, listening, communicating, and writing).

3.6.6. E-learning Quality

Quality can be understood as a response to the needs of the student, and there is no simple example of quality with regards to E-learning. However, scholars have suggested three aspects of E-learning quality: learning resources, learning processes, and learning setting (Rodríguez, Rainer, and Miralles, 2014). Rodríguez, Rainer, and Miralles (2014) explained that learning resources include support staff and faculties, learning resources, equipment, and frameworks. On the other hand, learning processes involve monitoring the learning design, recruitment, evaluation, and development of learning, while learning settings cover the learning environment principles including the framework, cultural background, learning background, and other financial and legal aspects.

From another point of view, Isik (2008) proposed the three sub-constructs of perceived quality of system, information, and service. The quality of the system relates to how information is processed productively inside the system, whereas information quality refers to the relevance, timeliness, and efficiency of the information generated, and quality of service refers to the delivery of a high-quality service to the customer. Isik (2008) also noted that in the E-learning environment, these three dimensions that constitute the perceived variability of system quality positively affect user satisfaction: “Perceived quality of the e-learning tool is positively related to user satisfaction with the online course”.

According to Al-Fraihat et al. (2020), the quality of an E-learning system can be categorised into three constructs: technical, educational, and support system quality. Technical system quality is linked to problems such as system reliability, accessibility, and ease of use of system features; educational system quality focuses on interactivity and communication features, evaluation material, and various styles of learning; and support system quality is consistent with supporting issues related to ethics and legal concerns and the development of the E-learning environment.

3.6.7. E-learning and Learning Management Systems in HE

As a type of E-learning, HEIs offer a virtual learning environment (VLM) that is provided via various types of learning management systems (LMS) and courseware management systems (CMS) such as Moodle. Such systems provide services and resources that are part of the course content management including communication, uploading and downloading of students’ work, group discussions, quizzes, and grade tracing (Šumak et al., 2010). Guragain (2016) mentioned that a LMS is one of the essential resources that are needed to build an E-learning system. LMS is a software application used for the creation, implementation, documentation, tracking and access of E-learning materials. When setting up an E-learning system, buying an LMS is a very costly factor, so it is recommended to consider it a long-term investment. El-Bakry and Mastorakis (2009) and El-Ghareeb (2009) suggested that institutions also require a University Management Information System (UMIS) that is responsible for maintaining university strategy implementation, and an LMS that is responsible for learning activities. In order to help educational institutions and E-learning, both systems must be compatible and interoperable.

Guragain (2016) added here that there are many LMS open-source E-learning platforms available that can be used to create free E-learning portals, such as Moodle. Also, there

are commercial platforms like Blackboard and WebCT; some institutions do not trust open-source platforms and prefer commercial platforms. Ismail (2001) emphasised that most vendors offer LMS as a complete E-learning solution; therefore, before any technology purchase, it is important for organisations to develop a strategy and system framework depending on their requirements and budget.

As mentioned in the literature review in the above sections, there are specific aspects that make the E-learning environment more efficient. Most of these aspects depend on the resources available. Thus, previous research has established that in order to develop and produce a quality and usable framework for E-learning substantial resources, time, and effort are required. Also, to achieve a high-quality E-learning education all benefits and drawbacks must be taken into account (Dašić, Dašić and Šerifi,2012). Njenga and Fouriec (2010) highlighted that E-learning requires more human capacity resources as well as costly infrastructure including computers and necessary hardware and software, training and support, maintenance, electricity, internet access, system upgrades, and licencing.

Furthermore, Rodríguez, Rainer, and Miralles (2014) drew attention to the importance of quality evaluation a critical aspect of education development. The enhancement of the teaching-learning process is to do with the outcomes of quality assessment, and E-Learning does not discourage these quality assessment processes in the development of the educational environment.

In addition, Al-Fraihat et al. (2020) suggested that to influence the success of an E-learning system other quality factors need to be incorporated such as the antecedents of perceived satisfaction, perceived usefulness, use, and benefits. They proposed four E-learning quality systems: educational system quality, support system quality, learner quality, and instructor quality.

As established earlier by Ismail (2001), E-learning strategy can address different aspects, for example, the organisation’s guiding concepts and policies, and content development that meets the needs of learners and help learners develop abilities, preferences, and long-term career goals, in addition to a technical infrastructure that is connected to existing structures and can be accessed effectively. Nazarenko (2015) demonstrated that a clear academic policy and administrative support for the use of technology in education should form the basis of successful learning and should be prioritised.

3.6.8. Students' Attitudes on Accepting E-learning

Pardamean and Susanto (2012) discussed the significant challenge that students face when using online tools for education, which is to develop their responsibility and their critical attitude towards learning and learning outcomes. In this respect it is essential to survey students' attitudes concerning E-learning system usage and know their opinions on adopting E-learning platforms.

In their case study, Šumak et al. (2010) identified various variables such as age, gender, experience, literacy, and individual style of learning that can positively influence students' E-learning perceptions. Therefore, E-learning stakeholders need to consider the needs of their users and the framework they implement for their use. Tan (2013) emphasised that students should be able to develop their skills through using internet platforms in education. In other words, E-learning can improve study efficiency. More than ever before can learners access a massive number of resources and gain knowledge through the internet. If learners believe that E-learning websites can help them increase their performance, their intention to use them will also increase.

According to Pardamean and Susanto (2012), E-learning is a general term for education, training, and information, with importance placed on the gathering of skills and knowledge. They added that, for example, blogs are recognised as a popular resource for E-learning. Blogging has features that make it a useful tool for improving the online environment for learning and teaching: it enhances students' potential in learning and understanding course materials because it is well-suited to the learning environment, especially through its core writing skills requirement, while also encouraging social connections through communication skills.

An example of this was highlighted by Tan (2013) who focused on skills development in Taiwan. Taiwan is one of the countries that has a highly competitive ICT infrastructure. In her review of Tsai (2009), Tan (2013) described how semiconductor technology courses were developed to address the problems experienced in the development of English Special Programs (ESP) in Taiwan. Five skills for learning English (listening, speaking, reading, writing, and translation) were included in the courseware design, and a 3D multimedia technique was used to encourage learning interest, student interaction, and effectiveness. The student report indicated that the introduction of courseware is advantageous, and the multimedia-assisted environment also facilitates learning quality.

3.6.9. E-learning as a Supportive Technology for Developing Skills

After researching topics such as the use of E-learning and skills improvement I have found that there is research which supports the use of E-learning in improving student skills. According to Clarke (2008), learners go through different stages when using E-learning. In the beginning, learners make use of all need to take all the available features, such as using the group chat function in communication or by emailing the course tutor or other learners. After a while, the learners become more confident with their course and more comfortable with the E-learning environment. This allows them to focus on developing different skills including time management, acceptance of responsibility, planning, self-assessment, problem-solving, coping with stress, motivation, reflection, listening, and research skills (Clarke, 2008). In terms of the skills required by the labour market, the Life Long Learning (2016) report mentions that over the past 30 years, the skills needed to participate successfully in the labour market have changed significantly. Thus, continuous education is needed in today's digital world. In addition to reading, writing, and computing, digital and IT skills have now become the fourth key competency in education. Digital work fields are increasingly added in industrial professions, and as a result these areas of IT activity require continuous training and qualifications (Life Long Learning, 2016). Since digitisation has penetrated the industrialised world in all areas of social life, it is reasonable to expect that learning also takes place in a digital manner. E-learning should, therefore, play an increasingly important role in further education, because it has advantages such as flexibility, convenience, self-paced learning, responsibility and time management (Life Long Learning, 2016).

Rafiq et al. (2020) observed that many employers complain that their employees do not have the required communicative English skills. They explained that the lack of English skills among employees makes it difficult for a business to accomplish its potential. It is, therefore, necessary to provide employees with communicative English training. Because of people's busy schedules and many job duties, it is difficult for most employers to develop the communicative English of their employees. They further noted that an open learning platform, such as MOOC, has been recognised by many organisations worldwide as a free learning platform which can be used to solve this problem. It has many advantages, including being free, open, and allowing learners to learn at their own speed using their own technological learning devices. Prahani et al. (2020) demonstrated that learning in the 21st century includes standards of human capital and competency for graduate students who undertake higher order thinking skills (HOTS) and innovative learning in the form of critical thinking skills, problem-solving skills, communication,

teamwork, decision-making, creative thinking, transparency, and independent learning. They underlined that those educational institutions play a major role in optimising the process quality and performance results on the basis of these skill sets, including HOTS-related student learning processes and performance through efficient and effective teaching.

Additionally, Camilleri and Camilleri (2019) stressed that digital technology skills are to be considered as behavioural skills because they are connected to self-awareness, self-regulation, and social skills. Digital games, for example, can encourage teamwork, problem-solving, networking, innovation, and the exploration of identity. The use of digital games in education requires standardised curricula that encourage ability, accomplishment, and reward systems. The study proposed that the use of virtual learning environments such as games, stories, and simulations as a platform for teaching information, skills, and competencies would be very appropriate for educators.

This claim implies that different resources exist for students who wish to learn theory and concepts through digital media. Students can gain implicit knowledge through specific practice and can enhance their skills over time, especially if they are target driven. As a result, they can become competent in specific tasks and develop their skills at the same time. Several studies have been conducted in the field of E-learning and the development of skills for university students, and some of these are described in the next section.

3.6.10. Examples of Successful Projects and Studies in Using E-learning for Skills Development.

In testing the benefits of using E-learning in IT courses, Malik et al. (2019) developed the PROBSOL application aimed at enhancing problem-solving skills in introductory programming (IP) courses. The application has two versions: a web-based version (E-learning), and a mobile application (M-learning). The intention was for students to spend more time working on their programming knowledge rather than on learning problem-solving strategies. The results showed that there was an improvement in the attitude and behaviour of the students towards the exercise questions. The course also encouraged teamwork and collaboration in classrooms and motivated students to complete the exercises at their own convenience and in their own time. The application promotes the development of problem-solving skills which are considered important skills required of programmers.

Furthermore, to enhance the use of E-learning by small and medium enterprises (SMEs), Yusoff and Salim (2012) suggested five components in the development of the E-learning environment. These components are the E-learning storyboard, communication, multimedia, training, problem solving, and decision making. The research also outlined six guidelines for E-learning components: effective medium communication, well-informed multimedia, well-structured design patterns, embedded (built-in) training, automated problem solving, and decision making.

Another example is the University of Ss. Cyril and Methodius in Trnava during the redevelopment of a university's business communication syllabus which requires different types of soft skills in professional and expert situations. The department of German studies was looking for a tool that could simultaneously provide students with both knowledge of language for a specific purpose and other fields. The study illustrated that the use of E-learning as a supportive teaching method can solve such an issue, because the mix of education and training activities and modern ICT focuses more on education than administrative support (Kazoullis et al., 2018).

Tuzlukova, Busaidi, and Coombe (2016) reviewed several papers focusing on a multidimensional approach to technology-based language education in Oman. They offered examples of projects that encouraged students to use English mobile apps outside the classroom. All articles expressed the shared view that technology is a valuable tool for the continued growth and advancement of student skills and competencies. The study concluded that by integrating authentic and communicative methods and approaches online technology can be used effectively in language education. The researchers also described the creative learning opportunities that can be built, such as using mobile apps, and addressed them in terms of social acceptance and their impact on the motivation of learners, digital literacy, improvement of communication, and development of language skills.

3.6.11. Critical Review of Using E-learning

Field work done by researchers has produced data which demonstrates conclusively that using online technology tools in education such as E-learning are allow students to collect high-quality multimedia data and improves their knowledge, ability and performance. However, there have been issues related to the proper usage of online technology and E-learning education. For example, several surveys revealed that E-learning is an online technology tool which helps in facilitating good interaction between users and offers many benefits for learners; however, this does not necessarily mean that it is suitable for

everyone (Sawchuk, 2013). Lin (2011) explained that E-learning differs from traditional learning in terms of learning roles, skills, interaction modes, and assessment methods. Meta-cognition, working in groups, discipline, and time management are essential E-learning skills; as a result, individuals who are not familiar with the E-learning environment will need time to promote their E-learning skills.

Sawchuk (2013) added that there are many matters that affect the use of E-learning and reduce its benefits, some of which are related to the way in which it is introduced to users, how these users perceive it, and how they make it functional for their use. In addition, students who have less experience in using the technological tools available in education are less willing to accept this type of educational tool. This can, of course, affect the quality and satisfaction of E-learning (Lin, 2011).

Some of the hype around the use of technology in education is shown in the amount of time people spend online. However, the more time a person spends online, the more that person is likely to feel sad, lonely and depressed (Howell, 2010). Besides, online communication is not as psychologically fulfilling as talking to a familiar and trusted person. The students also need to create real friends and lifelong connections with their peers, which is not the case in online degree programmes (Howell, 2010). Hanson (2009) added that previous studies determined the impact of E-learning on the role of teachers' academic identity, as faculty members need to be well recognised in the educational paradigm, involved in new sets of activities, and reconsider the meaning of being an expert. The concerns here about the use of E-learning will not protect teachers' academic identity, and E-learning will not offer close and successful face-to-face relationships based on 'being there' with their students.

Clark (2008) examined how E-learning is a functional tool in terms of improving skills such as initial experience, communication, time management, self-assessment, and coping with stress. This however, will not be of benefit if students do not receive immediate feedback on what they do and do not feel responsible. Zakarneh (2018) carried out a survey which revealed that E-learning usage improves English writing skills in Arab universities; however, these universities face a barrier in terms of the weaknesses of using E-learning as a method of teaching English. Overcoming this weakness would assist in making English teaching more effective. Moreover, E-learning programmes sometimes fail to satisfy expectations, one factor being the absence of E-learning literacy. Another reason is that E-learning is often used as an opportunity to change learning goals, such as putting more emphasis on 'deep learning' (Byeon, Go and Lee, 2019).

Based on this critical evaluation, it is obvious that significant changes must be made to render E-learning more effective. This research evaluated the problem of introducing E-learning to users as a crucial aspect of demonstrating its benefits. In terms of emphasising the benefits of E-learning, educational institutes need to be more conscientious about informing users about important E-learning features, such as its role in helping learners be more engaged with their peers and their instructors. The E-learning system includes a discussion forum to facilitate communication between students and teachers. Its other uses include contacting other E-learning centres in case of emergency, requesting an urgent online chat or technical support from other E-learning centres. Also, E-learning literacy needs to be promoted among users and in HEIs. For example, its auto-correct feature helps improve their users' writing skills.

When it comes to the challenges that HEIs must avoid, learners must be convinced that E-learning does not require a high level of technological know-how, nor does it have the potential to harm the student's or lecturer's identity. Thus, when introducing E-learning, HEIs need to motivate users by explaining to them that using various E-learning platforms will enable them to gain technical knowledge and practice. Furthermore, students should understand that these E-learning platforms provide the opportunity to connect with the college's wider network and meet many other students and instructors and offer other types of learning experiences and interactions.

3.7. Theoretical Frameworks

3.7.1. E-learning Evaluation of Digital Literacy and IS Theories

The critical review of E-learning education in the previous part drove this research to agree with Avellis, Scaramuzzi, and Finkelstein (2004) who proposed to evaluate E-learning education according to four categories: educational features; technical features; aspects relating to the ease of use (usability, strategy, policy, and people); and aspects relating to the content.

Evaluating the E-learning education based on the above categories was combined with other aspects such as digital literacy and relevant theories on the adoption of online technology education initiatives. After researching these two aspects, it was found that there are many theoretical frameworks to explain digital literacy. Digital literacy is to have the right skills to achieve individual goals, while information systems (IS) research includes the theory of UTAUT. It is one of the most important theories to explain the adoption of

any technology system and making it functional for everyone. The following sections will discuss these two aspects as a part of this study's theoretical frameworks.

3.7.2. Digital Literacy

According to Montoya (2018), the United Nations Educational, Scientific, and Cultural Organization (UNESCO) defined literacy as the ability to recognize, understand, interpret, generate, communicate, and compute by using printed and written materials in a variety of situations. Literacy includes a continuum of learning in order to enable people to achieve their goals, develop their knowledge and potential, and engage with others. As a part of literacy, McGuinness and Fulton (2019) defined the digital literacy as the level of awareness, ability, and attitude of individuals to appropriately use digital tools and facilities to find, access, manage, participate, evaluate, and analyse the digital resources. It also helps construct knowledge and communicate to enable constructive social action, in addition to reflecting upon this process (McGuinness and Fulton, 2019).

Digital literacy involves the use of different technological tools in our daily life, such as using a phone to check our emails, or using a search engine. It can be noted that such activities require digital skills to achieve certain goals (BBC Learning English, 2017).

According to Edutech Wiki (2019), digital literacy covers different categories, for example, E-learning and E-learning literacy (or E-learning skills). It can be measured by the stage in which an individual is able to engage in E-learning activities. E-learning literacy also covers online learning abilities that are related to skills, knowledge, attitudes, and behaviour (Edutech Wiki, 2019). Zakarneh (2018) recommended that E-learning as a new form of digital education can provide students with data and required information and offers a shared communication platform. As a result, it can help support a learner's knowledge and experience by building responsibilities and engaging learners through group discussions and teamwork. E-learning has many benefits, including the development of reflection and information processes, the support of higher levels of understanding, and the provision of equal opportunities to learners.

Zakarneh (2018) added that there are many examples of this type of research, for example George-Palilonis and Filak (2009) and McCombs and Vaki-li (2005) whose studies identified reasons for universities to implement E-learning as a new technological digital tool:

- E-learning platforms offer leaners a centralised approach to knowledge delivery which allows them to have greater control over their learning process.
- Online technologies and digital learning tend to promote positive interactive experiences for learners.
- E-learning is considered as an appropriate style to meet the needs of the challenging and changing world, especially in terms of IT literacy.

3.7.2. IS Theory - UTAUT

Venkatesh and Davis (1996) defined the theory for technology as the level to which a person believes that using a particular system would be free of effort. For example, The Theory of The Unified Theory of Acceptance and Use of Technology (UTAUT) is one of the most important theories in the adoption of a technology system. This theory is used in all fields of technology fields and can also be used in E-learning research.

UTAUT was developed by Venkatesh, Morris, Davis, and Davis in 2003. The study evaluated and integrated eight dominant theories and models: the theory of rational action (TRA), the technology acceptance model (TAM), the motivational model, the planned behaviour theory (TPB), a combined TBP/TAM, the PC use model, the innovation diffusion theory (IDT), and social cognitive theory (SCT) (Williams, Rana, and Dwivedi, 2015).

UTAUT was designed to incorporate the paradigm of fragmented theory and research on individual acceptance of IT. Therefore, the above eight different models of determinants of purpose and use of IT were compared, using conceptual and functional relationships to formulate UTAUT through these models (Tan, 2013).

UTAUT describes the four main factors of performance expectancy, effort expectancy, social influence, and conditions of facilitation and includes moderators such as age, gender, experience, and voluntariness (Venkatesh, Thong and Xu, 2016). It hypothesises performance expectancy, effort expectation, and social influence that affect behavioural intention to use technology, whereas the use of technology is based on behavioural intention and facilitating conditions (Venkatesh, Thong and Xu, 2016). Williams, Rana, and Dwivedi (2015) confirmed that researchers and practitioners were able to determine the intention of a person to use a specific system by analysing the existence of the UTAUT variables in a ‘real world’ environment. In other words, this theory allows for the identification of the critical influences on acceptance in any given context.

According to Venkatesh et al. (2003), the figure below displays the UTAUT model:

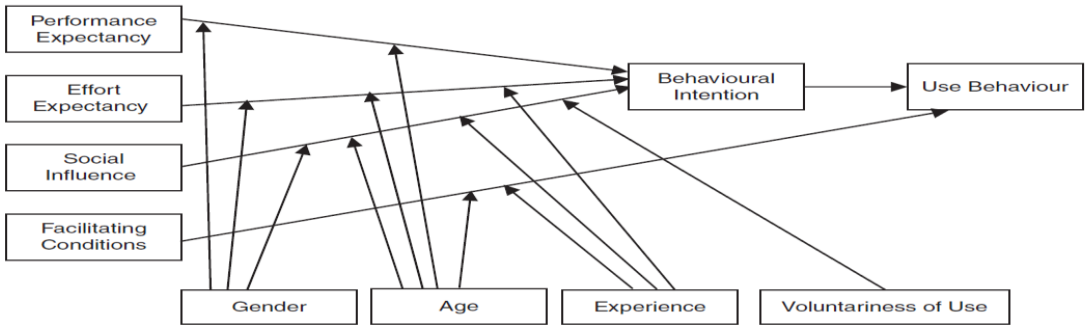

Figure 8: UTAUT Model by Venkatesh et al. (2003)

Various user intent and behaviour studies on technology adoption and diffusion used UTAU as a theoretical guide. Williams, Rana, and Dwivedi (2015) added that UTAUT is presented on many platforms, including websites, hospital IS, tax payment systems, and mobile technology, focusing on various user groups such as students, professionals, and general users.

Venkatesh et al. (2003) identified some items that can help in validating and testing to estimate UTAUT factors, and the following table shows a summary of these items:

UTAUT Factor	Items for Estimation
Performance Expectancy	The system's usefulness in satisfying employment needs and completing tasks enhances the productivity and potential of individuals.
Effort Expectation	The engagement with the system promotes easy utilization, operation learning and understanding, and the development of personal skills.
Attitude Toward Using	Adopting the system is either a good or a poor idea, depending on whether users think that it makes work more engaging and activities more exciting.
Social Influence	User behaviour, intention, and experience and organization's impact and support affect and promote encouraging user behaviour with the system.
Conditions of Facilitation	The resources, knowledge, and support required to operate the system as well as the system's compatibility with other systems that users are familiar with facilitate the system's utilisation.
Self-Efficacy	The user can utilise the system at their own pace and from any location, and there is an inbuilt help facility for assistance.
Anxiety	If users trust the system and are confident that they will not lose a lot of data or make any mistakes if a wrong or incorrect hit occurs, their anxiety level will decrease accordingly.

Table 5: Items for Estimating UTAUT Factors by Venkatesh et al. (2003)

From the table above it follows that UTAUT has several elements that may support various aspects of this study. However, I noticed that social influence and facilitation conditions are more relevant to the study's purpose, since they stress user behaviour and intention, and can be used to demonstrate the organization's impact and all other facilitated resources within the system. Consequently, while analysing the findings, these two factors played a key role in determining user behaviour and intention as well as the organization's influence and resource support. However, this did not rule out the inclusion of those other UTAUT elements that are effective and consistent with answering the research questions and purposes, which will be presented in the analysis of the findings.

3.7.3. E-learning and UTAUT

E-learning systems have been launched in many universities. Lin, Lu, and Liu (2013) stressed that researchers need to assess the efficiency of these systems given the increasing trend towards web-based learning systems using models of behavioural intent such as UTAUT. This will help determine whether E-learning technologies are used and for which reasons.

According to Salloum and Shaalan (2019), E-learning aims to provide education, and its learning activities are carried out through the implementation of E-learning systems. Thus, developing these systems into an IT phenomenon means that they can be imparted to the UTAUT model. Certain institutions are inefficient in using the E-learning method because they do not have maximum use and are considered below the satisfactory level.

The UTAUT model has been endorsed by several studies in various fields such as education, for example, in the adoption of Moodle, a virtual learning environment used by students. It was also used to examine the acceptance of educational and learning blog technologies (Khechine et al., 2014). Moreover, the model was used to determine the adoption and attitudes of learners towards computerised placement assessments. The UTAUT model also includes moderated variables such as teaching and learning styles to reflect educational behavioural intention (Khechine et al., 2014). The following two examples are discussed to illustrate the use of the UTAUT to develop E-learning systems:

1. Researchers at the Indonesian university of STMIK Mikroskil used the UTAUT model to examine whether E-learning supports students and lecturers in the teaching and learning process. By evaluating whether the four factors of UTAUT influence behavioural purpose and actions to use technology, the researchers aimed to examine

the pattern of the university's E-learning system users. The results showed that performance and effort expectation factors and social influences have a positive impact on behavioural intention, and that the behavioural intention factors that facilitate the conditions have a significant behavioural effect on use. Interestingly, some moderators such as gender do not seem to affect behavioural intent on the expectation of performance and expectation of effort but on factors of social control. Experience also does not influence the effect on behavioural intent of business expectation interpretation variables; however, it is affected by social impact and facilitating circumstances (Salsabila, Abdurachman, and Marpaung, 2019).

2. Tan (2013) concluded in his analysis of the Bank of Taiwan that some people have less experience in E-learning, but many are willing to use it to complete their learning activities. They are mostly drawn by the convenience of the internet. To explore the intentions of Taiwanese college students to use English E-learning websites, the UTAUT model was used to assess technological and value issues and to obtain a better understanding of their choices to use English E-learning website services. The findings support UTAUT models and show that the behaviour of students using English E-learning websites depends on the expectation of performance, effort, and social influence. Also, if web designers were to strengthen the functions of knowledge management and make user interfaces easier to run, it would be more advantageous. Students also need to have a clear understanding of websites by facilitating requirements that can be supported (Tan, 2013).

3.8. Key Outlines of Literature Review and Self-Reflection

Related to the first part of the literature review that has covered employability skills and the HE framework, the literature provides useful definitions for skills but lacks a more comprehensive discussion with regards to the intersections of hard skills, generic, and soft skills. Given that language competency is a hard skill, what status does it have if a person uses it for communication purposes? Here I assume that certain hard skills can merge with other soft skills like communication. The same applies to computer skills in the use of various IT devices, operating systems, software, and applications. Considering that computing skills involve coding and programming; a soft skill will not aid in shaping those skills. These skills are known as hard skills, so it is important to be more precise about the definition of IT skills.

From my point of view, there is a strong tendency to convolute the meaning of skills and categories. There is no doubt that most HEIs are dedicated to improving their students' employability skills; however, delivering education is a long-term investment and that applies to ability, skills, and knowledge. These words represent specific techniques that require training and learning to achieve the desired level of competency. Regarding language competency, for example, a potential leaner may be willing and capable of learning a new language. The person will start with the learning process by choosing the correct programs and resources. Communicative skills relevant to the language can then be improved with schooling, practice, training, and assistance. Thus, the skills are developed with the aid of several variables such as the individual interest, learning, and resources.

Consequently, all stakeholders need to work together in developing student skills and follow a consistent approach in line with their capacity and resources. I agree with the view that the purpose of 'skilling well' needs to be correctly understood (Learnit, 2020). A summary of a Learnit workshop outlined that instead of upskilling and reskilling, skilling well is needed in the first place, especially for jobs that may not even exist yet. People first need to understand how and where they find purpose; without that grounding in purpose, people cannot reinvent themselves every four or five years, which is what most people will have to do in the future. Thus, employers should take more responsibility for employee learning, including helping trainees understand and develop their motivation and purpose. Thus, employees will know that they have a right to discover their purpose in life and fulfil their potential as part of the employment contract. Schools, universities, apprenticeship schemes, employers, and other actors like governments also have roles to play in education and life-long training (Learnit, 2020).

Regarding HE framework, it seems that most HE management debates focus on the quality of graduates and their lack of transferable skills. Whether employers or HEIs are solely responsible for graduate employability has been a point of debate for the last three decades. Employers blame HEIs for not providing graduates with adequate skills for the labour market, and the students' lack of transferable skills is apparent. However, HEIs have achieved some degree of success in addressing this issue, although there is ample room for improvement (Succi and Canovi, 2020). Considering the above, there might be a confusion between the two terms of GAs and skills. HEIs have accepted their responsibility in developing the future job skills of their students and have made considerable efforts in this regard. However, I expect that the process of building GAs

cannot be completed over night and will take years to complete. In light of this, and in terms of developing such student skill sets, it is critical to identify the respective responsibilities of the stakeholders: universities, employers, policymakers, and students.

Expanding the scope of skillset development for undergraduates in Oman requires a more detailed analysis of the factors that considers the specific roles and goals of each group. As noted earlier, HEIs aspire to produce skilled graduates for the local labour market. However, HEIs have to properly define the types of skills they classify as GAs that are required in the job market. Employers in both the public and private sectors need to hire skilled graduates. Their role is to further develop the existing skills of their new employees, who also have to offer additional value. Policymakers are committed to implement Oman's plans for human resource development in order to boost economic productivity and resolve unemployment issues. This means that they must lead the development of government plans aimed at developing human resources and adult skills and propose effective skill training programs. The students on their part must take advantage of all the opportunities they are being offered for skills development; they are the ones that wish to be employable and contribute to the growth of their country.

Hence, GAs should include certain employability skills, but they have to be taught at all course levels. These GAs must be distinct from any academic or technological skills that can be learned in the field of academic knowledge. I agree that these attributes must be part of life-long learning and should be taught as a separate model or as a set of mapped requirements in all courses. Students would then be able to attain them regardless of their degree or specialisation. I fully support the suggestion made by Oliver and Jorre (2018) that HE providers need to focus on preparing and training their students. Before implementing these GAs, I trust that HEIs acknowledge the source of their GAs and share how they have developed them. All relevant details need to be known by the stakeholders to ensure full transparency.

Besides, a proper evaluation of the current GAs will guide the colleges to make the necessary modifications. Thus, engaging the relevant stakeholders in this evaluation would increase their responsibility to provide the right input on GAs and consider the colleges' due involvement. I am certain that students will be happy to share their experience and give their feedback on GAs, and lecturers will be ready to adapt their courses and do their best in teaching, delivering, and improving GAs for students. Other stakeholders such as employers and policymakers are more interested in directly

presenting their needs and expectations, so meeting with them in person and debating over what actions are required will make each institution's GAs more competitive.

HEIs have welcomed the development of their students' employability skills, and most of them have already successfully implemented GAs in their curriculum. However, it would be more beneficial to follow a specific model such as GCM, as it contains most of the elements required to meet the learning outcomes and labour market demands. Likewise, the learning outcomes that graduates need to meet are categorised, defined, and presented in the GCM model, and this can help to overcome the confusion and overlap between GAs and employability skills.

The second part of the literature review covered E-learning and revealed that E-learning is already an important part of delivering lessons in all HE courses. To derive more benefits from the use of technology in education, build employability skills, and successfully implement an online education service updated technology tools are required. Also, all aspects need to be considered including purpose, functions, components, benefits, drawbacks, equipment, quality, students' attitudes, and students' acceptance.

Therefore, E-learning has proved to be a vital tool in providing efficient online services through easy and inexpensive access to the internet. Providing online education services naturally requires a sound technological infrastructure, such as the latest technological tools and resources and a special calibre of managerial and technical staff. This new learning environment has not only required a sizeable budget but has also increased awareness of the importance and benefits of using online education services in terms of accessibility, usability, flexibility, quality, polices, privacy, and security.

Hence, it is advised that a HEIs must offer adequate teaching and learning strategies that can help improve the way students monitor their performance. This can be in the form of making assessments available on a platform, encouraging teachers to improve classroom documentation, and improving the way courses are delivered and managed. There should be a sustained effort in terms of awareness among students and lecturers. Before students can decide to use E-learning education technology, they have to know whether E-learning is the right technology for them. As for the lecturers, they require technical and institutional support to incorporate their skills. The accessibility of using E-learning tools depends on student acceptance, but lecturers must guide their students in the use of E-learning tools.

The feedback of all stakeholders involved (employers, policy makers, lecturers, and students) can assist in designing specific courses or modules on the development of student employability skills. Furthermore, implementing various international standards and good practices to develop student skills through E-learning is highly recommended.

Additionally, the review of the literature on E-learning education and previous UTAUT models have showed that digital literacy and IS theory can be usefully applied. Through these two aspects a positive impact on using technology tools to enhance individual intentions can be achieved. The E-learning education framework can be used to change the users' manner of adoption, attitude, and ability.

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Considering these aspects, the relative advantage of E-learning over computers and the traditional teaching system is apparent. Although not all students use E-learning to improve their employability skills, its perceived usefulness and ease of use has been demonstrated. E-learning also has compatible technical and educational features that can be incorporated into developing student skills. Alharthi, Spichkova, and Hamilton (2018) clarified that E-learning education has become a significant part of teaching and learning approaches. To ensure the functionality and sustainability of an E-learning system it is important to consider the individual, social, technical, environmental, and economical aspects. Robinson (2009) suggested offering strong face-to-face support for early adopters, studying the idea carefully to discover how to make the concept more convenient, rewarding their egos, and maintaining relationships with regular feedback. Alharthi, Spichkova, and Hamilton (2018) concluded that individual intention plays the most critical role for E-learning systems, as education is part of the human dimension, while the purpose of the aspect is related to its role in other domains.

Upon closing this section, after demonstrated the review of the literature in this chapter and the context of this study in the previous chapter, I wanted to emphasise that the aim of this study is to investigate the support of E-learning for the development undergraduate skills in Oman, which is achieved by employing the main question:

What are the perceptions among stakeholders of E-learning, a part of the college study system, towards developing a set of future work-related skills for university students in Oman? And sub- sequential questions which are:

1. What are stakeholders' perceptions about student skills and the need of the labour market?

2. What are stakeholders' perceptions about the college study system and its key role in improving student skills to prepare them for future employment?

3. What are stakeholders' perceptions about the functionality of E-learning in the college study system?

4. What are stakeholders' perceptions about accepting the use E-learning in order to develop student skills?

5. What are the students, lecturers and E-learning technical team and coordinators perceptions towards E-learning for development student skills in communication, English writing, teamwork, time management, the ability to work under pressure, and computer skills?

3.9. Summary

The first part of this chapter has discussed skills definitions and different types, including communication, English writing, teamwork, time management, the ability to work under pressure, and computer skills, and their various classifications and definitions. It has also covered the components of the HE system and their role in developing student skills and reviewed the importance of GAs regarding employability and GCM about graduates and employability are explored. The second part of this chapter has focused on E-learning variables in respect to their definitions, types, competences, benefits, drawbacks, and students' attitudes. Further, examples of using E-learning in developing student skills have been discussed, in addition to a critical review and evaluation of the use of E-learning in relation to digital literacy and IS theories. And information systems theories about UTAUT are stated, beside to a personal evaluation and reflections.

Chapter 4: Research Methodology

4.1. Introduction

The purpose of this chapter is to define the research methodology and data gathering methods employed in this study. The sections include the research framework, paradigm, and methodology as well as the research data collection techniques and procedures, validity and reliability, ethical considerations, data management, and confidentiality. Further described are the research data analysis as well as the procedures and tools involved.

4.2. Research Framework

The research framework is a function which helps a person to think, plan and do research activities. Most importantly, it acts as a template to guide a person through the research process. All elements of the framework for an integrated methodology are important in the research process; however, the main research question is formulated within five important contexts: professional, organisational, policy-related, national, and theoretical (Plowright, 2011). According to Corbin and Strauss (2015a), context is a broad concept involving a wide range of issues. It includes the incident, the collection of conditions or circumstances in which each situation is situated, the significance (i.e., question or purpose), its actions and interactions to manage or achieve the desired results, and the measurable consequences of its action.

Plowright (2011) explains that research should start with the research question, taking into account that to which the research question might be relative: first, the researcher's personal interests, professional role, and experience in the field (professional context); second, the place in which the researcher will carry out the research and its justification, for example, whether it is a big or a small institution (organisational context); third, the rules or policies under investigation, if any exist, and how they might impact the research directly or indirectly (policy context); fourth, the readers may not be from the same country but need to know and understand the background to the study (national context); and last, the researcher should be aware of the theoretical context which involves reviewing the relevant literature and creating the conceptual framework of the research (Plowright, 2011). The following table illustrates the link between the five contexts and the study research question:

Context	The Link to This Study Research Question
Professional	I worked for 24 years as an IT lecturer in a CoT in Oman and held a senior position as Assistant Dean for Student Affairs. (See pages 22–25 for more details)
Organizational	Seven CoT are affiliated to UTAS in Oman and enrol around 35,000 students. The aim is to involve between 500 and 650 participants from CoT for the survey stage. (See pages 38–44)
Policy	Different features, rules and polices relating to HE in Oman and CoT in Oman. (See pages 28–35 and 38–44)
National	The study presents general background information about Oman before discussing its HE system and student population. The study also features the relevant policies on graduate skills and the skills gap. (See pages 27–49)
Theoretical	The relevant literature and the theoretical context on the topic of this study is searched and reviewed. The conceptual framework is created in the early stages of the study upon finalising the research question. (See pages 46–47, 63-64 and 81-91)

Table 6: The Study research question following (Plowright, 2011) five contexts

The research framework was developed in line with the research five contexts, question and aim, and the other research processes including methodology approaches and data analysis type; they were chosen as depicted in Figure 9. Through the context of the research, the gaps to be researched were identified, and the objectives of the literature review and the researcher's questions and justifications were put forward. To obtain data regarding the extent to which the skills gap varies among graduates, the expectations of the stakeholders were considered in relation to student skills and college study time. On the other hand, it was important to know how E-learning might help in bridging the skills gap, so the research employed interviews in the first phase of data collection. The next step was to analyse the data using relevant procedures and software. Consequently, the results from the first phase were used to create the second phase of data gathering through an online survey questionnaire. Subsequently, the findings for all data were presented and discussed to reach to the conclusion. The framework applied in this study is explained in Figure 9 on the next page.

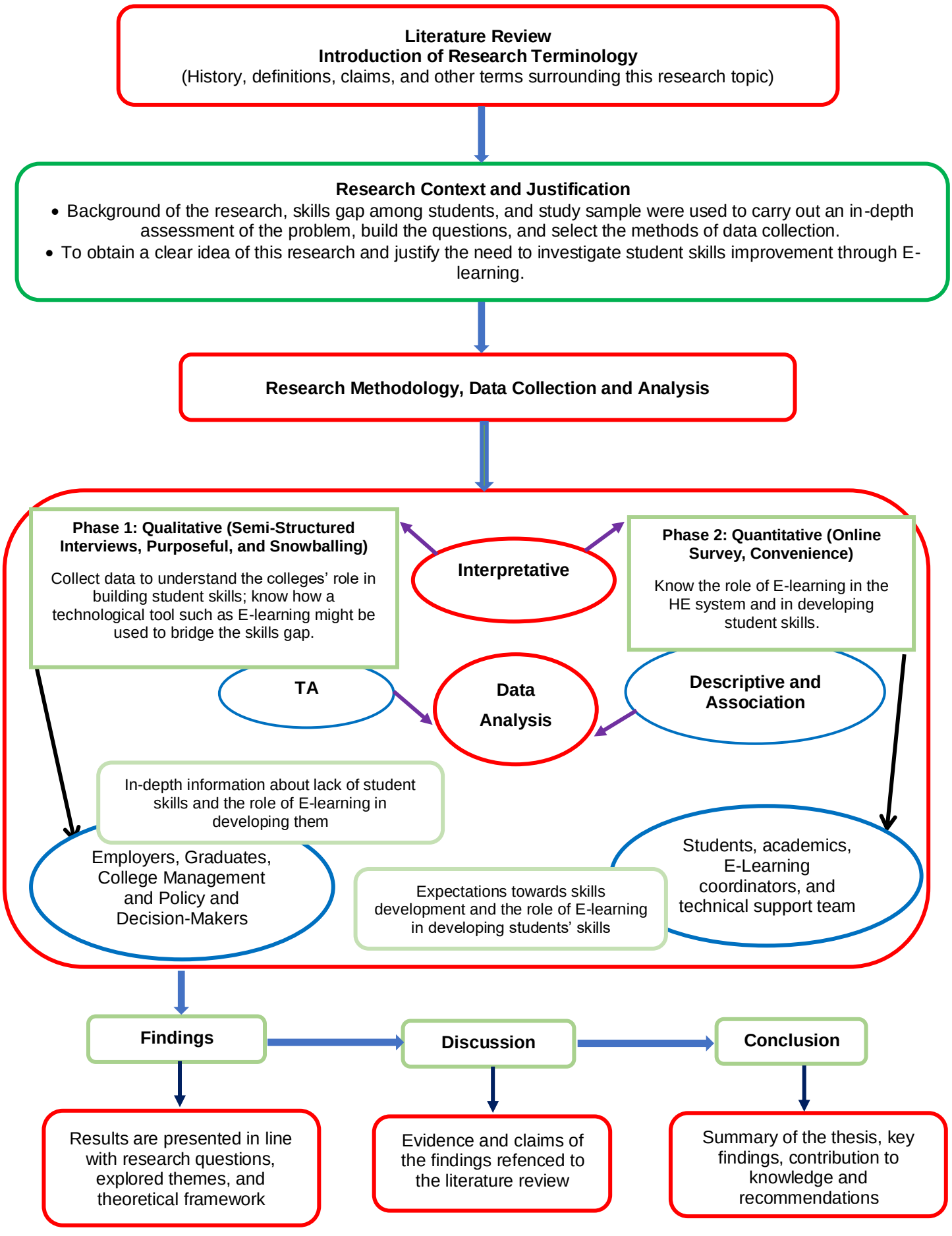


Figure 9: The Research Framework

4.3. Research Paradigm

A research paradigm refers to the culture of a piece of research which includes the beliefs, values, and assumptions that a community of researchers has in common regarding the nature and direction of research. These aspects can include beliefs such as axiology, ontology, epistemology and methodology, and may consist of significant research paradigms such as qualitative research, quantitative research, and mixed methods research (Johnson and Onwuegbuzie, 2004). The definition of the research paradigm given by Johnson and Onwuegbuzie (2004) supports the explanation offered by Mertens (2015), namely the way of looking at the world and seeing that it is composed of certain philosophical assumptions that guide and direct individual's thinking and asking. On the one hand, it has four major paradigms, which are post-positivism, constructivism, transformative, and pragmatic; and on the other hand, according to Guba and Lincoln (2005), cited in Mertens (2015), the basic belief system of the research paradigm can be established according to the nature of ethics, reality, knowledge, and the relationship between the knower and the known, in other words how the knower can obtain the required knowledge and understanding. These matters can be categorized as axiology, ontology, epistemology, and methodology.

In terms of research belief, ontology is considered as philosophy and a study of what might exist and refers to the researcher's thoughts about reality and existence. Axiology is observed as the philosophical study of value and worth and is based on the logic of value thinking. Epistemology is whether or how people can know reality and it a set of beliefs about what adds as knowledge. The methodology is more than the set of methods utilised to conduct research (Henry and Foley, 2018). Methodology is defined as 'the collection of methods or rules by which a particular piece of research is undertaken', and also 'the principles, theories and values that underpin a particular approach to research' (Somekh and Lewin, 2005, p.346 cited in Henry and Foley, 2018).

Regarding the four major paradigms, Creswell and David (2018) proposed four important paradigms for research: post-positivist, constructivist, transformative, and pragmatic, these paradigms are called the four worldviews, and the principal elements of each of them are presented in Table (7) below.

Post-Positivism	Constructivism
Determination Reductionism Empirical observation and measurement Theory verification	Understanding Multiple participate meanings. Social and historical construction Theory generation
Transformative	**Pragmatic**
Political Power and justice oriented Collaborative Change-oriented	Consequences of actions Problem-centred Pluralistic Real-world practice oriented

Table 7: The Four worldviews (Creswell and David, 2018, p.6)

Mertens (2015) associated research beliefs with these four major paradigms. The table below demonstrates the relationship between the basic belief and the four major paradigms:

Basic Beliefs	Post-positivism	Constructivism	Transformative	Pragmatic
Axiology (nature of ethical behavior)	Respect privacy; informed consent; minimize harm (beneficence); justice/equal opportunity	Balanced representation of views; raise participants' awareness; community rapport	Respect for cultural norms; beneficence is defined in terms of the promotion of human rights and increase in social justice; reciprocity	Gain knowledge in pursuit of desired ends as influenced by the researcher's values and politics
Ontology (nature of reality)	One reality; Knowable within a specified level of probability	Multiple, socially constructed realities	Rejects cultural relativism; recognizes the various versions of reality are based on social positioning; conscious recognition of consequences of privileging versions of reality	Asserts that there is single reality and that all individuals have their own unique interpretation of reality
Epistemology (nature of knowledge; relation between knower and would-be known)	Objectivity is important; the researcher manipulates and observes in a dispassionate objective manner	Interactive link between researcher and participants; values are made explicit; created findings	Interactive link between researcher and participants; knowledge is socially and historically situated; need to address issues of power and trust	Relationships in research are determined by what the researcher deems as appropriate to that particular study
Methodology (approach to systematic inquiry)	Quantitative (primarily); interventionist; decontextualized	Qualitative (primarily); hermeneutical; dialectical; contextual factors are described	Qualitative (dialogic), but quantitative and mixed methods can be used; contextual and historical factors are described, especially as they relate to oppression	Match methods to specific questions and purposes of research; mixed methods can be used as researcher works back and forth between various approaches.

Table 8: Associated research beliefs with the four major paradigms (Mertens, 2015, p.11)

As precented above in Table (8), the paradigms are compared according to four different perspectives: axiology (i.e., nature of ethical behaviour), ontology (i.e., nature of reality), epistemology (i.e., nature of knowledge, relation between knower and would-be known), and methodology (i.e., approach to systemic inquiry). Although the concept of paradigm is considered as challenge because arguments over pragmatism as a philosophical system are still ongoing, each paradigm takes a different approach to distinguish itself

from others and present relevant information (Morgan, 2007). Regarding educational research, for example, Humphrey (2013) recommended more in-depth investigations within each paradigm to fully utilise it. Further, such investigations must collect reliable and accurate data and produce grounded theories about professional development and socialisation. In educational research a paradigm is defined as a comprehensive belief system, worldview, or framework that directs knowledge and education in a particular field (Ahrens and Zascerinska, 2014 and Poni, 2014).

And after researching the basic beliefs and the research paradigm as explained by the scholars, in my research, not claiming to be an expert in this subject I tried to focus my research and link the research aim with the right assumption and paradigm to develop the appropriate methodology and be able to generate the appropriate results by providing workable answers to research questions and offering practical solutions to the problem being investigated. As the aim of this study is to develop student skills through E-learning, with link to the four perspectives mentioned in the table above, the axiology here is about building human skills, while the ontology belongs to the fact that all HEIs strive to develop skills that meet labour market needs. Here, the research proposal is that the use of E-learning helps students to develop employability skills. For the epistemology, it is necessary to know the student skills gap between HE and the expectations of the labour market and other stakeholders; on the other hand, it is important to know how a technological educational tool such as E-learning can help bridge this gap. Thus, the right methodological approach must be applied to guide this research in identifying student skills according to the expectations of those concerned such as employers, graduates, college administration, and policy and decision makers. This target was met through carrying out interviews with some of the stakeholders. It was also necessary to know the different aspects of E-learning in developing student skills, which was done through an online survey.

Following the principal elements of each paradigm as presented in Table (7) and the four major paradigms presented in Table (8), the pragmatic approach appears to fit the current study best because it can be used to determine the meaning of words, concepts, statements, ideas, and beliefs. This approach supports the study of significant research problems and facilitates communication among researchers from various paradigms as they strive to expand knowledge (Johnson and Onwuegbuzie, 2004). It also assists in highlighting the crucial communication and shared meaning processes. According to the pragmatic viewpoint, it is acceptable to say that there is only one ‘real world’ and that every

person has a different perspective on it (Morgan, 2007). It demonstrates how research methodologies can be effectively mixed, thus supporting the study of social science topics that involve a variety of data to better understand the subject under investigation and provide better opportunities to adequately address the concerns (Poni, 2014). In addition to supporting mixed methodologies that most researchers favour, it offers a framework for reorienting the field of social science research methodology in the desired directions (Morgan, 2007).

For this research, I decided to employ interview and survey; I had to determine whether I should follow a mixed methods or a multimethod approach, as specified in Anguera et al. (2018). Although the latter make a definite distinction between mixed methods and multimethod, these two terms are largely synonymous. Consequently, the concepts underlying both terms became blurred and created much confusion.

Thus, to choose the correct research methodology that helped determine the quality of this study's results and meet its goal, I spent some time researching and comparing both methods. The information I found about both methods is elaborated in the following section.

4.4. Research Methodology

This section presents the aims of this study and the research questions. It also provides information about the research context and participants as well as various institutional actors involved who have impacted the choice I made regarding the methodology. The approach discussed here is developed in line with the theories I draw from, culminating in a system that brings together qualitative and quantitative methods to obtain the most accurate and relevant results. The research employed two methods of data collection: the first phase has involved qualitative data collection through semi-structured interviews, while the second stage involved collecting quantitative data through a survey.

For this study, I have decided to employ a mixed method approach, combining data from interviews and surveys. My methodological choices were drawn from the interpretative framework which seeks to understand the impact of the context on the phenomenon under investigation. It also focuses on meaning-making practices of the participants on the premise that knowledge relating to reality is socially constructed during interactive communication (Myers and Klein, 2001; Rowlands, 2005; Walsham, 2006; Lukka, 2014). In other words, interpretative scholars seek to understand how people acquire, develop, and communicate meanings in social encounters, how they utilize them when explaining

phenomena to which these meanings pertain, as well as the processes and mechanisms that link the elements of the developed meanings together. Here, the data and themes emerging from the field are central (Lukka, 2014; Yanow, 2014). Also, the interpretative framework enables the integration of professional practice and expertise with academic inquiry, which makes research more accessible to all stakeholders (Mellinger, 2020); This creates the vital link between researchers and practitioners that helps both groups to profit from the information exchange (Myers and Klein, 2001).

In terms of qualitative and quantitative in the interpretive research, qualitative research includes strategies to describe, decode, translate, and interpret information, rather than the measurement of the frequency of occurrences in the social environment. In short, it can be interpretive depending on the researcher's philosophical assumptions (Rowlands, 2005). While quantitative research is used to form generalizations about the distribution of certain phenomena, interpretive research attempts to recreate their composition and impact in specific situations (Shipman, 2021). For example, based on the participants' preferences or availability, the interviews can be conducted virtually either synchronously via chatrooms, Skype, and SMS or asynchronously via email or websites. Through such interpretive research, open-ended inquiries will also reveal information about the researcher's thoughts, views, experiences, and feelings (Frels and Onwuegbuzie, 2012). Regarding surveys, interpretive research could go beyond a mere description of relationships among variables, extending into a deeper investigation of the ways the elements of the explanatory scheme connect with each other (Lukka, 2014). For this reason, my research involved various stakeholders from five HEI sites and explored the professional aspects of institutions and individuals. In this context of study, I interviewed groups who could provide valuable and meaningful information based on their positions and responsibilities as well as their field of expertise and experience. I also conducted surveys with participants who could elaborate on their expectations about the field's various aspects: skills, employability, the labour market, the college education system, and E-learning. As these areas often intersect, the research contributes to multiple fields simultaneously, thus making this study relevant to a wider audience.

4.4.1. Research Methods

There are three research methods for collecting data. One is the quantitative research method which involves collecting statistical data by using questionnaires or surveys. The second type is the qualitative research method which is a more detailed type of collecting data in the form of observations, interviews, and document reviews. The last type of

research method is a combination of quantitative and qualitative research methods (Kaplan and Duchon, 1988). Macqueen, Guest and Namey (2005) highlighted the primary difference between quantitative and qualitative research: analytical objectives, research questions, methods for collecting data, the tools used for data production, and flexibility of the study design. Braun and Clarke (2013) offered a comparison between the most important components and differences of the qualitative and quantitative designs shown in the table below.

Quantitative	*Qualitative*
Numbers used as data	Words – written and spoken language – (and images) used as data
Seeks to identify relationships between variables, to explain or predict – with the aim of generalising the findings to a wider population	Seeks to understand and interpret more local meanings; recognises data as gathered in a context; *sometimes* produces knowledge that contributes to more general understandings
Generates 'shallow' but broad data – not a lot of complex detail obtained from each participant, but lots of participants take part (to generate the necessary statistical power)	Generates 'narrow' but **rich data**, '**thick descriptions**' – detailed and complex accounts from each participant; not many take part
Seeks consensus, norms, or general patterns; often aims to reduce diversity of responses to an average response	Tends to seek patterns, but accommodates and explores difference and divergence within data
Tends to be theory-testing, and deductive	Tends to be theory generating, and inductive (working *up* from the data)
Values detachment and impartiality (objectivity)	Values personal involvement and partiality (subjectivity, reflexivity)
Has a fixed method (harder to change focus once data collection has begun)	Method is less fixed (can accommodate a shift in focus in the same study)
Can be completed quickly	Tends to take longer to complete because it is interpretative and there is no formula

Table 9 **:** Qualitative and quantitative designs components and differences (Braun and Clarke, 2013, p.15)

4.4.1.1. Qualitative Research Method

Malterud (2001, p483) wrote, 'Qualitative research methods involve the systematic collection, organization, and interpretation of textual material derived from talk or observation. It is used in the exploration of meanings of social phenomena as experienced by individuals themselves, in their natural context'. According to Myers (2000) data collection as part of the qualitative approach can be done in three different ways: interactive interviewing where people asked to verbally describe their experiences; written

descriptions where people are asked to write about their experiences; and observation in the form of descriptive observations of verbal and non-verbal behaviour. The three most common qualitative methods, as explained by Macqueen, Guest and Namey (2005), are as follows: participant observation is suitable for collecting data on generally occurring behaviours in their natural contexts; in-depth interviews are ideal for gathering data on the personal narratives, perspectives, and experiences of individuals; and focus groups are effective in obtaining information on a group's cultural standards and generating overviews of issues and concerns to the groups represented.

According to Soiferman (2010) qualitative research is a type of study that takes place in a natural setting. The researcher's job is to gather the participants' words and analyse them by looking for common themes, focusing on the meanings of the participants and describing a process using both expressive and persuasive language. Creswell (2012) indicated that qualitative research is a type of educational research in which researchers rely on participant perspectives, ask broad and general questions, collect data primarily in the form of text from the participants, describe and analyse these in a subjective and tendentious way.

4.4.1.2. Quantitative Research Method

Quantitative research is based on a large collection of numerical data to test human behaviour in a particular field. The quantitative research method is guided by theory taken from the literature and creating suggestions for research, a project, or a case study by using natural science method (Bryman and Bell, 2011). The quantitative study result can be used to measure technical, economic, effectiveness and performance measures (Kaplan and Duchon, 1988).

McCusker and Gunaydin (2015) listed the features of quantitative research as follows*:*

- The researchers know clearly in advance what they are looking for.
- It is recommended during the later phases of research projects.
- All aspects of the study are carefully designed before data is collected.
- The researchers use tools, such as questionnaires or equipment, to collect numerical data.
- Data is in the form of numbers and statistics.
- Quantitative data is more efficient and able to test hypotheses but may miss contextual detail.
- The researchers tend to remain objectively separated from the subject matter.

Quantitative research seeks to bridge the gap between what is already known and what can be learned through data analysis. Establishing relationship across different types of knowledge is required when using descriptive or inferential statistics to collect and analyse data using quantitative strategies (Soiferman, 2010). Descriptive statistics are used to infer information about populations and estimate population parameters. Inferential statistics are founded on descriptive statistics and assumptions that apply to the entire population based on small sample size (Trochim, 2006). Soiferman (2010) indicated that graphics, plots, tables, and charts are all tools in quantitative analysis. The analytical findings are based on logic and evidence, and guidelines are provided to help the researcher in understanding the claims made in the guide and checking the data. Protocols are employed to control and improve as many threats to validity as possible

4.4.2. Mixed Methods and Multimethod

Turner, Cardinal and Burton (2017) explained that combining elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) is defined as mixed-methods research, which can be used for the purposes of increasing understanding and corroboration. According to Greene (2006) cited in Johnson et al. (2012), mixed-methods inquiry is an approach to investigate the social world that ideally involves more than one methodological tradition and more than one way of knowing, along with more than one kind of technique for gathering, analysing, and representing human phenomena. The overall purpose of this kind of research is to developing a better understanding of the phenomenon studied. Palinkas, Mendon and Hamilton (2019) added that mixed-methods design is essential in an evaluation if it is used for evaluating and better understanding a policy, programme or practice effectiveness and implementation, as this type of evaluation will not only give the results of such actions but will also help in processing the context in which it takes place.

Many studies have argued that mixed-methods design can be used to explore the phenomena of aspects such as experience and behavioural response or develop a research design that enables the researcher to understand mechanisms and explore associations and document risks in various studies (e.g., such as social sciences). Most education research uses this method to gather a significant amount of data and analyses it in a specific study (Fetters and Azorin, 2019, Morse and Niehaus, 2016, Creswell, 2015, McCusker and Gunaydin, 2015, Morgan, 2014, Onwuegbuzie and Collins, 2007). For example, a study carried out by Kwok (2012) used a mixed-methods approach to hospitality and tourism research to investigate the employability of hospitality graduates.

As the researcher clarified, this method of design was deemed the proper way to obtain in-depth information about hospitality recruiters' expectations. The qualitative method was also an important way to identify individual issues, as social science studies have demonstrated that real contact with people can be very sustainable, from their answers to the research questions.

Further to that Morse and Niehaus (2016, p.14) stated that *'a mixed method design is a scientific call rigorous research project, driven by the inductive or deductive theoretical drive, and comprised of a qualitative or quantitative core component with qualitative or quantitative supplementary component(s)'*. Crowe and Watts (2020) simplified the meaning of the mixed methods research design by describing it as a procedure for collecting, analysing, and "mixing" both quantitative and qualitative data in a single study to understand a research problem.

Creswell (2015) identified three mixed methods designs: convergent, explanatory sequential, and exploratory sequential. In the following figure Bell, Bryman, and Harley (2019) illustrated the differences between these basic designs:

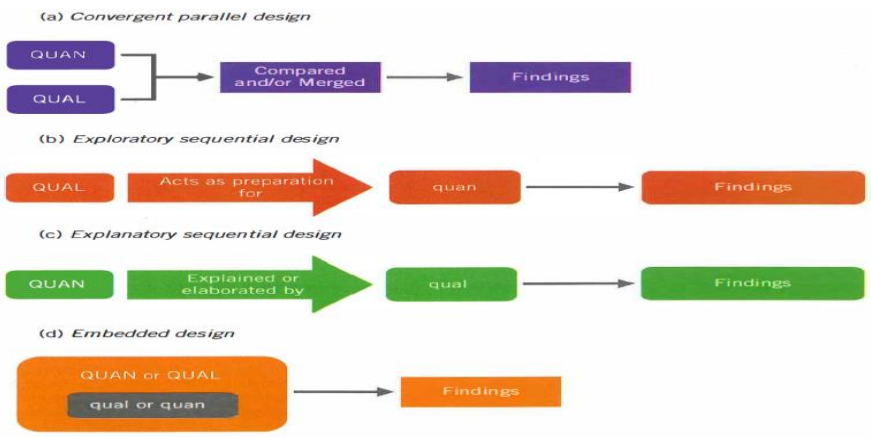


Figure 10: The Difference Between Basic Designs of The Mixed Method (Bell, Bryman and Harley,2019, p. 573)

In multimethod research, on the other hand different research methods are used within the same research study but are kept distinct and separate from each other inside the study. Each method is checked and validated and then used to inform the overall study (Watts and Crowe, 2020). According to Morse (2003), data collection in multiple methods is done through different qualitative and quantitative approaches but produces an overall picture of one research project. Thus, in each section, the researcher might be able to plan and conduct the research in order to answer a particular question, but the research conclusions apply to one comprehensive whole. According to Watts and Crowe (2020),

different ways can be used in employing the multimethod approach; for example, it could take the form of survey-then-interview or in reverse.

- Survey-then-interview: The survey is conducted to gather information on a particular issue. Its validity can be judged in terms of its length, readability, type of questions, and so on. Then, the survey is followed by a series of interviews that are designed to explore the gaps or doubts, while the interview approach is validated separately.

- Interview-then-survey: The interviews are followed by an analysis wherein the researcher identifies several issues or a few themes. The interviews are valid for usual interview methods (e.g., member checking, peer-debriefing, communicative validation, and use of reflexivity). The survey is then used to find out how prevalent these themes are within much larger groups of people. The survey is valid for its own use, without being a part of the interview.

Watts (2019) offered the multimethod exploratory sequence as explained in the diagram below. Regarding the multimethod design as shown in Figure (11), the first blue block in the diagram represents the interview questions. After the data collection and analysis of the interviews, the concerns or themes from that stage are recognized and used to feed the survey questions. The second block signifies the survey questions used to determine how widely these concerns and themes are accepted by considerably broader groups of individuals.

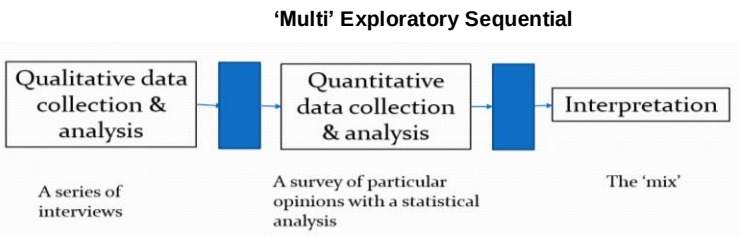


Figure 11: Multi-Methods v. Mixed- Methods (Watts, 2019. p. 20)

For this research, I employed multiple methods in the category of interview-then-survey, using various methods of analysis within the same study but treating them separately and independently. Each method was validated and checked and then used to inform the overall study. Following the first approach, I identified a set of issues or several themes from other studies after the interviews were completed. The interviews were checked according to various criteria (e.g., expert review, supervisor guidance, and communicative validation) before analysing them to identify themes within the collected data. After that, I designed a survey questionnaire to determine the themes and verified it according to some criteria (e.g., expert review, peer review, and supervisor feedback). Furthermore, the

questionnaire was validated separately from the interviews using conventional methods, which in this case was an online survey. Finally, the data collected from the survey were examined and analysed separately.

The previous compression of the terms "mixed-methods" and "multimethod" helped determine which research methodology to use for this study in order to achieve its goals. According to Watts and Crowe (2020) multimethod research differs from a mixed method approach, multimethod various research methods are employed simultaneously in a study, but they can keep separate and apart from one another. They serve various purposes; each method is checked and validated and then used to inform the overall study. And according to Teddlie and Tashakkori (2010) a multi-method differs from a mixed method as the latter incorporates data collection and analysis can be combined in different stages or phases of the research. Both the quantitative and qualitative data are treated as combined elements of questions, research methods, data collection, data analysis, and discussion.

Thus, for this research generally, both qualitative semi-structured interviews and a quantitative online survey were used, as the research was aimed to understand the participants' expectations towards the skills gap, the labour market needs, and the impact of E-learning education. And as the multimethod research differs from a mixed method approach and both are seeming to be synonymous, consequently as this research was carried out using an exploratory sequential design to first collect the qualitative data and analysing before collecting and analysing the quantitative data as described in Figure (10) about the difference between basic designs of the mixed method by Bell, Bryman and Harley (2019), mixed method appears be well-matched which droves my decision to use it for this study.

4.4.3. Interview and Survey Questions Development

To achieve the study's purpose, it was necessary to develop the interview and survey questions based on the theoretical framework. It also meant including the other components of the literature review that were valid and consistent with answering the research questions and aims conveyed through the discussion of the findings. However, I found it better to describe the process of developing the questions by using examples from the theoretical framework in the form of UTAUT, digital literacy, and GCM components.

The interviews were divided into sections to gather accurate information about the gap between the skills of CoT graduates and the skills required in the workplace; employer support and the role of colleges in developing graduate and student skills; the link between colleges and the labour market; the respective policies and plans in place; and graduates' skills assessment. The questions related GCM focused on students' knowledge, practical skills, and preparation for the job market; examining the job market; creating and understanding opportunities; establishing a network of contacts; effectively and confidently communicating with others; exhibiting the values gained through activities and technology resources; being able to adapt to changes and control challenges; evaluating their skills, attributes, experiences, and thoughts, and analysing the latter to close the gaps. Other interview parts centred on the two UTAUT factors social influence and facilitation conditions. They play a crucial role in determining user behaviour and intention, the organization's influence and resources, and digital literacy in terms of individual awareness, ability, and attitude to appropriately use digital tools and facilities to find, access, manage, participate, evaluate, and analyse.

Based on the themes extracted from the interview data, survey questions were constructed into samples and sections by determining how these questions relate to the theoretical framework and the compatibility concept of themes. Because this stage involved a specific group of CoT participants, it was necessary to use theoretical framework elements in the survey questions.

The first themes were concerned with stakeholders' perspectives on student skills development. This section generated questions related to student skills, GAs, employability skills, and training that reflected GCM human capital which focus on knowledge about skill development and the importance of preparing for the skills required by the job market and employment opportunities. The second theme addressed stakeholders' perceptions of the college education system and how it prepares students for future employment. Some aspects, such as communication, were highlighted in the reflection on GCM social capital graduates, as it creates and recognizes opportunities and the job market. The questions in stakeholders' perceptions of the college education system and how it prepares students for future employment were developed to understand the colleges' training and industrial relations, as well as the advantages of the students' on-the job-training (OJT). As well, it focused on the college's curricula, services, and facilities relevant to student skills development and reflected the cultural capital in terms of the value that graduates have acquired through college activities and technological

services support. The stakeholders' perceptions of the college education system and how it prepares students for future employment also included UTAUT views and reflected different approaches making work more fulfilling and activities more satisfying. And meaning of conducting tasks and activities in increasing an individual's effectiveness and potential. The third theme of E-Learning in the college education system incorporated responses that revealed a strong sense of self and social influence factors in terms of utilising available resources along with user behaviour, intention, and experience added to the organisation's impact and support. As well as elements UTAUT such as the system is used at the user's own pace and place, and it is equipped with the supporting features that users require to complete their tasks were highlighted. Further, digital literacy aspects were incorporated in terms of individual level of awareness, skill, and attitude toward using technological tools E-learning resources and facilities. The final theme, E-learning impact on developing student skills, provided an opportunity to construct questions using UTAUT social influence and conditions for facilitation factors that emphasised the importance of resources, knowledge, and support required to operate the system and promote user behaviour and intention of E-learning. This also included the impact of the organisation and the system's utilisation and compatibility with other systems. GCM cultural and identity capitals supported questions on selecting appropriate techniques for graduates to present themselves in a targeted manner and use educational online services to identify and evaluate their skills, attributes, and experience. Other questions on digital literacy were developed to measure the students' ability to use technological tools and facilities.

4.4.4. Study Sample Strategy

In terms of the study sample, Patton (2002) highlighted that there are no easy and universal answers to the question of which research sample is more efficient or which strategy will provide the most meaningful data to decision makers. Also, the answer differs based on the study's purpose, the available budget, the political climate, and the researcher's interests, abilities, and biases. According to Coyne (1997) researchers will target those groups they believe will be best to provide the desired data and leads for further research on their subject. They also speak to experts to acquire a sense of what is relevant, where they can find more data, and where to locate themselves. He also pointed out that groups are formed when needed, rather than prior to the start of the investigation. Cohen, Manion and Morrison (2017) stated that a sample is a simple version of the total population from which a researcher plans to collect data. They concluded that sample strategy is one of the most important sampling aspects, and that sampling strategy on methodology can be classified into two types: probability (i.e., random) and non-probability

(i.e., purposive). Among the non-probability sample types are convenience sampling, quota sampling, dimensional sampling, purposive sampling, and snowball sampling. Each sample is intended to represent instances of itself in a homogeneous sample; it does not seek to reflect the overall, uniform group.

However, in qualitative research, the goal is to find significance based on the individual's experience. All qualitative samples are non-random, and the qualitative researcher conducts interviews with participants who can aid in understanding the study phenomenon. Depending on what type of qualitative approach and technique are used, sampling strategies and sample sizes may differ. For instance, rigorous, sampling approaches differ from those utilized in quantitative research (Gill, 2020). Gitleman (2014) indicated that qualitative approaches attempt to depict holism while also providing contextual knowledge about the topic under investigation. One purpose of qualitative research is to improve understanding of a phenomenon rather than extrapolating findings from a sample to the entire group. Gill (2020) added that the qualitative researcher identifies participants who can offer information to the study. Participants are chosen for their direct and personal knowledge of the research subject and ability to discuss and reflect on it. They must also be willing to spend the time needed and share their thoughts.

In an earlier study of qualitative sampling, Patton (1990) identified 15 strategies for sampling including extreme or deviant case, intensity, maximum variation, homogeneous, typical case, stratified purposeful, critical case, snowball or chain, criterion sampling theoretical, theory-based or operational construct, confirming and disconfirming cases, opportunistic, purposeful random, politically important cases and convenience (Patton (1990) as cited in Coyne (1997)). Schreier (2018) highlighted that in the methodological literature, three types of sampling strategies are distinguished: random, convenience, and purposive sampling. Morse (1991) indicated that the common qualitative methods of sampling, often termed sampling by four kinds, are purposeful, nominated, voluntary, and general population. The four categories of sampling strategies are briefly outlined in the paragraphs below.

First, the purposeful sample is chosen by the researcher based on the study's requirements. Interviews with experts or others with similar experiences may be conducted first. As the research progresses, the description is refined, and experts are sought. Then, atypical informants are sought to understand the notion or phenomenon's entire range of experience (Morse, 1991). According to Schreier (2018) purposive is also called purposeful sampling applies to a set of sampling procedures that are commonly

utilized in qualitative research based on the idea of selecting cases that are information-rich to answer the research question. Gill (2020) described that judgmental or selective sampling refers to the researcher's planned selection of people who are informed about the topic under investigation, in the form of maximum variation, homogenous sampling, typical case sampling, and crucial case sampling. Further, McIntosh and Morse (2015) highlighted that purposeful sampling is necessary for semi-structured interview research to maximize valid findings. It can take several forms: convenient sampling where eligibility criteria are posted and the first volunteers who meet them are included in the sample; snowball sampling where people with inside knowledge of potential participants and relations to the research project are included; homogeneous sampling in which people who are very similar are included; and variable sampling of participants who represent the larger public.

Second, nominated, network or snowball sampling means that existing participants recommend individuals who might be interested in participating in the study (Gill, 2020) and is a popular technique for acquiring a qualitative sample (Morse, 1991). According to Cohen, Manion and Morrison (2017) snowball sampling means finding a small group of people who meet the requirements, and these people are then used as informants to find others who satisfy the criteria for participation. This strategy works well when access to a population is limited, for instance when a sensitive topic is being discussed or there is a lack of communication networks. Suri (2011) added that it can be used to identify primary research findings commonly highlighted by various sources. It can add the expert preferences such as the choice of a large sample or research that has been widely referenced. It is especially beneficial for capitalizing on expert advice and recognizing findings that are highly regarded by many stakeholders.

Third, volunteer which also called convenience sampling occurs when potential participants volunteer to take part in the research study (Gill, 2020). Morse (1991) expanded that the volunteer or solicited samples are frequently used in nursing research when probable informants are unknown to the researcher. The researcher must rely on possible participants to identify themselves, that is, people who are currently experiencing or have previously had the experience of interest.

Last, total population sampling means that of informants live or work in the same location. In qualitative research, this sample can only apply if the number of potential informants is small. This method is also referred to as the secondary selection (Morse, 1991).

In quantitative research, there are two sorts of samples: representative and convenience. The representative sample allows for extrapolation of findings to the larger population, whereas the convenience sample cannot be generalized to the larger population as it is purely descriptive. However, convenience sampling is exploratory and might be a suitable place to start when little or no study has been done on a specific issue (Shields and Twycross, 2008). Schreier (2018) indicated that a random sample, is frequently used in survey-type research to assist empirical generalization, that is concluding a sample to a population to the degree that the sample is representative of the population. Its usefulness in quantitative research stems from its role in obtaining a representative group. Cohen, Manion and Morrison (2017) added expand that this type of sampling involves selecting the nearest individuals to serve as respondents and repeating the process until the desired sample size is reached and it saves time and money, while avoiding the task of seeking fewer proper respondents. Furthermore, Schreier (2018) explained that convenience sampling is ideal for both quantitative and qualitative researchers because the participants are selected depending on availability.

Regarding qualitative and quantitative research sampling Sandelowski (2000) found that purposive sampling is employed in qualitative research to improve understanding of the information contained in a rich, fair scenario, whereas quantitative research preferably entails sampling the probability of providing statistical conclusions. Although the goal of purposive or purposeful sampling is to gain interpretive knowledge from and about individual cases, the goal of probability sampling is to develop descriptive knowledge by generalizing from samples to populations. Despite these significant differences, intentional and probability sampling strategies can be successfully combined. However, Cohen, Manion and Morrison (2017) suggested that any sample type aims to represent examples of itself in a similar population, rather than seeking to represent the whole, undifferentiated community.

This study followed a mixed method approach consisting of collecting qualitative data using semi-structured interviews with the stakeholders (i.e., employers, graduates, and policy and decisionmakers in education and government), as well as quantitative data through an online survey involving students, academic faculty members, E-learning coordinators, and technical support staff at CoT in Oman. This was recognised as an appropriate structure for obtaining detailed information and understanding the stakeholders' expectations regarding the phenomenon under consideration: the lack of skills development and the role of E-learning in developing student skills in Oman's HE system. Therefore, this research did not use a random sample it used non-probability

sampling ; instead, it applied a combined three samples strategy using purposive , and snowballing sampling for qualitative purpose and purposive and convenience (volunteer) sampling quantitative outcomes.

First, regarding the qualitative research sampling, the most common qualitative sampling methods are convenience, also known as volunteer sampling, snowball, purposive, and theoretical sampling and qualitative researchers may employ more than one sampling strategy in their investigations (Gill, 2020). So, it was critical to obtain valuable and meaningful information from stakeholders based on their positions and responsibilities as well as their field of expertise and experience to investigate the skill gap between graduate skills and the labour market's expectations. The stakeholders also shared their views on the role of E-Learning in developing student skills. As a result, the purposive sample was suitable for the study's criteria. To begin this research, it was necessary to have a deep understanding of the phenomenon under consideration through interviews with specialists or other experts with comparable experience. These interviews provide sufficient material and are information-rich to answer the research question. As suggested by Morse (1991) interviews with experts or others with comparable expertise constitutes the most prudent way to begin the research. Additionally, the combined sample snowballing strategy was used here when, for example, employers' participants were asked to nominate or propose a suitable Omani graduate who fulfilled the study's criteria. As well as other interview invitees who declined, either because they were too busy or they did not consider themselves competent in the research field, were requested to recommended others instead. As it highlighted by Gitleman (2014), obtaining enough people for a study can be challenging when the phenomenon is narrow; therefore, snowballing sampling is used to recruit more participants from those previously selected.

McIntosh and Morse (2015) further explained that the purposive sampling concept for semi-structured interviews ensures that suitable data are collected; in other words, data representing the phenomenon being examined. Research is targeted towards sampling for interviews. Therefore, the interviewees are chosen for their unique experiences, perspectives, or expertise, not because they are demographically representative of the public. Selecting a qualitative sample should be based on the understanding of what function the research will serve. In order to achieve an in-depth assessment of the problem, the first phase of the study included more specific data collection in the form of semi-structured interviews with a variety of experts and rich experience in stakeholder groups, such as employers, graduates, and decision makers in education and government.

In order to obtain relevant information regarding the problem of students' lack of employability skills as well as the role of E-Learning, some stakeholders from each category had to be involved. As a result, the study generated a variety of question samples. Coyne (1997) clarified that different questions may be asked of a sample in a given situation if it is sampled according to growing categories to achieve depth in the emerging areas. The researcher may then move to a different area to sample there, thus increasing the category's breadth.

As highlighted in this study, the aim of investigating was to determine the students' employability skills and the role that E-learning plays in developing their skills. Therefore, it was important to identify and obtain the relevant data from the involved stakeholders or partners, such as universities, employers, policymakers, and students themselves. As a result, participants with high levels of seniority and experience were chosen for this study (table 15, page 150). The stakeholders who participated in the interview groups were chosen based on their responsibilities and roles in developing student skills. However, other relevant factors were taken into account. The study consequently produced a wide range of question samples; for instance, participants from the HE institutions group discussed best practices for GAs and shared their well-informed views about the skills required for the job market. Additionally, given the need for their work to be done cost-effectively, employers were expected concentrate on how they perceive the recruitment process of qualified graduates. Moreover, they could discuss their responsibility to recruit recent graduates who have the necessary skills as well as their role in helping new employees advance their skills to the required level. To increase economic productivity and address the unemployment problem, policy and decision-makers are dedicated to implementing the country's goals for human resource development into action. Therefore, this group of participants was required to share information regarding the creation of government programs to enhance adult skills and human resources and their role in proposing skill training programs. The last group consisted of the students who wanted to gain employment and join the workforce. They shared their experience of utilising all the given opportunities for their skills development. Thus, the knowledge and expertise of each participant group was represented in the question samples relating to the job market, HE, and government, in addition to their level of seniority and experience (sections 4.7.1 and 4.7.2 present all the question samples). Creating these diverse question samples aided in gathering a wide array of data about the phenomenon under investigation. The members of each group had a unique professional background because they shared real-world practice experience and rich information in their understanding of the labour market,

university education, and government policy in terms of student skill development, labour market entry, and labour market exit.

According to Gitleman (2014) in order for research consumers to understand how and why a specific sample was chosen, qualitative researchers must characterize the sample in terms of gender, ethnicity, age, socioeconomic status, and any other relevant characteristics. Moreover, a variety of strategies have an impact on sample size and selection. Thus, in this study, each sample of the four different categories of interviews was created based on the participants' responsibilities, and each category included a section on demographic data as well as other relevant aspects such as seniority in the work position, level of experience, and knowledge.

Second and regarding the quantitative research sampling, the purposive and the convenience sample was more suitable for this research since the sample was more specific in collecting data from CoT stakeholders and included three types of categories: students, academic faculty members, and E-learning coordinators and technical support team. Any purposive sampling in a mixed methods investigation necessitates prior knowledge of the relevant phenomena and their distribution, which aids in informing the purposeful sampling process. For example, in sequential design, the results of a first quantitative phase may be utilised in order to purposefully select instances for a second qualitative phase of the study (Schreier, 2018). According to Patton (2002), the rationale and effectiveness of purposive sampling reside in choosing information-rich cases for in-depth study. In consequence, the researcher gains a lot of knowledge from information-rich cases that is crucial to the inquiry's goal. Patton (2002) added that purposive sampling increases the number of sample variations and might be selected to match a certain type of inquiry. Therefore, the qualitative and quantitative arguments came to an end as a result of this kind of development in sampling. The purposive is employed given that the respondents of this sample were chosen according to their awareness, depth of knowledge, and experience of the aspects under investigation, the purposive technique was employed to gather the necessary data from these three categories through a questionnaire survey. The surveys were carried out with real users' participants who were able to explain how they expected various areas of the field (e.g., skills, employability and the labour market, the system of higher education, and E-learning) to enhance the skills set of university students. Also, the research was focused on a field of study merging the skills of undergraduate students and E-learning involvement. This type of research on CoT and other HEIs in Oman had not been conducted yet.

In addition, all the survey data was collected from a specific population (CoT) fully descriptive. These aspects of the convenience sample are supported by both Shields and Twycross (2008) and Schreier (2018). Moreover, Cohen, Manion and Morrison, (2017) stressed that convenience sampling involves individuals to whom the researcher has easy access and who can repeat the process until the desired sample size is reached; it does not strive to generalize because it does not represent any group apart from itself. Additionally, it can be used with fixed audiences such as students or student teachers, who are usually used as respondents in this sampling type. Thus, this feature as highlighted by Cohen, Manion, and Morrison (2017) inspired this research to use a convenience sample because the chosen participants are not generalized. The groups were already identified, and the recommended types of participants were university students and faculty members.

4.4.5. Study Sample Size

Many researchers struggle to determine the size of their study sample. There is no simple answer because the appropriate sample size depends on the study's purpose and the population understudy (Cohen, Manion and Morrison, 2017). Delİce (2010) noted that the sample size should be based on the study subject, population, research objectives, analysis techniques, the sample size used in similar studies, the number of sample subgroups, population variability, and research strategy. The sample is selected according to the informant knowledge about the research subject, rather than utilizing criteria based on the typical or representative population factors such as age, economic status, or education. It is thus crucial that the researcher identifies who will be the most appropriate informant before beginning interviews (Morse, 1991).

Regarding the qualitative approach, according to Gitleman (2014), the number of participants needed must be determined by the researcher, and the sample size of similar sorts of published studies can serve as an indicator. Another factor is the phenomenon's scope and depth. Further, the sample size may also depend on the researcher's time, budget, and location constraints. Delİce (2010) emphasized that the smallest or most suitable sample size must be determined carefully and accurately in each phase of study, from the paradigm to data collecting to data analysis methodology. However, Patton (2002) observed that qualitative research usually focuses on tiny samples or even individual cases but in more detail. Quantitative approaches, on the other hand, usually involve larger random samples. In summary, the aim of each strategy dictates the logic of each sampling technique. Bonde (2013) added that since qualitative research seeks to

understand a phenomenon, hence, they focus on the viewpoints of fewer people in more depth. As a result, many researchers believe that qualitative research requires fewer participants than quantitative research. Since quantitative research measures a phenomenon, it focuses on more of people's perspectives but in less depth. Besides, a sample that is too large or too small may become unwieldy or unrepresentative. Furthermore, Bonde (2013) pointed out that projects involving participants with low levels of research topic competence require more qualitative interviews than projects involving participants with high levels of research topic knowledge and experience.

Overall Malone, Nicholl and Coyne (2016) emphasized that a balance must be struck between using an insufficient number of respondents and an excessive number of subjects in the sample. A sample size that is too small will lack the statistical power to detect a difference, which means that significant differences between study groups may be ruled statistically insignificant. High sample size may be regarded as immoral, a waste of resources, and may reduce the viability of a study. Patton (2002) explained that qualitative research sampling works by selecting cases with lots of information to analyse in-depth; therefore, sampling refers to selecting examples that include a lot of information relevant to the investigation's goal and examining data-rich cases; not in the form of empirical generalizations but insights and in-depth understanding. It follows the notion that qualitative research can be limited to small samples and tiny case studies. Gill (2020) added that large samples are often used by quantitative researchers, as defined by power analysis, but qualitative samples are smaller in order to explore a phenomenon in depth. The purpose of qualitative sampling is to engage enough participants to offer rich, in-depth data in order to comprehend the phenomenon under investigation. Cohen, Manion and Morrison (2017) offered several helpful recommendations including a minimum sample size of 30 for statistical analysis. Before collecting data, researchers must decide what types of relationships they want to examine within subgroups of their final sample. Before starting their research, researchers must decide on the number of variables they want to control and the statistical tests they want to apply. Gill (2020) related that while there is no specific formula for calculating sample size, researchers must collect enough high-quality data to meet the study question. As representativeness is not an objective of qualitative research, the sample sizes for qualitative projects are far smaller than those required for quantitative projects.

In terms of the qualitative approach used in this research, purposeful sampling was used to determine the sample size, contingent on the informant knowledge needed to fulfil the

research goal. Thus, the four categories of semi-structured interviews were suited to the knowledge and expertise of the participants involved (i.e., the labour market, HE, and government). Their level of seniority and experience were taken into account (table 15 on page 150 shows all the details of the interviewees). Although each member of the group had a unique professional background, they shared a common understanding of the labour market, university education, and government policy in terms of student skill development, labour market needs, and the use of technology tools in teaching and learning.

As these disciplines have large populations and diverse specialties, obtaining the required number of participants for the interviews proved difficult. To ensure adequate distribution 16 participants were needed in total: four employees, four graduate students, three CoT deanship members, and five policy and decisionmakers. Furthermore, this small number was appropriate in circumstances when comparing the relationships between groups. Cohen, Manion and Morrison (2017) suggested that to investigate links between subgroups researchers must collect a minimum sample size that accurately represents the population being studied when investigating links between subgroups. They added that researchers must obtain the minimum sample size that will accurately represent the target population when examining relationships between subgroups. When trying to ensure representativeness, there are no guarantees that large or small sample size will suffice.

The distribution of the 16 participants was considered appropriate for this investigation because the selected individuals had acquired in-depth knowledge of the subject. Delİce (2010), Patton (2002) and Bonde (2013) confirmed that concentrating on a small sample allows the researcher to gain more in-depth knowledge and yields more relevant data than a large sample. Another factor that was also taken into account was time constraint. Since qualitative data gathering was completed in the initial phase, it was necessary to limit the time spent on the interviews, transcription, analysis, and findings; those results were essential for the next phase of data collection. On this point Gitleman (2014) stated that the qualitative researcher must describe the sample's context sufficiently for others to assess the findings' relevance to their situations and use them in other contexts. The researcher must evaluate whether there is sufficient evidence for transferring the knowledge from one qualitative study to another group with a comparable experience or another phenomenon altogether.

About quantitative data, the exact sample size can be estimated based on the level of reliability and confidence required by the researcher. The researcher can then present the reasons and justification for the taken decision. Although many scholars agreed that a sample size of 30 to 500 is appropriate, Delİce (2010) argued that the size should be decided on the basis of the sample quality. There are also software and spreadsheets that calculate the necessary sample size and identify significant values based on established analysis techniques. These data are studied descriptively through sample descriptions or inferentially by population parameter estimation. Numerical data are utilized to describe the sample, assess correlations, and deduce cause and effect relationships between variables (Gitleman, 2014). However, in the quantitative approach, the researcher must consider several factors while determining the sample size, including attrition responder, as some participants may withdraw from the study or fail to return surveys. As a result, it is preferable to increase rather than decrease the sample size required (Cohen, Manion and Morrison, 2017). In addition to mathematical precision, formula-based ways to determine the sample size show that determining the sample size includes component predictions, standard errors, and human judgments. Taherdoost (2017) indicated that a 5% error margin is acceptable in social research and that the most common confidence is between 90% and 99%. Also, the advice of adopting 50% for population percentage is based on the assumption that this will maximize variance and provide the largest sample size.

The quantitative data collection sample in this study was not drawn at random; rather, it was limited to groups of people who were CoT faculty and students based on their convenience. Consequently. Delce's (2001) recommended sample size of 30 to 500 was adopted, and the researcher intended to enrol between 500 and 600 participants. After calculating the sample size with one of the recommended software links (calculator.net) using the parameters of a 90% confidence level, a 5% margin of error, a 50% population proportion, and population size (as described in Chapter 2 on page 39), the required sample size for the online survey was 271 students or more, in addition to 250 or more academic staff and E-learning support teams (see Appendix B.10 and B.11).

4.5. Data Collection Techniques

4.5.1. Interviews

A qualitative interview is an interactive process of gathering and discovering information, as reflected in the views of the individual interviewees. It is motivated by a trustworthy

purpose (Adhabi and Anozie, 2017). Interviews can include questions about why, when, and how. They are also referred to as the reasons people offer when explaining why they react in the way they do (Corbin and Strauss, 2015b). Adhabi and Anozie (2017) added that interviews can be carried out either face-to-face or over the telephone but advances in technology are enabling new types of interviews, for instance emails and video conferencing.

A semi-structured interview is considered as a type of qualitative research interview. A semi-structured interview approach allows the interviewees to elaborate on topics of interest, as there is no guide which has to be strictly followed (Saunders et al., 2009). Therefore, to give the interviewee more flexibility and obtain greater insights, the interviewer generally uses a list of possible questions to guide the interview. The contents of the interview can be adjusted according to which areas the interviewer deems significant and worthy of further investigation (Bryman and Bell, 2011).

There are some aspects that should be taken into consideration in effective semi-structured interviews, such as background knowledge, guiding questions, and interview schedule. According to Kallio et al. (2016), background knowledge in the topic area helps create semi-structured interviews that yield rich data. The interview questions are determined before the interview and are then structured using an interview guide to have a focused discussion during the interview. Here, the idea is to collect information about the research area by letting the participants talk about what they know. Adhabi and Anozie (2017) indicated that the ideal data collection method used by qualitative researchers is to produce a set of guiding questions; the responses to these questions are the basis for more focused and insightful follow-up questions. Interviews can be done either individually or as a group. The advantage of dealing with an individual is to be able to dig deeper into the subject and the arising issues. Evans and Lewis (2018) expanded on this by saying that qualitative semi-structured interviews are among the most common ways to collect data in social sciences. They allow researchers to explore subjective viewpoints and explore people's individual experiences. Also, the interviews should be guided by a research schedule which enables the researcher to define a topic and allow the responder to answer and discuss their own terms, issues, and topics. This allows for the natural development of other relevant themes.

4.5.2. Questionnaire - Online Survey

A questionnaire is a method that involves creating a set of questions for survey respondents to give their background and demographic information and share their

individual attitudes, knowledge, and future intentions about something. One of the general recommendations when creating a questionnaire is to keep the language as simple and as direct as possible (Young, 2019). Brace (2018) indicated that when designing a survey, the questions can be drafted using the following steps: define the principal information that is required to answer the objectives; define what other information is required in order to meet the objectives; determine the secondary information that is required for analysis purposes; and map the flow of the subject areas or sub-sections within the questionnaire.

According to McLeod (2018), questionnaire survey forms are built, administered, and collected corresponding to guidelines that have been designed to answer the study's purpose. The questions asked must be short, clear, and to the point, with language that is appropriate to the vocabulary of the people being studied, and other points such as question order, presentation, and information about anonymity and confidentiality must also be considered. It is essential to pilot test a sample by running a small-scale test study in order to get honest feedback on a questionnaire's design. Young (2019) explained that a pilot study is a small-scale test that allows researchers to make the necessary adjustments before the main sample distribution. Carrying out a pilot survey test provides the respondents with a better understanding of the terminology used in the questionnaire. In addition, it allows the researcher to check that leading questions have not been used, and it ensures that the questionnaire is not too long and can be completed in an appropriate time frame.

The questionnaire preferably has both open and closed questions and collects quantitative and qualitative data. This mixed approach is recommended by Bryman and Bell (2011) when the study is intended to gather a complete and clear view of a provided services.

Close-ended questions are easy for the respondents to answer, the questionnaire is easy to distribute geographically, and the comparison between respondents are easier to make (Bryman and Bell, 2011). In addition, close-ended questions are used to extract empirical and numerical data from the questions to create a good statistical analysis from the data gathered and to explain the findings with the help of graphical representations like charts and tables. Further, the specification part of these questions helps the researcher to refer the result to the literature (Bryman and Bell, 2011).

Close-ended questions allow only responses that fit into predefined categories in the form of nominal data (e.g., yes or no) or ordinary data that describes the strength of attitudes using a continuous rating scale (e.g., strongly agree, agree, neutral, disagree, strongly

disagree, and unable to answer) (McLeod, 2018). Brace (2018) discussed the Likert scale, often referred to as an agree/disagree scale, which is a rating scale that can be used to measure attitudes, views, and perceptions. It is easy to administer this technique online, and questions can be presented in a variety of ways including radio buttons, slider scales, stars, or a range of other graphical techniques. Beglar and Nemoto (2014) expanded on this by saying that the results obtained using Likert scales consist of a limited number of possible continuous responses consisting of four to six points.

McLeod (2018) added that close-ended questions have strengths, such as the fact that they can provide large amounts of research data for relatively low costs as they can be distributed online or by using email, so a large sample size can be obtained. Each respondent provides information that can be easily converted into numerical data, and all respondents are asked the same questions. This means that a questionnaire can be replicated easily, and the researcher can use the questionnaire to check the results. However, since the answers are fixed, they lack detail, and participants have less opportunity to provide details that reflect their true feelings on the topic.

Thus, open-ended questions are used to increase the chances of people answering questions clearly and in a more expandable way; the respondents have to reflect on their answers to the questions, so more meaningful information can be extracted. McLeod (2018) further stated that open-ended questions invite participants to express more viewpoints and provide more detailed answers that require discussion. Open-ended questions allow respondents to clarify their answers, and this means that the researcher can find out why the participants hold a certain attitude. However, some limitations should be considered, including the difficulty involved in gathering data because the respondents need more time to complete such questions.

4.6. Data Collection Process

After deciding to employ a mixed method approach under the category of interview-then-survey, the first phase of the study was to feature more specific data collection to carry out an in-depth assessment of the problem. Semi-structured interviews were used as the first qualitative research method and the online questionnaire survey as the second quantitative research method.

Thus, following the mixed method design in this study by using qualitative and quantitative data collection methods, this was deemed a suitable design to investigate and identify the stakeholders' expectations towards skills development and the role of E-learning in

developing student skills in the HE system in Oman. Both the qualitative and the quantitative methods helped me to understand the participants' adoption of and expectations toward the usage of E-learning technology in Oman. Also, by following the information and guidelines (as described in Sections 4.4 and 4.5), a different process was implemented for collecting data through the interviews and the online survey. More details will be given in the following sections.

4.6.1. Semi-Structured Interviews Data Collection

The interviews were conducted in order to collect information related to the following: the skills gap between CoT graduates in Oman; the skills required in the workplace; how employers help develop graduate skills; the role of the colleges in developing student skills; the link between colleges and the labour market; the policies and plans in place, how graduates evaluate their skills, and whether these skills are the right skills for their jobs. And the first stage of data collection through interview was used as the foundation for gathering correct information that feeds the accuracy of survey questions, and these inquiries were the starting point for more specific and relevant follow-up survey questions. Consequently, it was important that all interviewees shared their work experience in terms of their roles, responsibilities, and expectations about the use of E-learning tools in education. The 16 selected interviewees were higher administration employers, higher CoT management, policy and decision makers, and fresh graduates who recently found employment.

After discussing the structure of the interview questions with my academic supervisors, an academic expert working in one of the HEIs in Oman, and an English proof-reader, the suggested changes were made, and four different sets of questions were finalised. The first set of questions was for Omani labour market employees (see Appendix A.1), the second set for higher CoT management (see Appendix A.2), the third set for policy and decision makers in Oman (see Appendix A.3), and the fourth and last set of questions was for fresh graduates (see Appendix A.4).

Each sample of the four different categories was created based on the participants' responsibilities, and each category had a section on demographic factors including job title, gender, age, qualification, years of experience, and organisation field. The other section contained the interview questions. The following sections present the details of each set.

4.6.1.1. Interview Sample - Deanship

The first part of the interview questions (Q.1–7) was designed to obtain information about the college's background: vision, mission, education system, number of students, and number of graduates. The discussion then moved on to the build of the college GAs, the students' understanding of GAs, ways to evaluate GAs, and the level of awareness among students about graduate skills, modules, or courses designed to improve students' employability skills.

The second part of the interview questions (Q.8–10) was created to seek information about student evaluation: ways of assessing students' lifelong learning skills, the participants' experience in evaluating students' and graduates' skills (e.g., communication, teamwork, time management, ability to work under pressure, and English writing skills), and the participants' point of view about the students' attitudes toward E-learning.

The third part of the interview questions (Q.11–16) was aimed to explore the facilities and services that are available. It contained questions about the type of services the college offers to assists students in achieving the course learning outcomes. In terms of E-learning, the discussion focused on implementation, development, policy, influence in teaching, enhancing the student skills, and finally, recognizing the need for students and faculty members to accept E-learning and other new technologies and services offered by the college to meet the learning outcomes.

The last part of this interview sample questions (Q.17–19) was designed to seek information regarding the college's links with other HEIs and employers. Discussed were the connection between the college and the labour market with respect to required employability skills, involvement in the development of the graduate employability skills and labour market needs and how the colleges are getting feedback about their graduates after they start work.

4.6.1.2. Interview Sample - Employers

The first part of the interview questions (Q1–4) covered the workplace background in the form of the company profile, the qualifications of hired CoT graduates, and required work skills.

Part two of the interview questions (Q.5–10) was designed to obtain information about the evaluation of graduate skills: the knowledge and skills of fresh graduates, their work skills,

their lack of employability skills, the graduates' skills in communication, teamwork, time management, ability work under pressure and English writing, the training available for fresh graduate employees on develop their skills, and their own assessment of their skills level.

The third part of the interview questions (Q.11–14) covered the elements about the employers' educational concerns: the graduates' skills gained during their studies as compared to work skills, the role CoT should play to improve the employability skills of their students, the use of technology services to enhance student skills, and the students' attitude toward E-learning.

The final part of this interview (Q.17–19) focused on the links with other HEIs and organizations: ways in which the colleges can improve to support the skills development of their students, the labour market giving feedback to the respective organizations on required graduate skills, and the role of other organizations in developing graduate skills.

4.6.1.3. Interview Sample - Graduates

Part one of this interview sample (Q.1–11) covered the study background and educational concerns of the interviewed graduates: their knowledge and level of awareness about GAs during the course of study and the importance of course CDP, the role of OJT in skills development, the services and trainings available , to develop their skills, guidelines about the labour market's needs, the college impact on preparing the students for their future jobs, and the level of E-learning usage during their study and its strengths and weaknesses, and the level of awareness among students about its uses.

Part two of the interview questions (Q.12–15) was designed to give the interviewees the opportunity to self-evaluate. The questions were aimed to collect information about the skills they master and the skills they lack in communication, teamwork, time management, ability to work under pressure, and English writing, in addition to their use of E-learning to develop these skills

Part three as the last section of the interview (Q.16–18) covered the job concerns in terms of their level of work-related skills and their work experience.

4.6.1.4. Interview Sample – Policy and Decision Makers

The first part of the interview (Q.1–6) was designed to cover the required information about

the organizational background: general information about the organization and its role in designing policies or making decisions about graduate employability, the main aims of policies or decisions in regard to HEIs graduates, the organization's impact on wok-related skills development, the studies consulted on the skills required in the local labour market, and identifying which skills the fresh graduates lack.

The second part of the interview (Q.7–12) aimed to identify the interviewees' opinion about their educational concerns: factors preventing stakeholders from being informed graduate about graduate skills, the educational or the labour market facilities that are needed to develop those skills, the participants' opinion about the use of technology services to enhance the skills of students, their thoughts about the role of HEIs in developing the right student skills to prepare them for their future employment, and their work experience in assessing student skills (e.g., communication, teamwork, time management, work under pressure, and English writing), and their perception of the students' attitude toward E-learning.

The last part of this interview sample (Q.13–15) was designed to gather information regarding the links with other responsible HEIs and employability organizations. The interviewees shared their views on their level of cooperation with HEIs in policy development, monitoring, and feedback, and their engagement with other stakeholders (e.g., employers, CoT, students, and graduates) when designing a new policy.

All the questions in the four sets of interview scripts covered open-ended questions with solicited comments made by the respondents on education, employability, skills development, and the use of E-learning in Oman. Open-ended questions are a helpful way to understand the actions and interactions which are the real responses of people or groups. Through them, people get to give meaning to events, consider them, have thoughts and emotions about them, and see them as difficulties or objectives. They can show the meaning which is given to these conditions or events, or the steps that have been taken to address an issue (Corbin and Strauss, 2015a).

The interview questions were complemented with a detailed explanatory statement about the research, a participant information sheet (see Appendix A.5) and consent form (see Appendix A.6). The material was sent to the participants in advance to give them the required time to reflect upon the research aim. A request to carry out the interviews was sent by email to 13 people who were directly involved in HE, employability, and the labour market. Nine of them responded positively, and they accepted the invitation to be

interviewed, whereas the other four declined, either because they were too busy or they did not consider themselves competent in the research field, and recommended others instead. Those nominated individuals were invited to participate by email (see Appendix A.7) or by phone. The employers who accepted the invitation to be interviewed were requested to nominate or recommend a freshman Omani graduate who was recently employed had some work experience (more than three months and less than one year). The total number of interviews conducted was 16, and the table below displays the interviewee categories.

Category	No. of Participants	Speaker Codes
Employer	4	EMY1, EMY2, EMY3 and EMY4
CoTs' Deanship	3	CDS1, CDS2 and CDS3
Policy and Decision Maker	5	PDM1, PDM2, PDM3, PDM4 and PDM5
Graduates	4	FGD1, FGD2, FGD3 and FGD4
Total	**16**	

Table 10: Participants Interviews.

The interviews questions were written in English, and all the interviewees were informed of this via the invitation. 14 of the interviews were conducted face-to-face; 13 interviews were carried out at their workplace; one interview was carried out in a public place, and the remaining two interviews were done over phone. The procedure followed during the interviews was an audio recording for 11 interviews, three interviewees recommended writing to them, and two were done over the telephone. Three of the interviewees requested to answer in Arabic rather than English so that they could communicate more easily and provide more information, and they were fully free to do so. Using the Arabic language was not an issue at all, and it allowed them to give more oriented information to the collected data. I did the transcription and the translation of all interviews myself, and samples from Arabic to English translation were shared with an expert to confirm the accuracy of the language translation. Each interview lasted between 20 and 45 minutes. All interviews were conducted as scheduled, from 7th November 2019 to 12th December 2019 (see Appendix A.8). I would like share here that it was not difficult to understand and discuss the statements that the interviewees made; my background, knowledge, and work experience helped me in this, and I was familiar with all the issues discussed. I took into account the specific words and phrases that were used by the interviewees while analysing the results and addressing the survey questions. Sub-section 4.9.1.5. on page (143) shows the explored themes from interview responses that I used the to shape the survey questions.

All interviews were conducted in a very friendly atmosphere: the participants were free to add more details if they wished and were encouraged to ask any questions at any point during the interview. I truly appreciated their generosity and was kindly offered refreshments and at two occasions even lunch. Some also shared certain articles and reports with me that they thought would be useful references for my research. They were pleased with the subject of the research which combines skills development with the use of technology, and all of them said that they would be delighted to provide any further details or assistance in the future if needed.

4.6.2. Online Survey - Data Collection

After gathering data using qualitative research methods, the data from the interviews were used to feed the surveys questions. Thus, action was taken with the results and findings that helped in the transition to the second type of data collection which was quantitative research using an online survey. The focus in this part was to explore the role of E-learning in education and in developing student skills, with focus on CoT. I investigated the skills of the students enrolled in these colleges, and how these skills can be enhanced and built upon during their studies through E-learning. The second stage of data collection was via an online questionnaire survey, the participants being undergraduate students, academic staff, and E-learning coordinators or technical support team members. The quantitative research survey method was used because the aim of the research is to understand the participants' understanding of graduate skills and perceptions towards using E-learning services. Knowing the perceptions of the selected participants was expected to provide more accurate and information about their skills and how the colleges can use available resources such as E-learning to develop student skills. Therefore, in this stage, the online survey questionnaire method was used to examine the aims mentioned as perceived by students, academic faculty members, E-learning coordinators, and technical support staff.

Thus, the survey questionnaire sampled were modified to suit three different categories of respondents based on their responsibilities: students, academic staff, and E-learning coordinators. Each set included two sections: one section covered demographic factors such as job title, gender, age, department of study, level of study, qualification, years of work experience, and organisation field; the other section contained topical questions. As mentioned earlier, the three survey sets were created and designed based on the theme variables built in the interview phase of the data collection of this study. The following sections present the details of each set.

4.6.2.1. Online Survey Questionnaire – Students

Part A of the online survey questionnaire included three questions designed to collect information about GAs, skills, employability, training, and industrial relations. Question 1 was designed to seek information on GAs and employability skills training, Questions 2 and 3 were designed to reflect the students' own evaluations and opinions on the need for further training in the skills examined in this research.

Part B included Question 4 to identify the responders' opinions on the role of college educational curricula, services, and facilities in developing student skills. This question was designed to capture the students' perceptions regarding the college support services and their impact on enhancing and building their computing, communication, teamwork, English writing, time management, and ability to work under pressure skills.

Part 3 was designed to seek information regarding the respondents' E-learning knowledge. Questions 5–11 were identified from the E-Learning theme, while Question 12 asked the students to rate their perceptions of E-learning in terms of improving and enhancing their computing, communication, teamwork, English writing, time management, and ability to work under pressure skills.

4.6.2.2. Online Survey Questionnaire – Academic Faculty

Part 1 was designed to obtain information from academic staff. The respondents answered questions on GAs, skills, and employability themes. The aim of Question 1 was to identify the responders' opinions on GAs and employability skills, while Question 2 related to the students' knowledge of computing, communication, teamwork, English writing, time management, and ability to work under pressure.

Part 2 covered the theme that included elements of skills training and industrial relations. This part featured Question 3, the aim of which was to identify the factors that belong to training and industrial relations.

In Part 3, the participants were asked to indicate the level of agreement about the college educational curricula, services, and facilities that help to develop student skills (Question 4). This part covered the fifth theme.

Part 4 was designed to gather the required information about E-learning factors. Question

5 asked the respondents to rank the importance of E-learning among the other technology services such as the college website, email, and other services. Questions 6–10 covered the different elements of the college's E-learning platform. Question 10 explored the participants' perceptions of the college E-learning system and its impact on enhancing student skills (e.g., computing, communication, teamwork, English writing, time management, and ability to work under pressure). Question 11 asked the respondents to evaluate the issues that need to be changed to improve and enhance the college E-learning system, the requirements that need to be added to make it better at improving student skills, and how their employability skills are developed or enhanced through it.

4.6.2.3. Online Survey Questionnaire – E-Learning and Technical Support

The aim of this category was to find out the perceptions of E-Learning coordinators and technical support team members. Question 1 asked about the availability of E-learning in their college with the option to comment further and expand the answer. Question 2 enquired about the knowledge of the respondents in relation to the college E-learning LMS, and the answer required a written input. Questions 3 to 5 focused on different factors of E-Learning and the participants' perceptions of the college E-learning system and its impact on enhancing student skills (e.g., computing, communication, teamwork, English writing, time management, and ability to work under pressure).

All three sets included two final optional open-ended questions: one question asked about the things which needed to be changed to improve E-learning education in terms of building the students' employability skills, and the other question asked if the participants would like to add any comments or suggestions. The results of these two questions will be presented according to theme.

All questionnaires were written in English and included close-ended questions. All questions had to be answered. By using a mixed approach in the questions, besides the comments and suggestions (if any), there was one optional open-ended question. Close-ended questions were used to extract empirical and numerical data to create a good statistical analysis from the data gathered and explain the findings with the help of graphical representations such as charts and tables. The specification part of these questions also helped refer the result to the literature when analysing the results. The open-ended question was used to increase the chances of the participants answering the question clearly and in a more expandable way, which was intended so that the respondents would have to reflect on their answer and share more meaningful information that could be mined.

Before distributing the online questionnaire survey, the sets of questions were discussed and viewed by my academic supervisors, an English language proof-reader, an academic expert, and a peer reviewer, in addition to some comments given by my academic supervisor about the survey clearly meeting the aim and objectives of the research, in terms of survey design, content and elements, and length. I also received comments from all of the mentioned reviewers, including question order, language understandability, testing the reliability by seeding duplicate questions, and Likert scale score consistency Appendix B shows more details about the received comments and feedback (see Appendix B.1.to. B.4).

To receive further guidance on the use of neutral answers, I gave some of the questions in the survey answers in the form of a five-point scale, including the neutral answer, and some other questions were given a four-point scale where neutral was not included. I received two different types of feedback, one supporting the need for a middle option, and the other advising against it. A third comment highlighted that for the Likert scale score, consistency is needed. According to Beglar and Nemoto (2014), analyses have shown that four-point scale questions are easy to understand and they require less effort to answer. Neutral categories should not be used for three reasons. First, Likert-scale categories should be conceptualised the same way as physical measurement. Second, middle category questions might create statistical problems, as they are unlikely to create reliability issues that are routinely created by the process. Third, only items which respondents can answer should be included in the questionnaire. In rare cases, some respondents may not be able to answer some items. Thus, to obtain more feedback on this matter, and to test the participants' acceptance of the neutral option, I decided to pilot-test the survey using a four-point scale (i.e., excluding neutral), and less than 1% of the total participants mentioned the need for a middle option. As this percentage was very low, it was safe to assume that all other test participants were able to choose their answer. This will help in targeting the participants who are knowledgeable about the included items in the survey, and as a result the collected data will be more reliable and accurate. I decided to use a four-point Likert scale for the developed final version of the survey.

After considering the received comments and feedback, the required changes were made, and the final version of the online survey questionnaire forms was prepared with an information sheet (see Appendix B.5) and consent form (see Appendix B.6) which was developed (see Appendices B.7 to B.9) and uploaded by me using a "Jisc" online survey link which highlighted the privacy and security measures according to the university's rules

and regulations .The survey questionnaire web link was sent through an official e-mail to the Directorate General for Technological Education in the MoM, Oman, and I requested that it be distributed to the seven selected CoT. The forwarded e-mails confirmed that the survey web link distribution was sent to the respective colleges, and the survey received the maximum number of 556 response (from five colleges. A total of 11 completed questionnaires were excluded from the findings, seven from the student survey, one from the lecturer survey, and four from the E-learning and technical team survey, as respondents used one or the same response patterns or provided incompatible responses or nonsensical feedback in the open-ended questions. A total of 545 responses from five colleges were included in the data findings and analyses. The data collection took place from 14th March 2020 to 5th April 2020 (see Appendices B.12 and B13). The participated colleges were given pseudonym codes from C1 to C5. The table below shows the details of the colleges which participated in the survey.

College Code	Students		Staff	
	No. of Participants	%. of Participation	No. of Participants	%. of Participation
C1	101	**38.2%**	78	**28.5%**
C2	21	**7.3%**	37	**13.5%**
C3	23	**8.4%**	30	**10.6%**
C4	67	**24.4%**	76	**27.7%**
C5	58	**21.1%**	54	**19.7%**
Total	270	**100%**	275	**100%**
No. of participants	**545**			

Table 11: The Details of The Participated Colleges on The Survey

4.7. Pilot Survey

The survey questionnaire and feedback form were pilot tested by sending it through WhatsApp to 37 people (students and academic technical support staff) from different CoT in Oman. The pilot test survey was actively responded to by 32 people from different categories (20 for the staff survey, and 12 for the student survey), with valuable feedback on the questions. The two forms were exported, with the percentage of respondents who agreed or disagreed with some of the items, such as the survey was clear, easy, understandable, well designed, a good length, with relevant parts and question sequence, and elements relevant to the colleges' practices (see Appendices B.14 and B.15). In

general, it can be seen in the information on both forms that all participants agreed with the survey elements; most of the comments stated that was a very good, friendly survey, with clear language, aims and objectives. Also, according to the staff, the survey was good and that they hoped it would have positive results for the student community. Besides that, other comments suggested that the language and questions were meticulous, there was good time management in terms of keeping the questions brief, and that the results of this survey should be acknowledged, and changes implemented as soon as possible.

Other points that were highlighted or suggested included moving some of the questions from one part to another. For example, the question on the college's link with the Omani labour market should be moved to the rating section. Other recommendations included adding some notes including definitions such as the meaning of GAs, skills, or employability skills. Also, indicators such as '1' should be categorised as 'high' or 'low'. One ranked question included the word 'other', and it was recommended that it should be replaced with a specific technology service. Also, one question was about the role of E-learning in college education and the advice was that this question would be better asked in a rating form rather than agree or disagree. Finally, one reviewer requested a neutral answer option.

All the above feedback gained in the pilot survey was helpful and supportive in testing the validity of the survey. The required changes or suggestions were made based on that feedback, and the final version of the survey forms were confirmed ready for distribution by my academic supervisor.

4.8. Participants

In both stages of data collection, the study did not include any participants under the age of 18. Before agreeing to do the interview or filling out the survey questionnaire, all participants were requested to read the information sheet which contained information about the research and the researcher (see Appendices A.5 and B.5). After reading the information sheet, the participants were given the option to accept or reject further participation. The participants responded voluntarily and were not compensated for their participation. If the participants agreed to take part in the study, they were requested to sign the attached consent form (see Appendices A.6 and B.6). A copy of the documents was given to the participants to keep, and they were also welcomed to contact the researcher via e-mail if they had any questions about the research study.

4.9. Data Analysis

Data analysis is the process of collecting and organising data to draw valid conclusions. It uses analytical and logical reasoning to gain information from the data and encourages the discovery of patterns and variations that can be integrated into the findings. It employs the standard analytical methods for comparison and questioning and indicates how actions and interactions change under different conditions (Corbin and Strauss, 2015b). The main purpose of data analysis is to find meaning in data, so that the derived knowledge can be used to make informed decisions.

Also, in terms of data analysis, there is the deductive and the inductive approach (Creswell and Clark, 2007). While deductive researchers work top-down, from theory to hypotheses to data, to support or reject, inductive researchers prioritise the bottom-up work to build a broader theory that connects the themes with the perspectives of the participants. Induction moves from the specific to the general, while deduction begins with the general and ends with the specific. Experience or observation are the best methods to express inductive arguments, whereas laws, rules, or other widely accepted principles are the best ways to prove deductive arguments (Trochim, 2006). Moreover, inductive research explores meanings and insights in each situation as the researcher is involved or immersed in the participants' real-life situations (Haradhan, 2018). In contrast, the deductive strategy involves utilizing theories to arrive at an assumption and then testing it. It is also important to highlight that the inductive method begins with specific observations before reaching the conclusions. The researcher tests these assumptions against theories and decides to refute or confirm them (Zalaghi and Khazaei, 2016).

Further, using qualitative techniques such as thematic content analysis can help in analysing answers to open-ended prompts or questions using apps such as NVivo (Young, 2019). For this research, thematic analysis (TA) was chosen to analyse the data collected from the qualitative research interviews. TA does not simply summarise the data content but helps the researcher to identify and interpret key information which can be translated into patterns of meaning ('themes') within qualitative data (Clarke and Braun, 2017). Hence, NVivo software was used as a supportive technological tool.

Regarding the quantitative part of this research, the online survey questionnaire data were collected in the form of descriptive information. Such type of data can be analysed either manually or automatically by transferring raw data into an application such as Microsoft

Excel or IBM SPSS. At this stage, the collected data were analysed using a Microsoft Excel 365 PivotTable.

4.9.1. TA for Analysing Phase 1 Collected Data – Interviews

Clarke and Braun (2017) explained that TA provides accessible and systematic procedures for generating codes and themes from qualitative data. Codes are the smallest units of analysis that capture interesting features of the data relevant to the research question. Codes are the building blocks for themes, and those themes are used to create a framework for organising and reporting the researcher's analytic views.

I was aware of the advantages and issues of TA as an analytical method and used it to drive the study analysis appropriately. The below table summarises the advantages and disadvantages of TA, as listed by Nowell et al. (2017):

TA advantages	TA disadvantages
• It is flexible and can be modified to provide rich and detailed data. • It does not require detailed knowledge and provides a more accessible form of analysis suitable for inexperienced researchers. • It is a valuable tool for analysing various perspectives, identifying similarities and differences, and creating new insights. • It is useful for summarising the key features of a large data set; it drives a well-structured approach to data handling which helps produce a clear and organised final report.	• Lack of significant thematic research literature; inexperienced researchers may feel unsure about how to perform a rigorous thematic study. • Its flexibility can lead to inconsistency and lack of clarity in the development of research-related themes. • Lacks validity and reliability which can be promoted by applying an epistemological framework to explain the empirical statements of the study

***Table 12**:* Advantages and Disadvantages of TA (Nowell et al., 2017):

According to this study experience, using TA was very challenging because some of the advantages and disadvantages became apparent in different settings. On the one hand, unrequired technological knowledge may work better as an advantage for those who are not using supportive software such as NVivo. Hoover and Koerber (2011) who observed that it is not easy to use Nvivo, and most users struggle to learn the software. This issue can be resolved by learning how to use the NVivo program through NVivo's online help system which includes a sample project and technical support team tutorials (Hoover and Koerber, 2011). To generate more precise findings in the analysis, using NVivo software proved to be a helpful tool in my study; however, it was not easy to work on NVivo. I took

the workshops in NVivo before collecting my data and spent about two months or more just practising with the software. I would like to highlight here that I am proficient in IT, but I still needed to gain more technological knowledge in the use of the software. On the other hand, the lack of significant thematic research literature as compared, for example, to grounded theory, can make a researcher unsure about how to perform a rigorous thematic study. I decided to use an inductive analysis approach to analyse the findings, as explained by Nowell et al. (2017). Regarding this approach, the identified themes are closely related to the data itself and can display some relation to some questions. Inductive analysis is a method of coding the data without trying to fit them into a previously existing coding frame or the theoretical preconceptions of the investigator. This method of TA is in that sense data driven. Therefore, I assumed in this study that using the qualitative approach may take different styles from one research to another, and that what works in some studies may not work in others. What I can suggest is that if researchers want to produce a study that has high-quality results with credibility, they should focus on the purpose of the collected data at this stage and the research objectives. The researchers must bear in mind that they will respond meaningfully to the research questions and sub-questions based on the data obtained. Also, the findings must be scientifically rational to satisfy the reader. Further, the researchers must possess enough knowledge of the research topic which includes the meaning of the research questions and the relation between the research questions and the problem under investigation.

Overall, TA can be viewed as the proper tool for analysing the data gathered from the study interviews. It is flexible in terms of the research question and can be used to identify patterns within and through the data in relation to the experiences, views and perceptions of the participants and their behaviours. This helps the researcher to understand what the participants think, feel ,and do (Clarke and Braun, 2017). The following six phases of TA are listed in Braun and Clarke (2011):

1. Familiarise yourself with your data.
2. Assign initial codes.
3. Search for patterns or themes.
4. Review themes.
5. Define and name themes.
6. Produce the report.

Dividing this phase of the study analysis into the six TA phases mentioned above enabled the study to achieve the best results. The following paragraphs describe the value of the six TA phases as experienced by me in practice.

4.9.1.1. Familiarity with the data:

The need to be more familiar with the data is very critical in any research study. This familiarity can be achieved through listing, writing, and reading the collected data more than once, because the data will not give the researcher all its meanings directly after the first reading. According to Braun and Clarke (2006), if the researcher deals with verbal data such as interviews, for TA to be carried out, the data will need to be transcribed in written form. While the transcription process may seem time-consuming, difficult, and often boring, it can be an ideal method to become familiar with the data. Braun and Clarke (2013) added that the transcript is the result of the communication between the recording and the transcriber, and the decisions made about what to keep and how to interpret what the transcriber hears. An audio recording transcript is not a facsimile because it is not the same as the real interview experience. Also, in terms of the interviewees' confidentiality, the speaker must use an anonym during transcription, rather than a real name or position (Braun and Clarke, 2013). Nowell et al. (2017) elaborates that to have ideas about what is in the data and what is attractive about it, researchers must read and familiarise themselves with the data, and this phase involves the first production of data codes, a theorising action that requires researchers to continue to review the data.

As the researcher of this study, I listened to the recorded data of each speaker and familiarised myself with the data several times. It was recommended that I should do the data transcription myself, and then forward the text into written language. Also, giving the interviewees a code that was different from their real name was very important to ensure their anonymity (see Table 10 on page 126). Transcribing the data helped me to become familiar with my data, and it gave me the inspiration to think carefully about many things such as information meaning, interpretation, and ideas that can be obtained from the data. Blandford (2016) emphasised that a researcher who has transcribed the data in person will have a good opportunity to become familiar with this data. It will teach the researcher how to code data and make notes on the side of important items.

In addition, reading the transcribed data repeatedly helped me to understand better what these gathered data represented. This enabled me to highlight the most relevant data and split all information into different themes and categories. Braun and Clarke (2013) stated that when conducting qualitative research, the researcher will be able to acquire different types of skills: reading, thinking critically, learning to choose the important information from the data the person has, active listening, writing, and informative presenting.

Another thing which was very supportive in terms of familiarising myself with the data was the use of NVivo. Working on NVivo and using its different features such as importing the transcribed interview files, coding, classifying, browsing the data, an getting evidence through visualisations, allowed me to dive into my collected data and become more familiar with all the information it contained. This helped me a lot when it came to managing the data and extracting relevant information. According to Hoover and Koerber (2011), NVivo is a highly customisable tool that can be adapted to meet professional communication in the areas of performance, multiplicity and clarity. This adds depth and rigour to the project. Its technical challenges can be resolved if a researcher is willing to experiment with the programme and find the most effective way to use it in a specific project, often by trial and error.

4.9.1.2. Assigning initial codes

Coding can identify certain concepts that refer to conditional factors or action-interaction, while others indicate the consequences or outcomes. However, since concepts do not wear labels that indicate whether they stand for action, or conditions, or consequences, it may be difficult for inexperienced analysts to sort out these differences. This is where the paradigm and the conditional/consequent matrix come into play (Corbin and Strauss, 2015b).

In this step the coding data is analysed, and different statements are categorised into themes that reflect the important research ideas. While coding, researchers may classify important text sections and add labels to list them as they relate to a subject or problem in the data (Nowell et al., 2017). According to O'Neill, Booth and Lamb (2018), coding in NVivo is identified as the process of collecting related content into a container called a node, and all references in the project are coded to the node. NVivo provides many types of codes such as theme nodes and codes describing the themes or topics contained in the data collected. Dollah, Abduh and Rosmaladewi (2017) clarified that a node is a virtual container that allows a researcher to collect content across sources to group items that are linked together. A case is related to a virtual space that represents research subjects, while coding is the action of assigning source content to a node or case.

For this study, after importing a total of 16 files as interview transcripts on NVivo, every speaker was given an individual file, and after assigning the files as cases, all of the data was checked for each interview question to produce the intimal nodes and progress the coding. Here the research actions, conditions, or consequences came into existence. Appendix (D.1) displays an example of this process.

By practising the process of coding and node creation, I designed approximately 70 nodes. I then tried to test how these nodes could be linked together, and the coding node information helped me to see how much coding was done on the database. Coding was also helpful in understanding the nodes' levels in terms of their importance, based on what the speakers said and who said more. For example, in the Students' Attitudes toward Accepting E-Learning as a Resource for Skills Development node, it was quite common to find that all of the speakers shared their ideas on it. However, some of the speakers (x-axis) gave out more information while others gave out less (y-axis). The results are illustrated in the figure below:

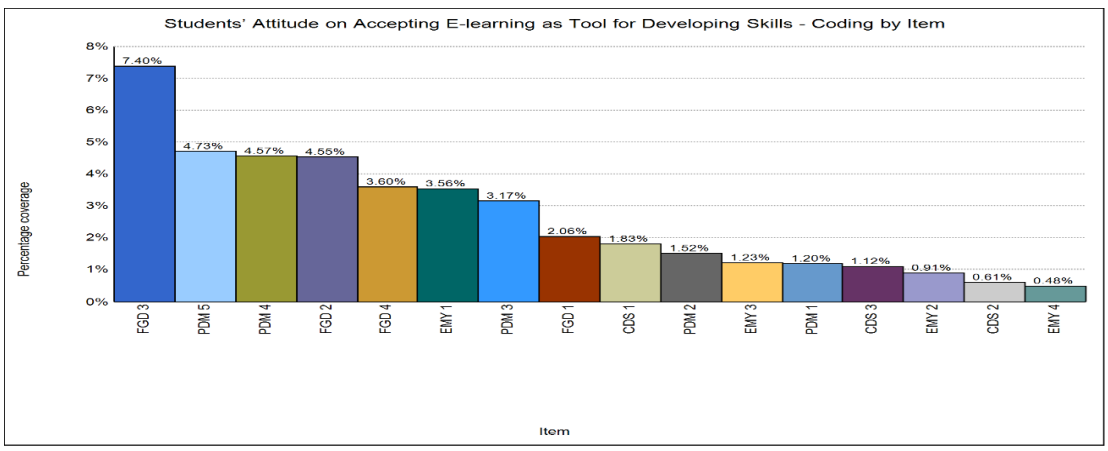


Figure 12: Students' Attitudes toward Accepting E-learning as a Resource for Skills Development.

In the Technology and New Technology Services for Skills Enhancement node, as shown in the chart below, I found that not all of the speakers (x-axis) said something about this node, but most of them (11 out of 16). This led me to think about the interviewees who did not appear on the chart and the reasons behind their disappearance. They might not have talked about it, or they might have said something that I coded in another node; if that was the case, it would be better to merge the similar nodes.

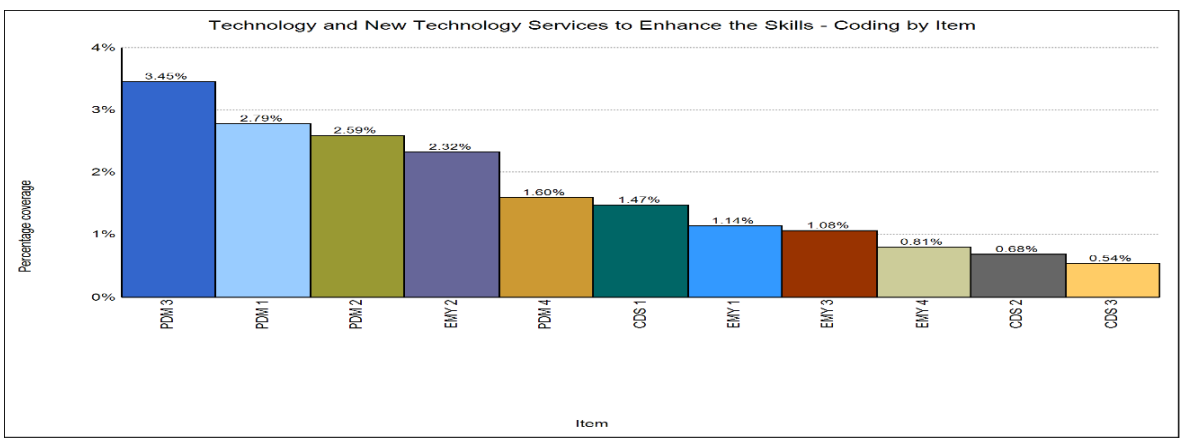


Figure 13: Technology and New Technology Services for Skills Enhancement

Another very important benefit of coding and creating nodes is to allow the researcher to generate a diagram to compare two cases and see what they have in common. For example, the node of CoT Link to the Labour Market and Other Organisations appeared as a command between college speakers (CDS 1,2, and 3), employers (EMY1,2,3 and 4), and policymakers (PDM1,2,3,4 and 5), all of whom talked about it. On the other hand, there was another node that could be identified in the same area talking about the limitations and the gaps between stakeholders which was only boosted by the employers and policymakers. Such diagrams encouraged me to reflect on the type of themes I strove to build; for example, these two nodes could be specified as the parent node. Coding to create cases and nodes also allows the researcher to think about the absence of some speakers. The example illustrated in the diagram below shows that there is no information about what the graduates said about these two nodes. The reason for the disappearance of the graduate participants was because these two terms belong to the other three participant samples (i.e., colleges, employers, and policymakers) as the people who possessed the required information on the link between colleges, the labour market, and other organisations. Furthermore, they could also identify the limitations and gaps between the stakeholders. As a result, the disappearance of graduates' interviewees was reasonable because this sample consisted of participants who were less exposed to such information.

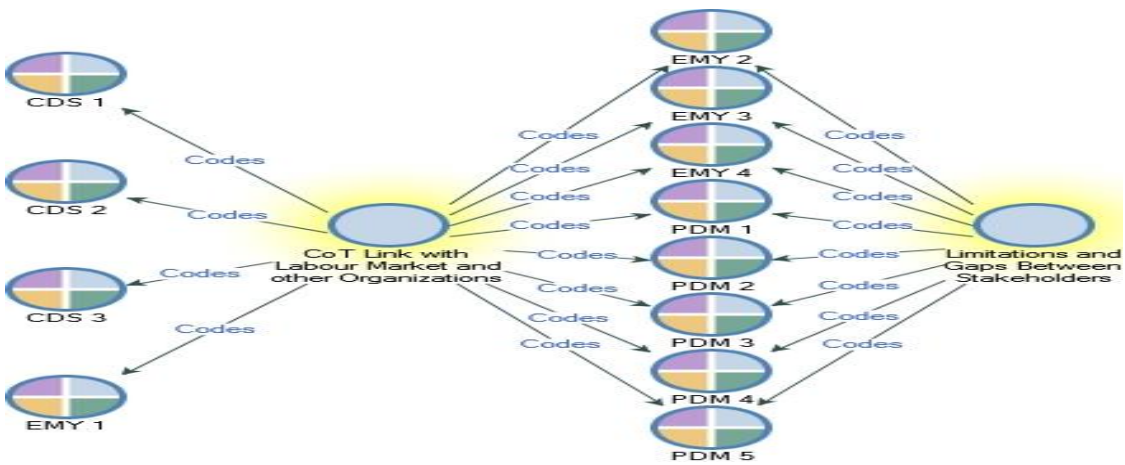


Figure 14: Comparing Two Nodes: CoT Link to Labour Market and Other Organisations, and the Limitations and Gaps between Stakeholders

After coding the interviews, I generated over 50 codes to describe the content of the data. This was helpful in understanding the data and in determining patterns or themes that were explored in the next step.

4.9.1.3. Searching for patterns or themes

In this step using Nvivo query exploring was very supportive in obtaining the patterns and themes. The use of word frequency queries lists the most frequently occurring words or concepts in study sources, and this helps to identify possible themes (O'Neill, Booth and Lamb, 2018). Such progress may take place in the middle, at the end, or even at the start of developing a project on NVivo. Therefore, the person can look at any selected file, node or folder, and the default word display will offer 1,000 words The user can change this number based on what he/she thinks will fit the project (NVivo 12 tutorial, 2018). QSR International on NVivo11 (2020) explains how in word frequency queries the recommended number for display can limit the number of words; for example, finding only the top 20 words and excluding small words, discovering only words with four letters or more, or counting exact words or expanding the word concept, such as counting the word or words with the same stem.

To discover the most frequently occurring words in this study, I used the word frequency query search to look at all database's nodes retrieving every single word and looked how often these words appeared. The search result laid out the top 20 words with three-letter word length and counting the same words. The findings of this query are as follows:

Word	Length	Count	Weighted Percentage (%)	Similar Words
skills	6	**311**	4.88	skill, skillful, skills
students'	9	**239**	3.75	student, students, students'
graduates	9	**163**	2.56	graduate, graduated, graduates, graduates', graduating, graduation
college	7	**144**	2.26	college, colleges
development	11	**118**	1.85	develop, developed, developing, development, developments
elearning	9	**94**	1.47	elearning
communication	13	**81**	1.27	communicate, communicated, communication,
training	8	**79**	1.24	train, trained, training
employment	10	**63**	0.99	employ, employability, employer, employers, employment
feedback	8	**56**	0.88	feedback
education	9	**53**	0.83	education, educational
writing	7	**51**	0.80	write, writing
english	7	**49**	0.77	english
market	6	**49**	0.77	market, marketing, markets
technology	10	**48**	0.75	technological, technology
future	6	**46**	0.72	future
labour	6	**40**	0.63	labour
teamwork	8	**40**	0.63	teamwork
requirements	12	**40**	0.63	require, required, requirement, requirements, requires
links	5	**36**	0.56	link, linked, links

Table 13: Top 20 words frequently occurring in the interview data.

Regarding the top 20 words in the table above, it is obvious that the word 'skills' came first, with E-learning ranked sixth. The word 'links' was ranked last, while other terms such

as ‘students’, ‘graduates’, ‘college’, ‘development’, ‘communication’, ‘training’, ‘employment’, ‘feedback’, ‘education’, ‘writing’, ‘English’, ‘market’, ‘technology’, ‘future’, ‘labour’, ‘teamwork’ and ‘requirements’ appeared in between.

To evaluate the outcome of the query search, running some other NVivo features, such as the word cloud, cluster analysis, and word tree, were also supportive in terms of making the result more accurate. The word cloud (see Appendix D.2) shows up to 20 words in different font sizes, where frequently occurring words are represented in larger fonts.

For a more expanded view, the cluster analysis was created to know more about the relation between the word search results. The cluster analysis diagram offers a graphical illustration of files or nodes to make it easy to see similarities and differences, and data or nodes that appear close together in the cluster analysis diagram are more similar to those that are far apart (QSR International on NVivo12, 2018). Dollah, Abduh and Rosmaladewi (2017) added that clustering words are illustrated to see the relationships among the most frequent words in documents. This assists in clarifying several features, such as the relationships and connections between data and limitations or gaps, hence identifying the analysis's primary themes.

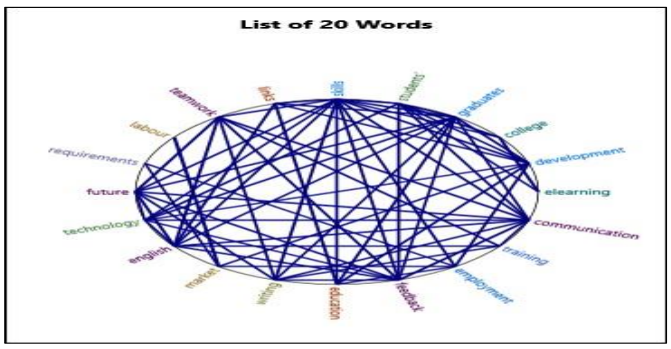


Figure 15: Clustering words to see the relationships among the most frequent words.

Moreover, the word tree analysis (see Appendix D.4) was used to display the results as a tree, with branches representing the various contexts in which the word or phrase occurs. This helped me to find recurring themes or phrases that surrounded each word. The word tree analysis showed everything belonging to the term ‘skills’ which provided a much better understanding of what the source had to say about skills, and how using such linked information in the research was beneficial.

The diagrams above clearly demonstrate the relationships among the most frequently occurring words in the codes and nodes. All of these graph results allowed me to be comfortable with what I had achieved in coding and node structuring. The obtained results

were significant and very close to the created nodes, which built my confidence in terms of moving to the next stage. Further, these analyses provided a very strong link with some of the encountered measures, such as having sufficient knowledge of the topic of my choice, the meaning of the research questions, and the relationship between the research questions and the problem under investigation. Consequently, I realised that some codes might become new themes, while others might become redundant. For example, skills and E-learning were described as parent themes, while students, graduates, and development could not be considered as independent themes and combined with parent or child themes.

4.9.1.4. Reviewing the themes

In this phase, the researcher needs to start recognising the nature or character of the themes. The researcher has to consider issues such as choosing the right name of the theme, its quality, its boundaries, the availability of sufficient data to support this theme, how diverse and wide-ranging it is, how the themes work with other sets, and finalising the thematic map (Braun and Clarke, 2011). In this research, the concepts were identified via coding, and this was useful in showing the initial patterns or themes which helped name them in the next step. When the number of categories that make up the final idea is reduced by overlap, category concepts can be mixed. Weaving begins with researchers indicating their interpretation of the main ideas or themes expressed in the information section on which they are working (Corbin and Strauss, 2015a).

The step took place after filtering the codes, removing conflicting, or overlapping data, and putting some of the codes into newly created identified themes. With the help of a mind map I was able to draw the proposed themes based on the content of the nodes. The first thematic map of the themes was then illustrated (see Appendix D.3).

4.9.1.5. Defining and naming themes:

According to Braun and Clarke (2011), the researcher needs to define the details of each theme, name and describe each theme, define the sub-themes, establish how many themes are necessary, apply analysis to the research question, and decide the order in which the themes are to be presented. Blandford (2016) explained that throughout step five the researcher must call and recognise each of the themes as mentioned in the preceding steps. The theme names should be descriptive and as engaging as possible; they should clarify what the theme is and whether the theme is of interest. Additionally, if

the researcher finds a theme too difficult or complex to make a clear statement, he/she may need to go back to step four and rework the themes.

Based on the words of Blandford (2016) and Braun and Clarke (2011), as well as Nvivo's different features in outlining these considerations, it was found that data analysis is the stage that gives the researcher the required outcomes that the study needs to achieve. To produce meaningful outcomes, the researcher must be objective when applying his/her knowledge, background, and experience to the data analysis, organising, and using the correct terminology for the problem under investigation. After reviewing the themes in the previous phase and with the help of a mind map (see Appendix D.3), it was required to merge some subthemes to themes or move some of the codes to an existing theme where they fitted better. The final list of the themes and subthemes was as follows:

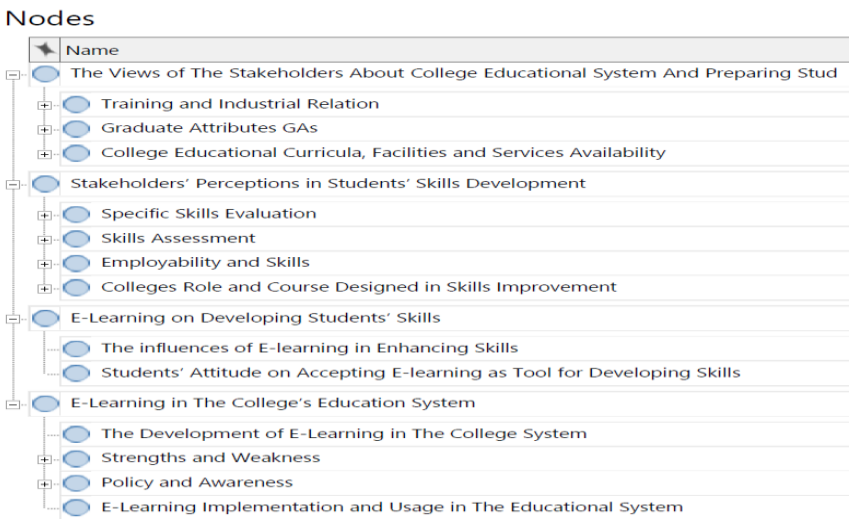


Table 14: The Final List of The Created Themes and Subthemes

The above table contains the final list of the themes that were presented in the analysis. These themes were also required in building the next phase of the data collection for the online survey. They were:

Theme 1: Stakeholders' perceptions of student skills development.

Theme 2: The views of the stakeholders about the college education system and preparing students for future work.

Theme 3: E-Learning in the college educational system.

Theme 4: E-Learning impact on developing students' skills.

After carefully reviewing and studying the relationship between the obtained data and the research aims, these themes were identified and constructed. All aspects in the following

chapter presenting the findings were addressed in relation to the explored themes and research questions; this aided in answering them.

4.9.1.6. Producing the report:

When writing up the findings, the reader will have enough information about the researcher's project and methodology to determine the quality of work. When the researcher presents his/her themes, he/she needs to incorporate examples from what the participants have said to illustrate the results (Blandford 2016). The write-up needs to do more than just provide data; the results need to be embedded within an analytic narrative that explains the story that the researcher is telling about the collected data in a compelling way. The research analytic narrative needs to go beyond the description of the data, and the researcher can make an argument in relation to the research question (Braun and Clarke, 2006). Blandford (2016) added that it might be a good idea to split the report into two parts: description of results and additional information about how the researcher performed the study and the full report. This will ensure that the work has validity and will give a good future guide when needed.

Implementing the ideas outlined by Blandford (2016) in the previous paragraph, when writing the report, I created two parts: part one included the findings of the qualitative phase of data collection (see Chapter Five for the discussion of the results) and part two detailed how this research was carried out in terms of the analysis, ass already explained in the previous sections of this chapter.

4.9.2. Descriptive and Association Analysis – Online Survey

According to Brace (2018), the questionnaire survey should be designed to achieve the overall objectives; the required information should be asked in a specific order for proper analysis and flow. Generally, questionnaire data collection and analysis have become increasingly cost-effective and can be designed and processed online. In addition, survey data can be analysed either manually or automatically by transferring raw data into an application such as Microsoft Excel or SPSS. Brace (2018) highlighted that nominal, ordinal, interval, and ratio data are used to measure responses. However, the questionnaire author needs to recognise which type of data is being collected for each question, as this will identify the type of analysis that can be carried out.

Descriptive analysis describes what individuals know of the issues related to capacities, needs, methods, practices, policies, populations, and environments. Descriptive analysis

can stand alone when it identifies patterns of data that have not previously been recognised (Loeb et al., 2017). Since the collected survey data includes different variables categorised as interval data, some nominal and other data needs to be created to compare the relationship between the groups' responses. Further, a descriptive and association analysis is a suitable way to carry out the analysis, as it helps answer questions about who, what, where, when, and to what extent.

In addition, the interval and the nominal data for the descriptive analysis require descriptive statistics; these include the dimension of central tendency, the mean which is the arithmetical verge of a number set, the dimension of desperation, and the standard deviation which is the amount of variation between data points. If the answers are close to the mean, it indicates that the sample group is homogenous and, if the answers are too different from each other, this indicates low homogeneity (Rubel, 2018a). In terms of selecting association analysis, it helps understand the relationship between two or more variables by comparing the difference among them (Rubel, 201b). This was needed in this phase of the analysis to check the results of the three groups involved in this stage.

One of the effective features of the "Jisc" online survey webpage is providing the results of the survey with analysis, including the mean; also, and there are options to export the results to different programmes or applications such as Excel, SPSS and PDF. For this research, it is recommended to use Microsoft Excel 365 as an efficient tool for analysing the information correctly and effectively, as it includes the initial analyses and the required elements such as charts, mean, and standard deviation (Emery, 2012). Thus, the survey questionnaires data collection results were exported from the online survey webpage to Excel sheets and analysed with a Microsoft Excel 365 PivotTable, which was very supportive in terms of giving a more accurate analysis for the second phase of the data collection. However, to be able to complete this task it was necessary for me to watch many Excel PivotTables online tutorials, which I found to be very useful, especially when creating the necessary graphical representations such as tables and charts. Emery (2017) described Excel as the winning tool, because pivot tables are the fastest way to make use of data, and certain features of Excel do not require any functions or formulas. Löfgren (2020) added creating a table from survey data using Excel techniques or pivot tables is more about testing, exploring, and solving problems.

Once all the data were gathered, the result findings and analyses from the survey questionnaire were discussed and linked with the themes generated in the first phase one of this research data collection. Gharani (2019) recommended the use of advanced chart

techniques in Excel for building reports, particularly those that are more difficult to create on a standard Excel chart and more time-consuming.

4.10. Validity and Reliability

According to Young (2019), validity is related to the respondents' readiness to answer each item truthfully, while reliability relates to how consistent the data are; for example, whether similar data would be obtained if a different sample from the same population were used with the same sample, and if different individuals belonging to the same group gave the same responses. Barcik (2016) says that reliability refers to how often the data collection techniques and research methods will reproduce consistent results if they are repeated in another field, or if they have been replicated by another researcher.

According to Morell and Tan (2009), quantitative validity may suggest test revisions or other aspects of the testing process and may indicate areas of further need. In qualitative research, however, the term validity is ambiguous without an agreed definition of the concept. Gibbs (2012) highlighted that testing the validity of the research quality can include two types of validation: internal and external. Internal validation is used if the available evidence reflects the reality under investigation and the research obtained supports the claims. These can be treated by matching up the results to the reality and establishing if they are measuring the true history of what exists. External validation, on the other hand, is related to the relevance of the results and goes beyond the investigation. This can be treated through the type of the selected participants, the processes used, the experience of the participants, and the construct effects.

Regarding validity, it is often derived from external support such as previous research, and statistics and it is critical to provide evidence that supports the interpretation of the test scores (Soiferman, 2010). The participants, the researcher, and the reader are all involved (Creswell and Clark, 2007). In addition, accuracy is required for a study drawing from a variety of methods including member checks (i.e., participants review their comments) and the use of multiple sources to verify a theme. In short, quantitative research is always valid and deductive, whereas qualitative research is always inductive and exploratory (Trochim, 2006).

In terms of reliability, Barcik (2016) cautioned that reliability can be affected by participant error which negatively influences the way in which a participant performs, participant bias which produces false responses, research error which affects the researcher's

interpretation, and research bias which indicates bias in the researcher's recording of the responses.

The use of a questionnaire to gather data for a survey needs to demonstrate that the results would be the same, irrespective of how or when it was conducted, which provides validity that responses would be similar for other random groups (Gorman and Clayton, 2005). In terms of the reliability and validity of a questionnaire, Brace (2018) highlighted that reliability and validity are two crucial tests of a questionnaire. If it provides a consistent distribution of responses from the same survey universe each time, a questionnaire is reliable, whereas the validity of the questionnaire depends on whether it measures what the researcher wants it to define. Further, Gorman and Clayton (2005), explained that validity leads to reliability so that the method may be repeated and as a consequence of these findings.

Regarding the interviews of this research, validity and reliability were fulfilled by following the advice of an academic supervisor and an external expert in HE in Oman in terms of the type of questions and conducting the interviews with experienced individuals knowledgeable in the field of employability, education, and E-learning implementation. The points which were taken into consideration included choosing the proper date, time and place for the interviews to avoid any participant error or bias, not conducting more than one, two or three interviews, and trying to be more objective when recording the interviews, so as to avoid any research error and bias.

For the survey, I adopted the structure of previous surveys carried out by other researchers, and took advice from my academic supervisor, an expert, and my peers. This included sourcing some 'duplicate' questions that were phrased slightly differently to test the internal reliability of the participants' responses as well as the written style, layout, and distribution. Furthermore, I conducted a pilot survey to identify ways to improve the questionnaire and improve the approach of the survey prior to its distribution through the selected website. Brace (2018) explained that piloting a questionnaire is a very helpful method for determining reliability, validity, and testing for errors. The researcher must ask whether the questions are good enough to be used in a survey, so questionnaires should be tested to ensure there are no errors in them and can be completed in a very short time. Moreover, the questions can be given twice to the same sample of test participants to determine whether or not they provide consistent responses (Brace, 2018).

4.11. Ethical Considerations

The research interview questions, online survey questionnaire, information sheet, and consent form were shared with the participants after obtaining the ethical approval from the College of Business, Arts and Social Sciences Research Ethics Committee (CBASS) at Brunel University London (see Appendix C). Since the research participants were considered volunteers, they were able to withdraw from the questionnaire and the interview process without prior notice. Furthermore, they were assured that the information and data collected from the survey questionnaire and interviews would be kept fully confidential. The participants were requested to be interviewed via email or phone, and the online survey participants were invited in an email sent to the respective CoT by the Academic Affairs Department in the Directorate of Technical Education at the MoM in Oman.

4.12. Confidentiality

All information and data collected during the semi structured interviews and in the survey were kept confidential and anonymized. The information and data were stored in the Brunel University server, while another two password-protected copies were stored in my laptop and an external hard disk. All these information and data will be destroyed when no longer required.

4.13. Summary

This chapter discussed the various facets of the research methodology and explained the rationale behind the adoption of specific research methods and techniques, challenges, and data analysis, in addition to the tools used for validity and reliability, the research data collection process, ethical considerations, confidentiality. The following chapter will present the findings drawn from the data

Chapter 5: Findings

5.1. Findings of the Analysed Data

The purpose of this chapter is to present all the data gained from the interviews and the survey. The stakeholders' perceptions of the identified topics will be displayed and explored to provide insight into the questions raised in this research. The responses will be used to illustrate their views on student skills development, the college education system, and the role of E-learning in developing student skills.

The findings of this chapter will be presented according to the research questions. The analysed data extracted from the interviews and the survey were categorised into four themes built in the first stage of the data analysis and used in the second data collection phase. The discussion of the results will be presented in two parts: the first part will cover the topics related to developing skills and the education system, while the second part will cover those factors and variables related to E-learning. This structure helped me to put all the information together; I could use the implications of these findings to organise the chapter to answer the main research questions and link them to the relevant literature.

Before presenting the findings according to theme, a summary of the background of the participants will be provided in Section 5.2 to present the demographic data (i.e., age, gender, qualification, and work experience). However, I wish to clarify that I did not analyse the demographic data in terms of differences between groups or participants, because the aim of the study was not to examine the perception of gender differences in each age group or any other similar term; rather, the aim was to acknowledge that the participants were familiar with the research topic and the elements under investigation.

5.2. Demographic Data from the Interviews and the Survey

The aim of this part is to present the demographic data findings from the analysed interview transcripts and the survey answers. Sections 5.2.1. and 5.2.2. include the data presentation and results from the interviews and the survey.

5.2.1. Demographic Data of the Interviewees

In this section, the data extracted from the interviews is presented and analysed. Table 13 displays the information the 16 respondents shared with me:

Speaker Code	Job Title	Gender	Age grouping	Qualification	Years of Experience	Organization Field
EMY 1	HR Manager	F	25-30	Bachelor	5	Banking
EMY 2	HR Expert	M	51 above	PhD	25	Engineering EHS
EMY 3	LR Manager	M	46-50	MSc	20	Gas and Oil
EMY 4	HR Expert	M	41-45	MSc	18	IT Engineering and Telecom
FGD 1	Sales Marketer	F	19-24	Bachelor in Bus	3 months	Banking
FGD 2	Mechanical Technician	M	25-30	Bachelor in Eng.	6 months	Engineering EHS
FGD 3	Operations Technician	M	25-30	Bachelor in Eng.	9 months	Gas and Oil
FGD 4	IT Technician	M	25-30	Bachelor in IT	6 months	IT, Engineering and Telecom
CDS 1	College Deanship	M	46-50	PhD	18	HE
CDS 2	College Deanship	M	51 above	PhD	28	HE
CDS 3	College Deanship	M	36-40	MSc	13	HE
PDM 1	DG	M	41-45	MSc	13	Civil Services and Employability
PDM 2	DG	F	46-50	MSc	18	Manpower Services
PDM 3	Expert	M	46-50	MSc	19	HE
PDM 4	DG Deputy	M	46-50	MSc	15	HE
PDM 5	Expert	M	51 above	MSc	27	Country Planning

Table 15: The interviewees Demographic Data

Starting with the respondents' profiles in terms of gender, the table above shows that most of them were male, which accounted for 13 of the total sample, while females only accounted for three. This could be because men outnumber women in Oman's labour force. In terms of age, one of the 16 interviewees was aged between 19 and 24, four were aged between 25 and 30, one was aged between 36 and 45, two were aged between 41 and 45, five were aged between 46 and 50, and three were aged above 51. However, the aim of this study was not to analyse gender or age grouping differences; the gender-specific perceptions of each age group were also not of concern.

The table above shows that all individuals who participated in the interviews were well-educated; more than half held a postgraduate PhD or MSc (11 participants), while the other five participants were university graduates. Thus, the participants' overall level of education supported the study's required information, as all of them had completed HE and were expected to have a good idea about the objectives of this research.

In terms of the participants' job descriptions and level of seniority, all of them met the requirement of the study sample. The selected employers, the policy and decision makers in the government, and the education body members were senior managers or high-level experts in the field, with work experience of five to 27 years. The selected graduates also met the requirements of the study as new employees with work experience of three to 12 months.

The last area covers the type of work. I attempted to cover diverse roles in the fields of engineering, environmental health, and safety (EHS), banking, oil and gas, IT, engineering and telecommunications, HE, manpower services, learning resource (LR), country planning, civil services, HR, and employability. This allowed me to achieve generally equal interpretations of knowledge depending on the areas of job duties and goals.

Upon closing this section, A brief overview of the three participating CoT as outlined by the college management included information about the mandatory foundation year (English language) for all students as well as diploma, advanced diploma, and BTech levels in in the departments of engineering, business studies, and information technology. The three colleges featuring in this study have an active student population of 12,172 students and 926 academic and 360 non-academic staff. About 700 to 900 students in various specialisations graduate from each college every year. In 2019, the CoT approved an updated mission and vision statement and a list of GAs, as discussed earlier in Sub-section 2.3.1. on pages 41 of Chapter 2.

The above information was very helpful in understanding the education system, which is the same across all seven colleges. It describes their different fields of education leading up to three different degrees. The colleges' commitment to enhancing the education system is evident in their updated vision and mission statements and GAs list. These efforts reflect positivity in terms of sorting many factors in the college education system, some of which indicate the successful factors while others recognise the challenges that the colleges are facing at present.

5.2.2. Demographic Data of the Survey Participants

According to Schraer (2017), it is not easy to deal with survey data, because the amount of original data gained from surveys is large. It takes a long time to analyse large amounts of data, so it is useful to separate the elements to be examined and those that have relationships with each other. For this part of the research, I chose to divide the elements of demographic data of the students and staff based on the relationship between the items. For example, I collected the gender and age data of the students in one table, and the student department and study level data in another table, in addition to one separate table for the staff data.

- **Demographic Data of the Students**

Gender and Age Grouping	Female			Female Total	Male			Male Total	Grand Total
College Code	19-22	23-26	31 above		19-22	23-26	31 above		
C1	41	28		69	15	15	2	32	101
C2	10	3		13	7	1		8	21
C3	8	1		9	9	5		14	23
C4	27	15	2	44	16	5	2	23	67
C5	21	5	1	27	22	9		31	58
Grand Total	107	52	3	162	69	35	4	108	270
	40%	19%	1%	60%	26%	13%	1%	40%	100%

Table 16: The Age and Gender Grouping of the Students Participants

The above table shows that the 60% of the responses were from females, while 40% were from males. Most participants (66%) were within the age range of 19 to 22, while 32% of them were between 23 and 26, with the remaining 2%, which is the lowest rate, being 31 or above.

College Code and Student Department	Department of Study: Bachelor	Advanced Diploma	Diploma Second Year	Diploma First Year	Foundation Year	Grand Total
C1	**35**	**26**	**19**	**16**	**5**	**101**
Engineering	15	11	9	3		38
Information Technology	14	9	8	5	2	38
Business Studies	6	6	2	8		22
English Language Center					3	3
C2	**6**	**4**	**5**	**6**	**2**	**23**
Engineering	4	2	3	2	1	12
Information Technology	1		1	2		4
Business Studies	1	2	1	2		6
English Language Center					1	1
C3	**1**	**6**	**2**	**8**	**4**	**21**
Engineering		2	1	2	1	6
Information Technology	1	1		4		6
Business Studies		3	1	1	2	7
English Language Center				1	1	2
C4	**23**	**18**	**14**	**7**	**5**	**67**
Engineering	5	5	5	1	2	18
Information Technology	8	7		1		16
Business Studies	10	6	9	5		30
English Language Center					3	3
C5	**19**	**7**	**12**	**12**	**8**	**58**
Engineering	12	5	5	7	2	31
Information Technology	2	1	6	1	1	11
Business Studies	5		1	4		10
English Language Center		1			5	6
Grand Total	**84**	**61**	**52**	**49**	**24**	**270**
Total	**31%**	**23%**	**19%**	**18%**	**9%**	**100%**

Table 17: Department and Study Level of the Students Participants

In terms of the field of the study, the above table shows that this research study featured student participants from all academic departments across five colleges, and these departments covered different fields of study (i.e., engineering, IT, business studies, and English language). As shown in the above table, the response rates were as follows: bachelor – 31%; advanced diploma – 32%; diploma second year – 19%; diploma first year – 18%; and foundation year – 9%.

The responses from the 270 students from the five participating colleges covered various data factors such as gender, age, level of education, and study department.

However, for the purposes of this study I did not analyse gender or age grouping differences. Both tables display the fact that all categories of students were covered in terms of the data factors. The data shared above demonstrates that the responses cover all types of students across the five colleges. These types of variations were intended to confirm the trustworthiness of this research.

- **Demographic Data of the Staff**

Gender and Age Grouping	Female						Female Total	Male						Male Total	Grand Total
College Code	25-30	31-35	36-40	41-45	46-50	51 above		25-30	31-35	36-40	41-45	46-50	51 above		
C1	1	4	3	6	6	5	25		6	14	17	9	7	53	78
C2	3	1	2	5	3	1	15	1	1	6	6	4	4	22	37
C3	1	3	3	2	1	1	11		2	8	5	1	3	19	30
C4		3	6	4	4	7	24	1	6	14	14	11	6	52	76
C5		1	4	4	3	1	13	1	2	10	16	8	4	41	54
Grand Total	5	12	18	21	17	15	88	3	17	52	58	33	24	187	275
	2%	4%	7%	8%	6%	5%	32%	1%	6%	19%	21%	12%	9%	68%	100%

Table 18: Age and Gender Grouping of the Staff Participants

The above table displays that most respondents were male, with 187 responses, which accounted for 68% of the sample, while females only accounted for 32% of the total sample, with 88 responses. Out of a total of 275 respondents, 29 were aged between 31 and 35, which accounted for 10% of the whole sample; 70 respondents (26%) were aged between 36 and 40; 79 respondents (29%) between 41 and 45; 50 respondents (18%) between 46 and 50; 39 respondents (14%) above 50; and eight respondents (3%) between 25 and 30.

And as shown in the table on the next page, the survey received responses from almost all college departments: engineering, IT, business studies, English language, and educational technology. Most respondents were lecturers, with 245 responses, which accounted for 89% of the sample, while E-Learning Coordinators and Technical Support only accounted for 11% of the total sample, with 30 responses.

	Staff Job			
College Code	Lecturer	E-Learning Coordinator	E-Learning Technical Support	Grand Total
C1	**64**	**3**	**11**	**78**
Engineering	14	1		15
Information Technology	23			23
Business Studies	18			18
English Language Center	9			9
Educational Technology Centre		2	11	13
C2	**35**		**2**	**37**
Engineering	21			21
Information Technology	4		1	5
Business Studies	6			6
English Language Center	4			4
Educational Technology Centre			1	1
C3	**25**	**1**	**4**	**30**
Engineering	2		1	3
Business Studies	5			5
English Language Center	18	1		19
Educational Technology Centre			3	3
C4	**70**	**1**	**5**	**76**
Engineering	19		1	20
Information Technology	22			22
Business Studies	15			15
English Language Center	14			14
Educational Technology Centre		1	4	5
C5	**51**	**1**	**2**	**54**
Engineering	11			11
Information Technology	5			5
Business Studies	32		1	33
English Language Center	3			3
Educational Technology Centre		1	1	2
Grand Total	**245**	**6**	**24**	**275**
Total	**89%**	**2%**	**9%**	**100%**

Table 19: Job Title and Department of the Staff Participants

Regarding the level of study of the respondents, the following table shows that most of the respondents who took the survey questionnaire were well educated, with 95 PhD degree holders, 157 master's degree holders, and 21 bachelor's degree holders, while two participants had other qualifications. In terms of years of work experience, ten or more years ranked highest with 83% which accounted for over 229 responses; less than ten years with 10% accounted for over 27 responses; 12 respondents (4%) had five years or more work experience; and just seven participants had less than five years work experience, which accounted for only 3% of the total sample.

	Staff Year of Work Experience				
College Code	10 or more	Less than 10	5 or more	Less than 5	Grand Total
C1	**66**	**7**	**3**	**2**	**78**
PhD	19		1		20
Master Degree	39	6	1	1	47
Bachelor	8	1	1	1	11
C2	**32**	**1**	**2**	**2**	**37**
PhD	17	1		1	19
Master Degree	13		2		15
Bachelor	2			1	3
C3	**22**	**6**	**1**	**1**	**30**
PhD	4				4
Master Degree	16	6		1	23
Bachelor	2		1		3
C4	**62**	**7**	**5**	**2**	**76**
PhD	24	2	2	2	30
Master Degree	33	5	3		41
Bachelor	4				4
Other	1				1
C5	**47**	**6**	**1**		**54**
PhD	21	1			22
Master Degree	26	4	1		31
Other		1			1
Grand Total	**229**	**27**	**12**	**7**	**275**
Total	**83%**	**10%**	**4%**	**3%**	**100%**

Table 20: Qualifications and Years of Work Experience of the Staff Participants

Upon closing this section, the tables show that the staff responses received from the five colleges covered different backgrounds in terms of department, job description, qualifications, years of work experience, age grouping, and gender. However, for the purposes of this study, gender or age grouping differences were not analysed, as mentioned earlier. It is clear from this data that the respondents represented diverse backgrounds in terms of all the given factors. This list of differences in the profiles of the academic staff, E-learning coordinators, and technical support staff were meant to lend credibility to the results of this study. Based on their background profile information, the participants were selected to ensure that they had the required knowledge and information about this study subject and could be included in the survey.

5.3. Findings – Part One

In this part of the report, the findings from the analysed interviews and surveys were presented and grouped into themes. This was to ensure that the analyses of all the data collected included the first two subsequential questions that could be categorised under

the respective themes (see Section 4.9.1.5. in the previous chapter). The two themes were student skills development and the role of the college education system in developing student skills.

5.3.1. Findings of Theme (1): Stakeholders' Perceptions of Students' Skills Development.

This theme aimed to operate the first subsequential question**: What are stakeholders' perceptions about student skills and the need of the labour market?**

This theme also features several different aspects of student and graduate skills which include the colleges' ways of assessing lifelong learning skills, the specific modules or courses designed to improve student skills for work, students gaining skills during their studies, graduates lacking and owning certain skills, the skills needed by employers, and the assessment of communication, teamwork, time management, ability to work under pressure, and English writing skills. This part required more involvement from the interviewees. The information they provided helped open a window to create the required questions for the second category on the students and staff.

Therefore, in the next section the results of the findings from the interviewees will be presented, taken from the survey result, and covering the same variables. The survey questions were created as a set of mixed questions under the same files. For example, all skills variables such as general evaluation, lacking or owning skills, and employability skills, were structured as part of one set of questions and were linked to the GAs to enhance student skills.

Participants' Perceptions

5.3.1.1. General Skills Evaluation:

This part involved the college management and graduate participants, as these two categories included those people who either work on creating the plans for meeting the student skills development goals, or because they practiced skills development during their course of study. The results of the assessment of the student and graduate skills included the following points:

CDS interviewees indicated that the student's lifelong learning skills are assessed in various ways and are determined by Oman's college system. The colleges offer different

levels of study, from diploma to bachelor's degree. This system prepares the students to maintain skills obtained from a prior level and develop them further, while also acquiring new skills. Their ability to cope with the demands of the current level demonstrates how well they have implemented the learned skills and built on them. All courses include assessments such as research and self-study practising, which allows the course tutors to evaluate the students' lifelong learning skills. Also, part of their learning is to adopt the values of reading, teamwork, cooperation, management of time, facing challenges, and the like. However, follow-up studies on graduates showed that some graduates choose to work in fields other than their specialization, which can be attributed to the various skills they have learned and developed in the process.

Regarding the specific modules or courses designed to improve student skills, none of the participants mentioned a specific name of a course or module that focused on student skills improvement. However, they highlighted the following courses: OJT, entrepreneurship, technical writing, communication modules such as health and safety at work, work ethics, and short courses in communication (e.g., mock job interview and CV writing).

The **FGD** interviewees responded positively to this part. They have received some training, courses, or other assistance in improving their skills during their study time and mentioned the following:

- English language and IT (outside their course programme).
- CV writing and teamwork
- College culture – Teamwork skills will help increase cooperation among students and may include male and female students joining the same workgroup. This enables students to be more confident and professional in their dealings and sharing of ideas.
- Non-academic activities (extra-curricular)

Interviewee **FGD3** raised some issues, one of which was that some of the courses outside their field of study are not that advanced. However, the labour market needs a more advanced level of certain skills such as office management. Interviewee **FGD1** was very satisfied with the participation in non-academic activities and student groups, as shown in the following statement:

‘Besides academia, by joining the non-academic activities and by presenting events such as the graduation ceremony, I have built up my communicative abilities. This training gave me more credit and skills in interaction. During that time, I did not think of this as an activity to improve my skills. I can say that the skills have evolved through practice and the college’s support.’

5.3.1.2. Specific Skills Evaluation

The aim of this part was to cover all the students’ and graduates’ points of view in terms of lacking and possessing certain skills, and to evaluate their skills as detailed in Chapter 1 on page 22-25 which are communication, teamwork, time management, ability to work under pressure, computing, and English writing.

In terms of evaluating specific skills, such as the students and graduates lacking and owning skills, the interviewed **EMY** stated that fresh graduates need improvement in skills such as communication, email writing, interaction skills, computing, and English writing. **EMY3** shared that these young employees lack certain skills; for example, employers expect to see more developed teamwork skills from graduates.

PDM interviewee added that students need specific skills or GAs for jobs, and that fresh graduates still need to improve their IT literacy, communication, and English language skills, in addition to other required soft and interpersonal skills. They explained that some studies highlighted these issues as part of recommending improvements to the current education system. The participants’ opinions are reflected in the following statements:

PDM1: Right now, our ministry is in the process of creating a project which aims to create an inventory of the competencies for employability. The current system we have describes and highlights the duties and responsibilities, needed skills, and other required conditions to obtain any job. Now we are working to add the GAs into that project, and I believe that will help with obtaining good results for HEIs in the future. And we always highlight with other partners the requirements of the labour market.

PDM2: We have some indicators from the database based on some specific job or report requirements. But in terms of a study which belongs to us, we don’t have one.

PDM3: Through the workshops, we were a part of giving some recommendations in studies that have highlighted the lack of skills such as IT literacy, communication,

and English language skills, which are the basic skills needed in the labour market.

PDM4: In this matter we did a study which targeted the graduates themselves. And we asked them to evaluate their skills to see what skills they are lacking.

PDM5: We don't have our own studies about the specific skills that are needed by the labour market, but we are a partner in discussion studies done by other organisations.

It was equally important to know what the **FGD** participants had to say about the specific skills they lacked and the skills they possessed. Table 21 summarises their points of self-evaluation:

Code	Skills Owned	Skills Lacked
FGD 1	Communication, Self-Confidence	Body Language, Eye Contact, Speed
FGD 2	Communication, Hand Tools	Time Management, Self-Confidence
FGD 3	Leadership, Teamwork	Communication, Time Management
FGD 4	Computing Skills, Teamwork	Communication

***Table 21*:** Gradates Interviewees Self-Evaluation of Own Skills

Focusing on student skills and the interviewees' perceptions of them, the following part will cover the evaluation of communication, teamwork, time management, ability to work under pressure, and English writing skills. The participants were asked to evaluate their own skills, and the results obtained are detailed below in Table 22 which shows how the **FGD** interviewees evaluated their skills:

Skill / Code	Communication	Teamwork	Time Management	Ability To, Work Under Pressure	English Writing
FGD 1	Excellent	Excellent	Excellent	Good	Good
FGD 2	Satisfactory	Very Good	Good	Good	Satisfactory
FGD 3	Weak	Very Good	Satisfactory	Very Good	Weak
FGD 4	Good	Very Good	Very Good	Good	Good

Table 22: Gradates Interviewees Evaluated Themselves in This Research Addressed Skills

The experience of the **CDS** interviewees in evaluating students and graduates' communication, teamwork, time management, ability to work under pressure, and English writing skills are summarised in the following points:

- The college system evaluates graduate skills through varied types of assessments provided in the different courses. For example, to assess students' communication skills, some courses include a presentation component. In other courses, mini projects allow the course tutors to evaluate students' teamwork and time-management skills, including working under pressure.

- Technical writing and business communication courses have very good rubrics to determine and evaluate students' English communication and writing skills.

- Aside from OJT, all students are also required to complete the student course project before they graduate. This course allows for the determination and evaluation of student skills before they graduate, as they need to conceptualize and produce a project and present it before a panel.
- Feedback from industry, exam, feedback from staff, project demonstrations and events and activities organized by the students are helping in the evaluation of student skills.
- The statement given by CDS2:

'According to my experience and teacher's experience, graduates' skills such as communication are evaluated through students' skills in speaking, comprehending [comprehension], and writing. Also, when students work together for a project or assignment, we can assume that they work together as [a] team and are able to be managed working under pressure due to time constraints and meeting the deadline.'

The table below outlines the **EMY** interviewees evaluation and assessment of these skills:

Interviewee	*Communication*	*Teamwork*	*Time Management*	*Ability to Work under Pressure*	*English Writing*
EMY 1	Via discussion, either face-to-face or email.	Involve them in projects; assign them tasks; evaluate their competence and contribution.	Assess their work hours and discipline in deadline work.	The company provides services 24/7, so this skill is recognised as a priority for new employees; they must know how to organise their duties; they are welcome to ask for help and guidance from their workmates.	Request new graduate employees to write in English and Arabic; they are asked to record meeting minutes to enhance their writing skills.
EMY 2	Acceptable; not excellent.	Good.	Very good; the employer offers flexitime.	Not initially, comes with time and experience.	50%
EMY 3	From their performance in interviews and presentations.	Ask them questions related to real life experience, explain their role in a team.	Asked during the behaviour interview; how the employee delivered a tight deadline.	Ask about a tight deadline for submitting a job; discover from the response how the individual acts under pressure.	Conduct own English test to assesses their English skills.
EMY 4	Via interaction and communication with the company's customers.	A critical skill that produces good value for the customers; new employees need to offer better solutions, better discussions, more openness, and share their ideas with their team.	A component of attendance; fixed 9-hour attendance system; flexible hours upon approval.	A part of company routine; new employees are given many tasks at once to see if they can work under pressure.	New employees must pass the English exam.

Table 23: Employers' Evaluation of Graduate Skills

According to their work experience, the **PDM** interviewees evaluated the above-named graduate and student skills by outlining the following points:

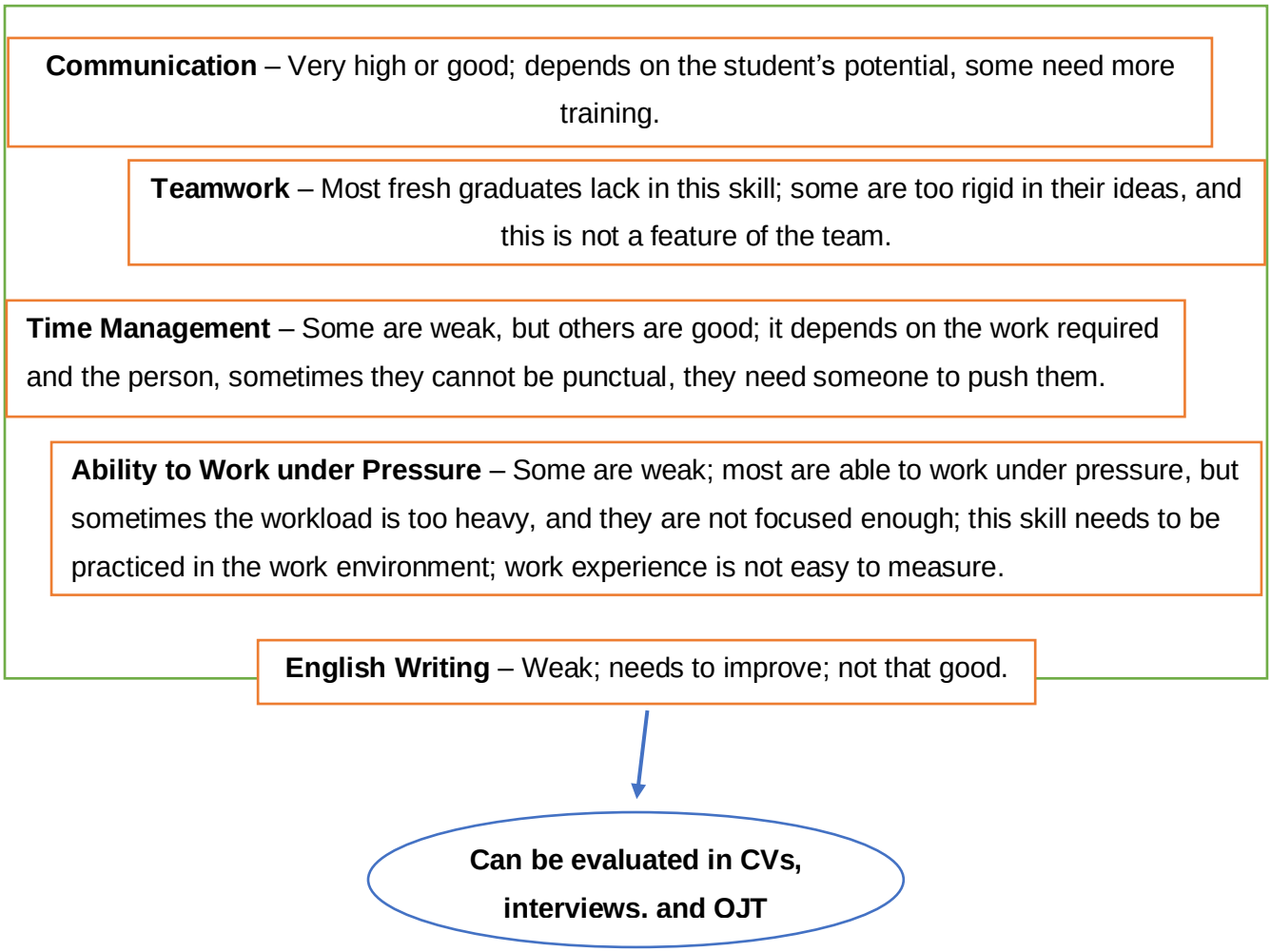


Figure 16: Policy and Decision Makers Interviewees Evaluated Graduates Addressed Skills

5.3.1.3. Employability and Skills

One of the elements explored in this part was the organisations' involvement in terms of the colleges engaging with the labour market. This exchange of information is needed to match the graduates' skills with and the employers' needs. These different engagements are reflected in the following points highlighted by the **CDS** interviewees:

- Employers and organisations are invited to attend college workshops and develop strategic plan elements including graduate skills/attributes.

- Periodic dialogue between employers and organisations to adjust graduate skills to labour market needs.
- Organising recruitment activities.
- Developing a benchmarking process
- Organising gest lectures
- Facilitating industrial visits.
- Offering OJT for the students.

The **FGD** interviewees talked about different aspects of this subtheme. For example, **FGD4** pointed out that the awareness of the labour market during students' study time needs to improve, as they are not happy about it. Also, three of four interviewees believed that the college impact on preparing students for their future jobs is limited to the available resources and services. However, most students need properly guided in using the available services and resources in terms of developing their future job skills. Often, it is left to the students themselves to acquire additional skills, for example, by joining non-academic activities and groups. Further, the students' often directed attention is towards scoring high marks. In addition, the interviewees suggested that the colleges should include more outdoor courses and workshops to support skills improvement and development and updating the course materials to link the field of study closely to the required employability skills.

In this respect, interviewee **FGD4** pointed out that the college impact needs to improve. When graduates join the work environment, they have no clear idea of the policies and products involved; for instance, the procedures that need to be followed when requiring specific items or approvals, the proper channels need to be followed when writing a request or email. In this case, they need to have good communication and writing skills. However, not all graduates have acquired these skills. **FGD1** commented on a more positive note, 'I have seen from my experience how the college is adopting talents and encouraging the creativity of students.'

The above result indicates that the college has a visible impact on preparing students for their future jobs. Students should use every opportunity and resource available to improve their interpersonal skills. Furthermore, the college can play a significant role in providing the students with more encouragement and support.

Another element in this part was testing the employability skills the graduates required for work, as reflected in the interviews with the employers. The table below shows the results of the employers' ways of assessing the skills of fresh graduates. The **EMY** participants have similar criteria in evaluating the graduates' knowledge and skills but differ in terms of sequence.

	EMY 1	***EMY 2***	***EMY 3***	***EMY 4***
Stage 1	Interview	Interview	GPA	Interview
Stage 2	Graduation Project	Test	English And Ability Test	Presentation
Stage 3	Preferences	Program in Field	Technical Interview	English Test
Stage 4	Different Tasks in The Company Work	GPA	Behaviour Interview	GPA

Table 24: EMY Stages of Evaluating Fresh Graduates' Knowledge and Skills

The **FGDs** added various points with regards to the training offered to fresh graduate employees to develop their skills. The **FGDs** agreed that different types of training are offered by employers according to the rules in each place of work. For example, in the first three to six months employers put in place programmes to familiarise new employees with the work of other departments, the jobs and duties, and their job scope as stated in the contract. This helps the new employee to get a clear idea of the company structure and workflow. Also offered are job-specific courses and workshops in financial language, the use of hand tools, assembly, piping, and IT support, in addition to general courses in office communication, English language, physics, chemistry, and math. Some places of work also offer regular E-learning courses in different fields. New employees are thus able to get further instruction according to their needs. This is reflected in the following statements made by the interviewed **FGDs**:

FGD2*:* I just finished a one-week workshop on knowing the work of other departments and what are the jobs and duties of these departments.

FGD3: My employer gave me two types of course training this month, which involved dealing with one-line tasks.

FGD4: The company offered me three months of training on the different tasks done throughout the business and its various departments.

In terms of the skills needed in the labour market, the **EMY** participants said that the general skills required by organisations are communication, computing, English language, behaviour or other personal skills, problem solving, teamwork, email writing, and interaction. When evaluating the knowledge and skills of fresh graduate employees, employers test whether they have the skills required for the assigned job. The interviewed employers have similar evaluation criteria but address them in a different order when it comes to training.

When it comes to deciding whether fresh graduates possess the required skills, the employers offer different types of training for new employees to evaluate them.

Employer	***Programme offering***	***Includes***
EMY 1	Three months training	Courses on general job skills: • communication • using proper software tools • instructions on writing emails
EMY 2	First three months training course	Course on specific job areas to help the new graduate employee and the company to see how this person needs to improve.
EMY 3	Four to five years development programme	No structured programme: each discipline organises their own (e.g., HR, finance, engineering, operations).
EMY 4	First three months	As a process in the company: • For the first two weeks the company will send the new employee for training overseas • Further training in E-learning channels, with 25,000 courses available. • Two weeks of in-house training in different departments including HR, finance, and enterprise.

Table 25: Types of Training for New Employees Offer by EMY

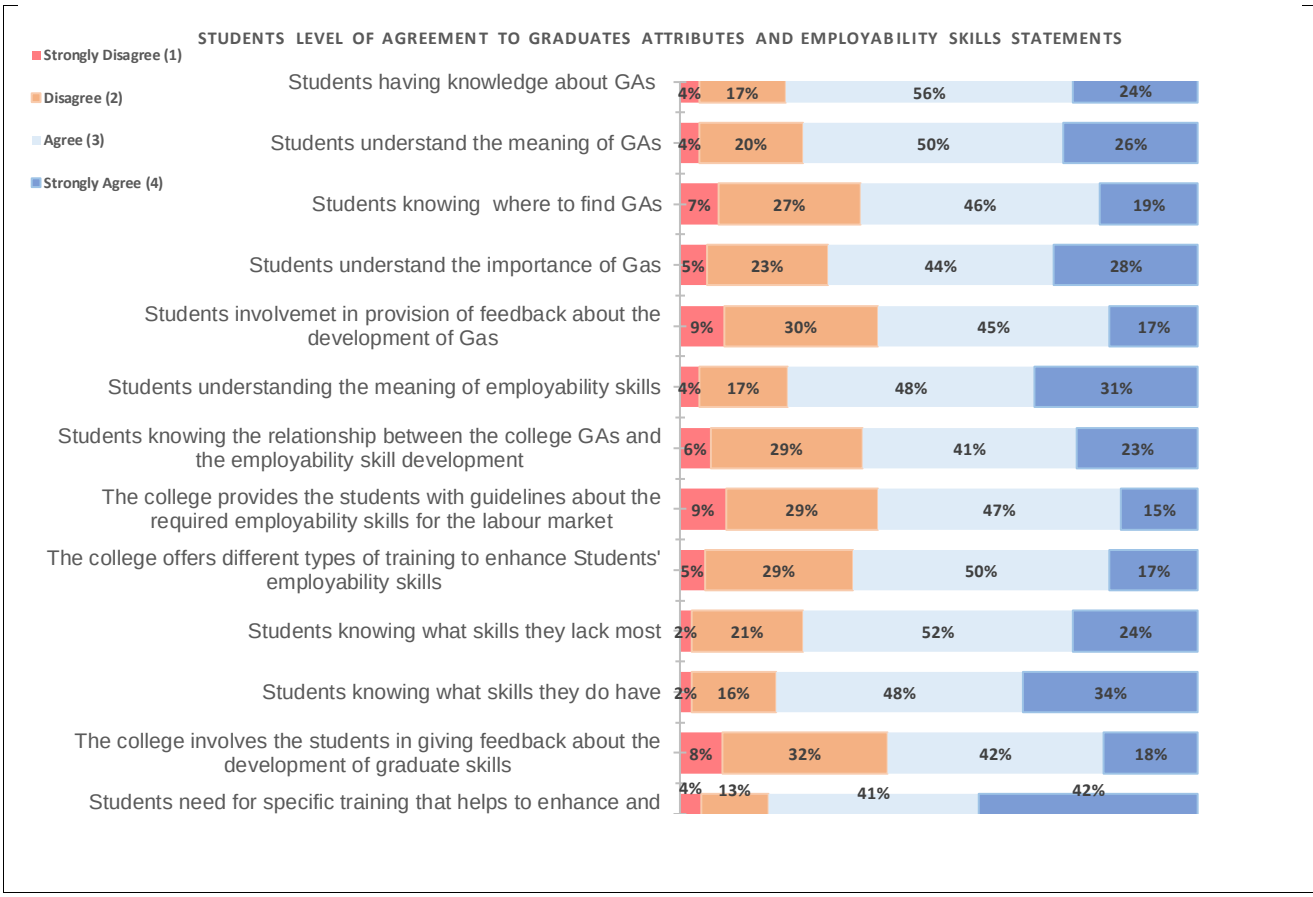
With regard to studies highlighting the exact skills needed by the Omani labour market, all the **PDM** interviewees said that they are aware of various conferences and workshops in which they have participated or which they have attended. In addition, a general study

conducted by the MHERI which summarised the results of several surveys. One such survey was published in 2016 and involved employers. It focused on HR managers in the private sector and the specialisations and skills their companies were looking for, and whether they recommend hiring graduates from a specific college or university. Another study was conducted with a focus on empowering women in the oil and gas sector. Also, the MHERI has designed a programme that helps sort out the data, and the results are available on the Ministry's website.

5.3.1.4. The Students' and Lecturers' Survey Responses

The participants in the survey gave their input on this section of the above question and theme, including elements belonging to general skills, and employability skills as well as the link to GAs. GAs are included here because this element appeared in the interview results as one of the required aspects for work in line with the development of student skills during the course of study. The following paragraphs will discuss the findings related to the perceptions of students and faculty members regarding general student skills, GAs, and employability skills. For a summary of the questions, the participants were asked about their level of agreement with various terms belonging to the subthemes detailed in Table 14 on page 143 of Chapter 4. These subthemes reflect the participants' knowledge and understanding of the importance of student skills, GAs, and employability skills, and the link between them. They were also asked if they provide feedback to the college about the development of GAs.

Both surveys included a question about whether the students know the specific skills they possess and the ones they lack; further, whether the colleges offer guidelines about the labour market and different types of training to enhance the students' employability skills. Figures 17 and 18 show the participants' responses regarding these variables. To obtain information about the research skills under investigation the students and lecturers were asked to evaluate specific skills (i.e., communication, teamwork, time management, ability to work under pressure, computing, and English writing skills). Finally, it was important to know what the students thought about the importance of these skills for their future work.



Mean Rank
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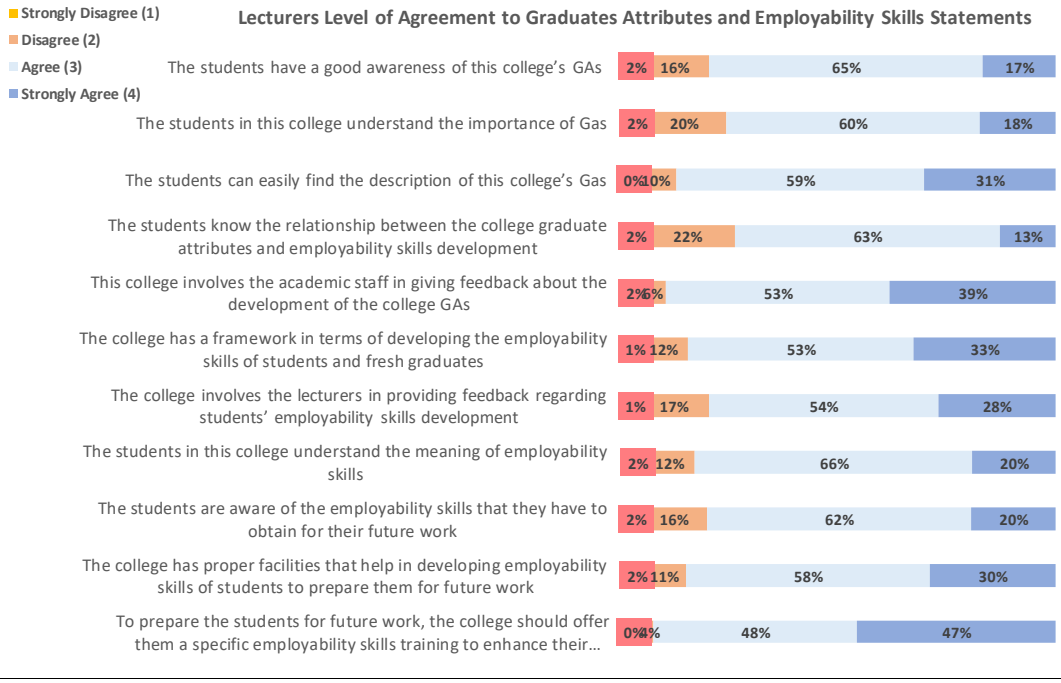
3.2

Figure 17: Students' Level of Agreement about GAs and Employability Skills



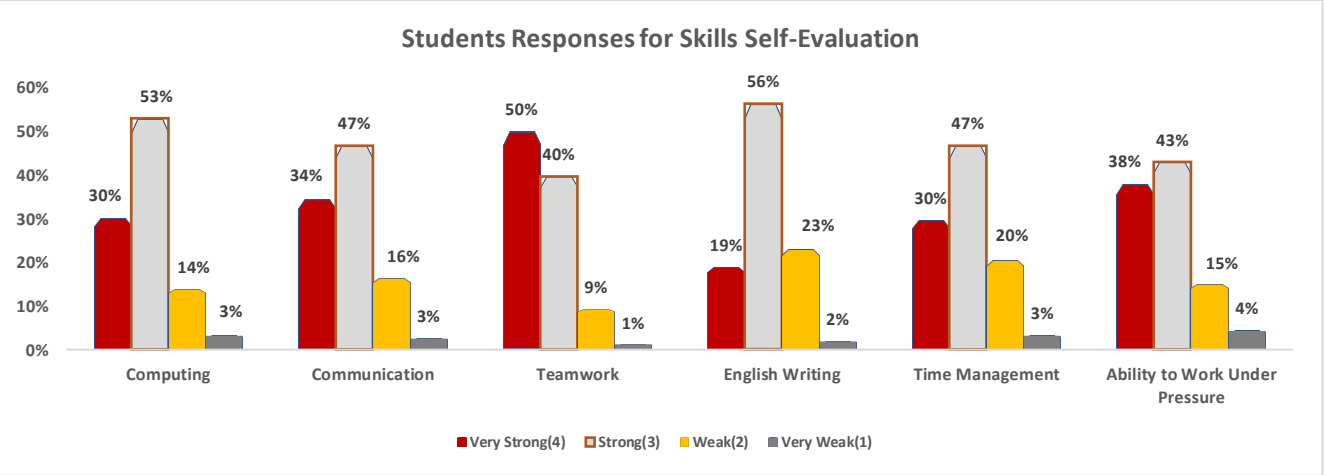
Mean Rank
3
2.9
2.9
2.9
3.3
3.2
3.1
3
3
3.2
3.4

Figure 18: Lecturers' Level of Agreement about GAs and Employability Skills

The above Figure 17 shows that most student participants (around 75%) confirmed their knowledge of the meaning of GAs and employability skills. Around 25% said that they are less aware of the allocation of GAs, their level of importance, and the link between GAs and employability skills. 34% of those surveyed did not agree that their college offers guidelines about the required employability skills for the labour market or different types of training to enhance those skills. Similarly, around 83% agreed that there is a need for specific training to enhance and build students' employability skills, while 72% of the responses indicated that the students know the skills they possess and lack. Questions 5 and 12 asked for the level of students' involvement in providing feedback about the development of GAs, and the disagreement frequency for both answers was 39% and 40% respectively. These were reversed questions which revealed a very high level of reliability in the responses.

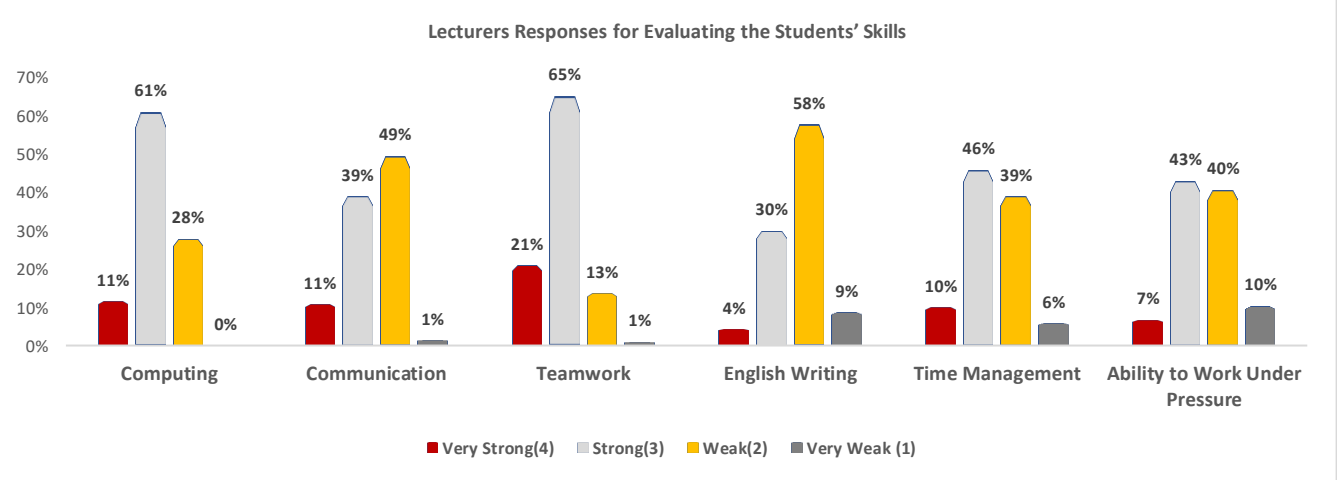
Second, Figure 18 shows that the knowledge of GAs and employability skills is shared equally by both lecturers and students. Whether the college has proper facilities or a framework for developing employability skills among students and whether lecturers provide regular feedback on employability skills development, the agreement levels were above 82% which was high, but also with 95% agreement, which indicated that there is a need for specific training that will help enhance and build the students' employability skills during their course of study.

The above findings indicated that the agreement level, as confirmed from the mean rates, of both participant groups was high for most of the variables. These responses also give me a better understanding of the students' and lecturers' knowledge of the factors involved. This implied that the college strongly supports the level of awareness and engagement of the students and lecturers on these points. Furthermore, there is a strong consensus on the need for relevant training that will help strengthen and grow the employability skills of students as part of the curriculum, which shows that the participants want to see these elements integrated in the learning environment.



Mean Rank	2.8	2.6	3.1	2.3	2.3	2.1

Figure 19: Results of Students' Skills Self-Evaluation



Mean Rank	3.1	3.1	3.4	2.9	3	3.1

Figure 20: Results of Lecturers' Evaluation of Students Skills

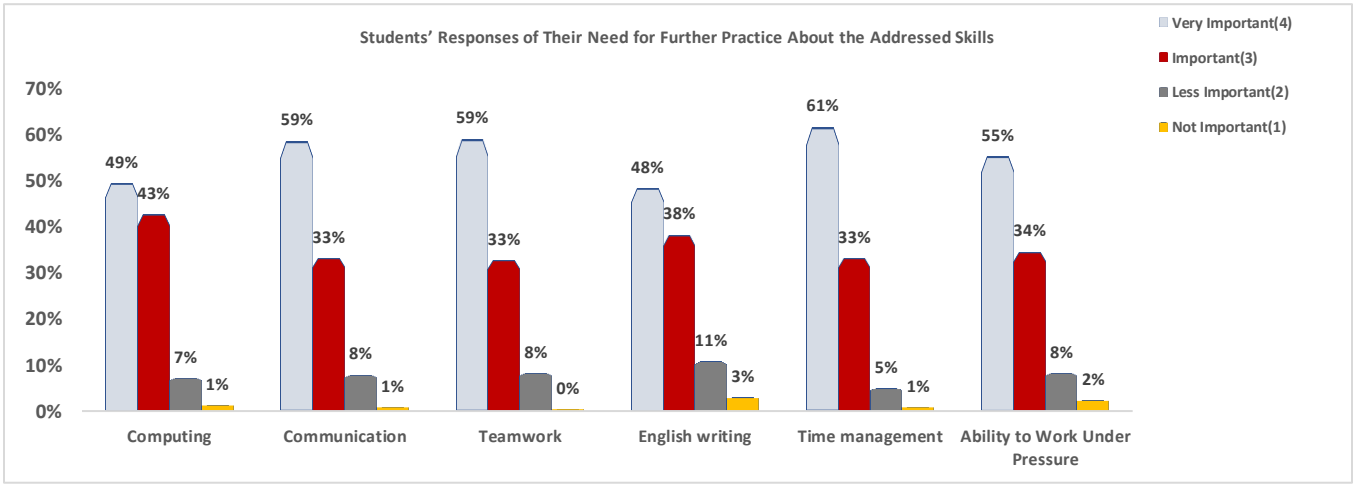
Figure 19 shows that most of the students' responses show a positive evolution in terms of their computing, communication, teamwork, English writing, time management, and ability to work under pressure skills. More than 75% reported strong levels for all these skills, while the weak and very weak levels were highest for English writing and time management, at 25% and 23% respectively, followed by 19% for both communication and ability to work under pressure, and computing skills with 17%. The lowest weak level was given to teamwork, with 10%.

Generally, the mean rate of each skill was counted as 3 or above, which was considered strong.

The lectures' evaluations of student skills are illustrated in Figure 20. The highest levels of positive evaluation went to the computing and teamwork skills, with more than 72%. The levels of weak and very weak were highest for English writing with 67%, communication and ability to work under pressure, with 50% each, followed by time management, with 45%.

Although there is an obvious difference between the levels of the assessments of the same skills, generally the students see themselves strong in these skills, especially in teamwork which covered 90% of the positive responses. In comparison, most lecturers rated the students as weak in these skills, except for teamwork, which they rated highly at 77%. These findings demonstrated that most students were confident about their learned skills; on the other hand, most lecturers felt that the students needed more assistance in developing these skills. However, nearly all respondents of both groups agreed on the high level of teamwork skills among students. Therefore, the research result confirmed the colleges' success in their efforts to develop teamwork which is one GA identified in the delivery plans for all courses.

At the end of part two of the students' survey, the participants were asked to describe the level of importance of the skills under examination. Figure 21 below shows the results of this question.



Mean Rank	3.4	3.5	3.4	3.3	3.6	3.4

Figure 21: Students' Results about the Importance of Skills under Examination

The overall response to this question was very positive: the students acknowledged that computing, communication, teamwork, English writing, time management, and the ability to work under pressure are very relevant and important for their future jobs, with an average rating of 3.4 and above for each skill. Only few students thought that these skills are less important or not important. This finding suggests that students are well aware of the value of this set of skills for their future jobs, and this may be because the college has made them aware of its importance. They may have gained this insight through learning from the experience of other graduate job seekers in Oman.

5.3.2. Findings of Theme (2): Views of the Stakeholders about the College Educational System and Preparing Students for Future Work. This theme is aimed to explore all the variables belonging to the sub-sequential question: **What are stakeholders' perceptions about the college study system and its key role in improving student skills to prepare them for future employment?**

This section offers findings from the interviews and surveys with stakeholders belong to the second theme which identifies various variables of the college educational system in the development of students' skills through college curricula, facilities, and services. It also includes aspects of the colleges' relationship with industry and the labour market in terms of providing student training, feedback, and other types of co-operation. In addition, it outlines some limitations and gaps between the stakeholders. As this part focuses on the college and its role in developing student skills, it is very important to know more about the college's GAs in terms of measuring the students' understanding of GAs and CDP from the respective interviewees (i.e., college management and graduates).

5.3.2.1. College Role and the Support of Educational Curriculum, Facilities, and Services in Developing Student Skills

It is essential to gain more insight into GAs as part of the college system. According to the CoT GAs are aimed to help build the students skills during their course of study. The research involved the colleges higher management and graduate students as participants. The three the interviewees from the CoT explained that GAs have been created along with the college's mission and vision as part of a workshop conducted by the MoM. They were designed

according to the feedback received by the various stakeholders including students, staff members, the industry, community, and alumni.

In terms of the level of awareness of GAs among students, **CDS1** highlighted that they are part of the course orientation given at the start of a new semester. Course tutors allot the first day of class to discuss the program and the course. This overview includes the GAs together with the programme and course outcomes, which are linked to the skills that students could expect to achieve by the end of the course. Thus, it is presumed that all students are sufficiently aware of the skills they are expected to possess upon graduation. **CDS2** explained that student's self-assessment of GAs is taken through a survey deployed in the first and second semester. With 7 GAs self-assessed by students, the average level of awareness is 76%.

Regarding this point **CDS3** said, 'Basically, I don't have any genuine answer to this question, but I feel that they are aware reasonably. Maybe we lack special sessions to be given to all students about [the] graduate skills specifically they need to obtain. On the other hand, the induction programmes address this issue partially during their study in the college.'

About Measuring the students understating of GAs**, CDS1** linked measuring the students understanding of GAs to the course activities and assessments, mapped to GAs, students' performance in classes, course tutors, and departments. **CDS2** admitted, 'We do not measure student's understanding of GAs.', while **CDS3** proposed future initiatives saying, 'I strongly feel we should have some initiatives to do so very soon. In the future, to measure student understanding of GAs we should focus first on focused group discussion and interviews to assess their level of awareness; second, student feedback on GAs.'

The three participants were asked to explain the way the GAs are evaluated at their college, and their responses can be summarised as follows:

Since GAs are mapped with course activities and assessment, they serve as a guide for course tutors to evaluate the students' achievement of GAs in different classes. The employability rate might reflect students' attainment of GAs, and the exams might give students an indication about this. Another indicator is how well students perform in local and regional competitions.

GAs are evaluated by a student survey deployed twice a year. Other evaluation of GAs are assessed by the lecturers. For example, if the students of an electronics course perform well, with a high percentage of passes, only then the college can say that certain GAs have been achieved, especially in analytical and computing skills.

The findings indicate that the graduates' knowledge of GAs needs to improve, given that they are not sufficiently informed of the importance of GAs as future employees in the professional context, as explained by some participants:

FGD3: I have never heard anything about it, and nobody among the college staff has ever explained it to me. Besides, I have never seen any poster advertising it in the college premise.

FGD4: I have searched about it on the internet, and I understand that it is about student's skills that he or she needs for his or her future employment.

In regard to GAs and CDP, all **CDSs** mentioned that lecturers and students should follow the CDP. It provides a description of the course content, assessment information, and explains the grading system. However, none of the graduates confirmed that they knew about the mapping between GAs and the course outcomes in CDP.

The data shows that these graduates do not know what precisely GAs mean, and there is a lack of awareness about their importance. There is a section about GAs in CDP; however, CDP items need to be more emphasised in the classes. Most graduates are unaware of the role of the GAs and how to meet the course learn outcomes through them. Thus, I believe that all teachers should explain the 7 GAs included in CDP, involve students in discussions about them, and giving examples that can be linked to the course outcomes or assessment. Also, it is crucial to measure the students' understanding of GAs via their feedback across workshops and self-evaluation, in addition to keeping students posted on GAs via email and other media will help increase students' awareness.

The following points made by employers about the role of CoT in improving the skills of students and graduates to maximise their chances of successful future employment:

- Colleges need to work closely and cooperate with other organisations; in particular, the private sector needs to be included to secure more jobs for the graduates.
- Colleges need to encourage students to report on their progress and achievements.
- Colleges need to engage directly with the labour market.
- Students should be given practical exams based on real-life situations.
- There is a wide gap between the colleges and the labour market, which needs to be addressed, for example in the form of internship schemes.
- Students should be offered various types of training during semester breaks as part of the graduation requirements.

PDM4 suggested that academic institutions should focus more on developing student skills as part of the course programmes. This will prepare graduates for the labour market who know the skills required for employment. If these points are taken into consideration, the GAs need to identify basic and advanced skills required by professional communities across the globe; if achieved, this will enable students to become successful applicants who are informed about the expectations and the nature of the labour market.

With regard to the college's educational curriculums, facilities, and services to assist students in achieving learning outcomes and acquire the right skills, **CDS** suggested that lecturers and students follow the learning outcomes in CDP posted on the E-learning platform where all course materials and PPT are provided. The colleges, according to resource availability, offer different types of services to assist students in achieving the course learning outcomes. These services include:

- Regular practical laboratories, workshops, and tutorials on difficult courses organised by the academic departments.
- Better support provided for underperforming students by monitoring students' progress in courses through the college probation committee.
- Library and E-library services.
- E-learning platforms.
- Remedial and short-term classes.
- E-learning working groups to serve the needs of staff and students.
- Peer tutorials organised by the Student Advisory Council.
- Student societies and group activities.
- Industry visits and external guest speakers.

According to **FGDs,** the most helpful services during their study that improved their skills are twofold. The first type of service is related to their course and included course materials, projects, practice-based modules, and other relevant training on areas such as public speaking. The second service is developing students' transferable or generic skills across non-academic events and activities organised by student-led societies and committees (e.g., students advisory council, competitions). Some of these services were highlighted by the participants whose statements are summarised below.

FGD1 made very positive experiences across non-academic events and had been active in several student-led societies and committees. The students carried out various factions within and outside the college through these groups and activities and interacted with other students and experts from different fields. This gave them many opportunities to develop their various skills. Via these activities, the students had the chance to meet senior officials in the college and the MoM.

FGD3 had joined some of the activities, courses, and services offered, but they were not compulsory and depended on the students' interests and talents. Some of these activities were organised outside the college and lasted for a few days.

From the point of views of the employers, all **EMYs** interviewed emphasised that students need to make more use of the services and facilities available to them. This can be achieved if the following points are carefully considered:

- Completing projects, practical tasks, and OJT.
- Taking part in various college activities.
- Participating in societies and volunteer groups
- Being involved in more industrial work such as job fairs
- Searching for workshops that focus on employability and skills development.

EMY1 explained that students have little exposure to professional work life. They can use all available resources to gain more experience about the social and professional aspects of the job environment. **EMY3** added that students often do not understand what a workplace is like and what specific skills a job requires. **EMY3** thought that students need to learn about these skills at college, through different academic and non-academic sources, and must focus on developing more relevant skills.

Regarding the educational curricula, facilities, and services for developing student skills, **PDMs** pointed out the following factors shown in the figure below:

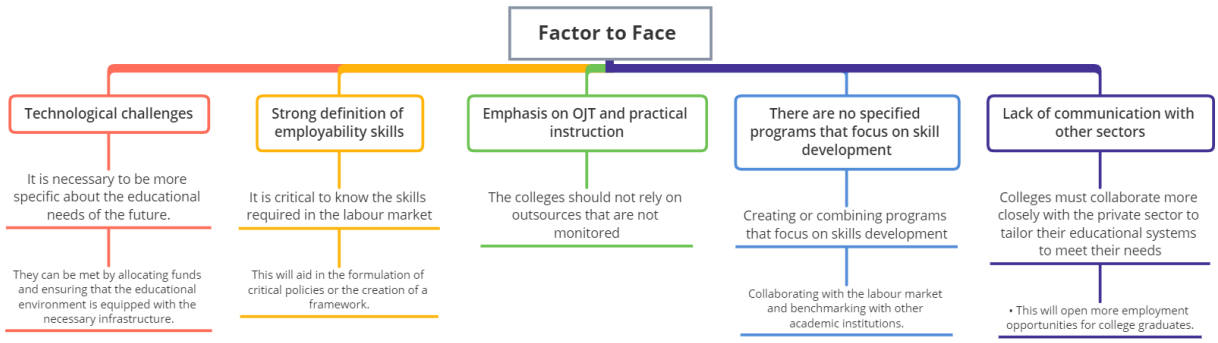


Figure 22: Factors Belong to the Educational Curriculum, Facilities, and Services Highlighted by PDMs

With regard to expanding the available service, the interviewees specifically mentioned the technological services offered by the colleges to meet the learning outcomes and support skills improvement, the CDS speakers pointed out similar factors related to new technology tools and services offered by the colleges to meet the learning outcomes: E-learning, Open Educational Resources (OER), ProQuest, Turnitin, Python, and 3D Max, in addition to videos, simulations using online apps, and online tools such as programming.

Regarding the same theme, **EMYs** stated different concerns underlining the generational differences in terms of familiarity with new technology. **EMY2** believes that if people want to gain more knowledge, they need to adopt the latest technology. Second, **EMY2** highlighted that the younger generation is more tech savvy. The current generation of students uses social media and other online platforms, which means that the areas in which they need to improve differ from the previous generation. **EMY2** thinks that technology is indeed critical; and individuals who are not familiar with technology, they lose a great opportunity for self-development. Last, **EMY4** observed that having a good grasp of the available technology will allow a person to be more creative and think out of the box. To avoid stagnation, an individual needs to make use of the opportunities that come with new technology.

PDMs elaborated more on their concerns in terms of using the technology services to enhance student skills. The participants believe that new tools improve the quality of

education and are essential, because future jobs will be radically different from present ones. For example, big data and artificial intelligence will become more integrated in some fields, but these tools should be introduced following specific policies and procedures. Also, if the curriculum promotes target skills such as English writing and comprehension, the use of relevant technology will yield more positive results in the students' progress. For instance, students can engage in simulations and learn faster using online platforms; moreover, they will have the freedom to use these programs wherever and whenever they want.

PDMs offered different examples for this, such as the students' language translation needs, and how available resources and training would improve their language and communication skills. They also emphasised the importance of media production for events at the college, where students can be involved and further specialise in this area if they are keen to do so. Such projects carried out in groups can also be included in the course assessment map. Also useful would be a central webpage for all CoT users that will help improve students' IT skills and enable them to share their experiences. **PDM1** suggested asking the students to propose new ideas. **PDM2** added that more parttime jobs are offered to students, which is strongly supported by the labour market. For example, in the area of programming, interested students should form groups and offered parttime job in the industry, either individually through the college or collectively. **PDM3** mentioned the fact that the world is undergoing a so-called 'fourth industrial revolution'. This means that HEIs have to adapt their curriculum and resources accordingly. Similarly, **PDM4** pointed out that HEIs need to change their syllabus in preparation of coming needs. **PDM5** added that the labour market stakeholders should be consulted in this process of adjustment.

5.3.2.2. Training and Industry Relationship

The stakeholders who participated in the research were asked about the type of links between the HEIs, CoT, and the labour market. Also, the interviewees shared their opinions about the changes the colleges need to make to support their students' skills. Moreover, the interviewees talked about the involvement of the labour market with partner organizations to provide feedback on the development of student skills.

CDSs confirmed that the colleges are actively involved in the development of the employability skills and receive feedback about their newly employed graduates. The colleges

have been maintaining relationships with the industry through OJT and career guidance counselling. Also, some colleges have an entrepreneurship and innovation department which regularly interacts with labour market organisations to determine what jobs they require and what skills they are looking for in new graduates. They also receive feedback on the performance, attributes, and skills of their OJT students. These departments plan for appropriate activities to support the syllabus to prepare the students for their future jobs. The colleges also routinely engage with the industry sector through mutual visits and workshops as part of reviewing the college's curriculum. They accept the labour market recommendations and modify the teaching material to make it compatible with the industries' needs.

EMYs interviewees confirmed that their organisations enjoyed a good relationship with HEIs, especially in banking. Also, they cooperate closely with the MoM and receive CoT students for training and for other vacancies. They also promote employability skills on career fairs, provide internship opportunities, and involve students in events such as talent teams and competitions. In addition, some participants reported that they had acted as external members in the college board.

The **EMY** participants emphasised the colleges' need to change their services to improve and support the skills of their students. Their points are summarised in the following statements:

- The colleges must support students and graduates through additional skills workshops.
- The colleges should follow up on their graduates after graduation.
- The colleges need to exchange more information with the labour market on the specialisations needed and the level of knowledge useful for the companies. This is to help the colleges strictly focus on market requirements.

For instance, **EMP4** said, "This student is going to be the future of the company. Sure, I believe openness, working together hand by hand with the companies will bring the benefits from both and will reach to our goals."

PDM interviewees also indicated that they entertain close links with CoTs in term of policy development, with special focus on the following actions:

- They have a shared group where members have a role according to their own organisations' responsibilities and duties.
- They report back to HEIs on the status of their graduates in terms of job allocations, sectors, required specialisations, and labour market needs.,
- They organise workshops, seminars, and symposiums to present their recommendations.
- They work with college representatives on all matters relevant to their institutions.

A very good output from the type of work between the respective organisations including OGSS–MoHEI, and HEIs and CoT can be seen clearly in these efforts:

1. The survey results 2015–2018 explored the opinions of employers about the graduates' skills and showed the positive impact of skills development.
2. The department websites offered job training and linked colleges to different companies.
3. The availability of the OGSS database where CoT can advertise job vacancies.

Some of them added that HEIs and CoT need to:

- Implement the recommended actions according to their available resources.
- Invite policy and decision makers to workshops to identify the skills gaps and receive feedback.

FGDs speakers focused more on the importance, benefits, and usefulness of OJT. They stated that OJT improves student skills, which in turn shapes the work environment and supports their professional development. OJT helps students to develop communication skills and self-confidence and can have a measurable positive impact. Also, the students have the opportunity to experience real-life work environment and familiarise themselves with the organisation's structure. **FGD1** appreciated the support given by the company offering OJT. He said, '… they encouraged us to ask any question we might have, which was the best thing. Besides, I was able to practice my formal writing skills in English and Arabic. Last, but not least, my experience in the customer service department helped me to understand how to work with people.'. **FGD2** emphasised that he was offered OJT during his study time, and it benefitted him greatly in terms of acquiring new knowledge and skills. It also positively

influenced the way he understood his field. On the other hand, **FGD3** admitted that although he had participated in two OJT programmes as a student, he only benefitted partially. The first training he received on his own initiative did not cover his field of study, so he did not gain any relevant knowledge. The second training was part of his employability (recruitment), and the college credited it for his graduation. The view shared by **FGD4** was more positive; he learned a lot about the workplace environment in the two training programmes he completed. In his opinion, these types of training were very useful and completely different from studies

5.3.2.3. Follow-Up and Feedback from EMYs and PDMs

In terms of the feedback from employers, the colleges are informed of the status and progress made by their graduates. The employers give this feedback in different forms:

- Survey and feedback through various events where employers are invited.
- OJT coordinators are in regular contact with the industry about job training opportunities.
- Fresh graduates complete a standard survey during their graduation ceremony.

One of the **PDM** interviewees suggested that students should have part-time jobs while studying, which would help them prepare for the labour market. Also, there is a big gap among the respective bodies in providing feedback and recommendations about the different aspects of the part time job chances. Thus, the college should create a proper mechanism to receive feedback about the job performance and employability of its graduates.

FGDs are satisfied with the result of the regular feedback they receive from the employers about their level of work-related skills. Such feedback motivates them to learn more and focus on their skills development. Every three months the employer discusses their progress with them. This helps them as new employees to work on their weaknesses and seek support to improve certain skills.

Regarding the feedback given by the employers to the fresh graduate employees, **EMYs** highlighted several aspects. **EMY1** and **EMY2** described it as very good feedback and explained that the new employees are willing to learn and take the offered courses to improve

their skills and knowledge further. Some of the fresh graduate employees lack specific skills and receive support from their employers, for instance in writing company emails. **EMY3** called this kind of feedback ‘a gift’ and explained that it is very critical to provide such key information, especially for new graduates who are young, eager to develop themselves, and thus receive feedback very positively. This practice also encourages the employer to set goals for the upcoming years and make sure that the new employees are on the right track. **EMY4** added that the new graduate employees accept the employer’s feedback and are ready to move ahead.

On the same subject, some **EMYs** commented that they give their feedback to CoT through workshops and OJT. However, some respondents pointed out that CoT invitations to participate in college events or workshops are not standard practice everywhere, even though they are useful for both parties. One of the **EMY** interviewees talked about his experience in attending a CoT workshop. The college provided his company a big space to share news on what was happening on the labour market and in the company. However, other **EMYs** admitted that they have never been approached by CoT in the past, although they would welcome such invitations. They are willing to offer services such as a CV clinic and conduct assessments at the company centre to familiarise students with their expectations from the viewpoint of prospective employers.

The next part focuses on the follow-up and feedback on the implementation of policy and HEI management decisions, including the extent of involvement on part of the stakeholders. The views of the **PDM** participants reflect their motivation when creating new policies or making decisions that affect graduates can be summarised as follows:

- Meeting international standards and promoting best practice in strategy plans.
- Reaching the targets in strategy plans such as Oman Vision 2020 and 2040.
- Working with other organisations to develop the graduates of these institutions based on work requirements and specialisations.
- Creating job opportunities in liaison with employers to define the type of jobs and the number of vacancies offered.
- Reaching the targets of the national educational strategy 2030.

- Linking education with jobs by acknowledging that market needs are influenced by technology across all sectors.
- Developing communication and IT skills to guarantee better employment options for graduates.

Table 26 lists these aspects from each participant's point of view:

Participant Code	Follow-up Feedback	Involvement Rate of Stakeholders
PDM 1	Short-term recommendations. focus on long-term achievements. Properly implemented recommendations and suggestions.	Partners
PDM 2	Both plans are followed. Required feedback for PDMs.	Lack of communication with HEIs
PDM 3	Two-way connection in giving and receiving the feedback; discussion of all terms to produce more valuable results.	Based on the organisations' membership and involvement; lack in monitoring graduates' progress and work experience.
PDM 4	Connection between colleges and policymakers to inform on the rate of implementation; shared workshops and symposiums must be used for maximum benefit.	Depends on PDM membership.
PDM 5	Mandatory workshops and symposiums.	PDM involvement in discussions, symposiums, and training courses.

Table 26: Aspect Highlighted by PDMs About Feedback Follow Up and Level of Involvement of The Stakeholders.

On the issues preventing stakeholders from having a proper channel to discuss how to develop the fresh graduate skills, **PDM** highlighted several limitations:

- No specific body responsible for developing student skills and communicating with HEIs.
- The limitations could be the relationship between the educational stakeholders themselves. Sometimes the link between the institutions and the labour market is not strongly developed or utilised.
- The labour market is profit-driven and in demand of highly trained people.

On this **PDM5** mentioned that the required skills can be highlighted through announcements or studies. However, the question is where this information goes and how it is used. Also, is there any clear indicator to measure student skills in relation to job specification? In most cases, employers do not have the time to train new staff. According to **PDM5**, most employers will give

the graduates some orientation in the first two weeks on the job, and then they will learn the rest on their own. HEIs have their own curriculum to complete, for example 40 or 120 credited hours per level. Some employers provide training to help the fresh graduates to acquire the relevant job skills.

EMY2 pointed out that employers need to communicate more with the colleges to bridge any existing skills gap. There is a measurable gap between the graduates' skills and the expectations of employers in the private and the public sector employers, which needs to be addressed.

The students' and lecturers' survey respondents offered their input on the college curriculums, services, and facilities related to developing student skills. The following two figures display the results:

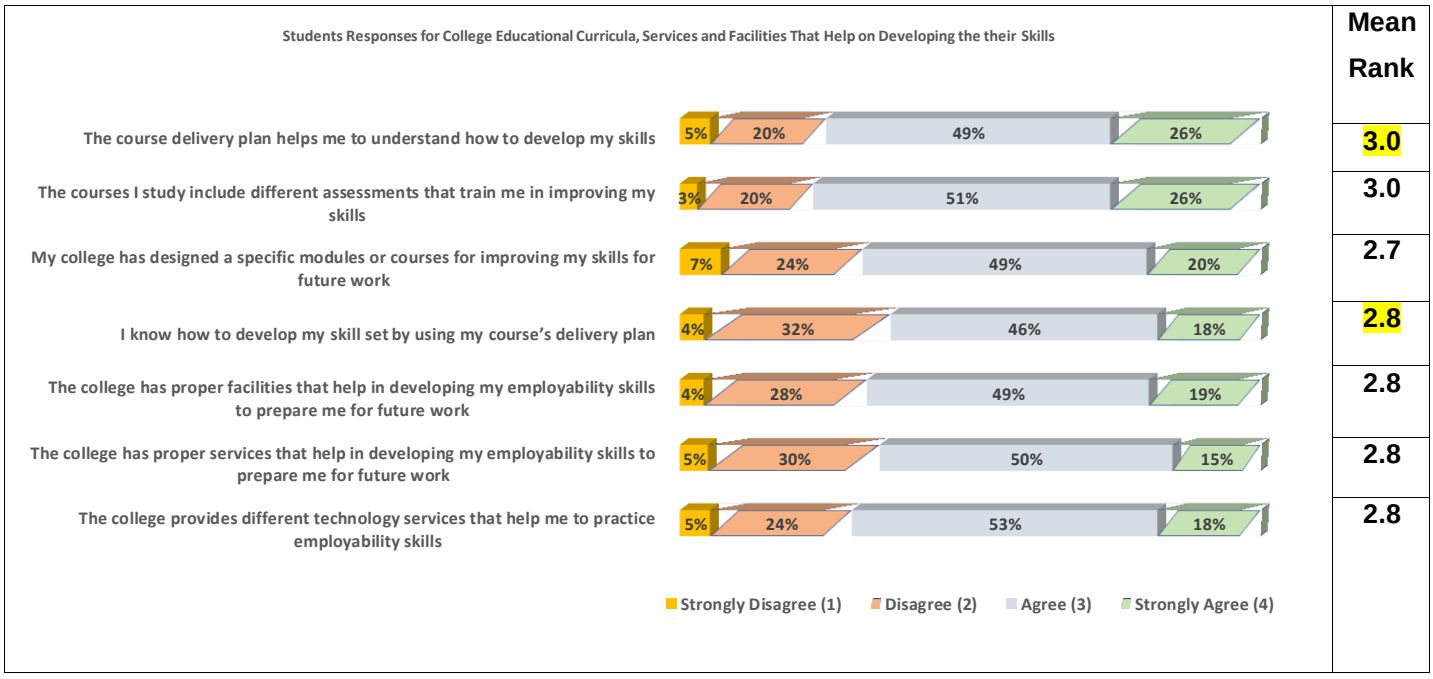
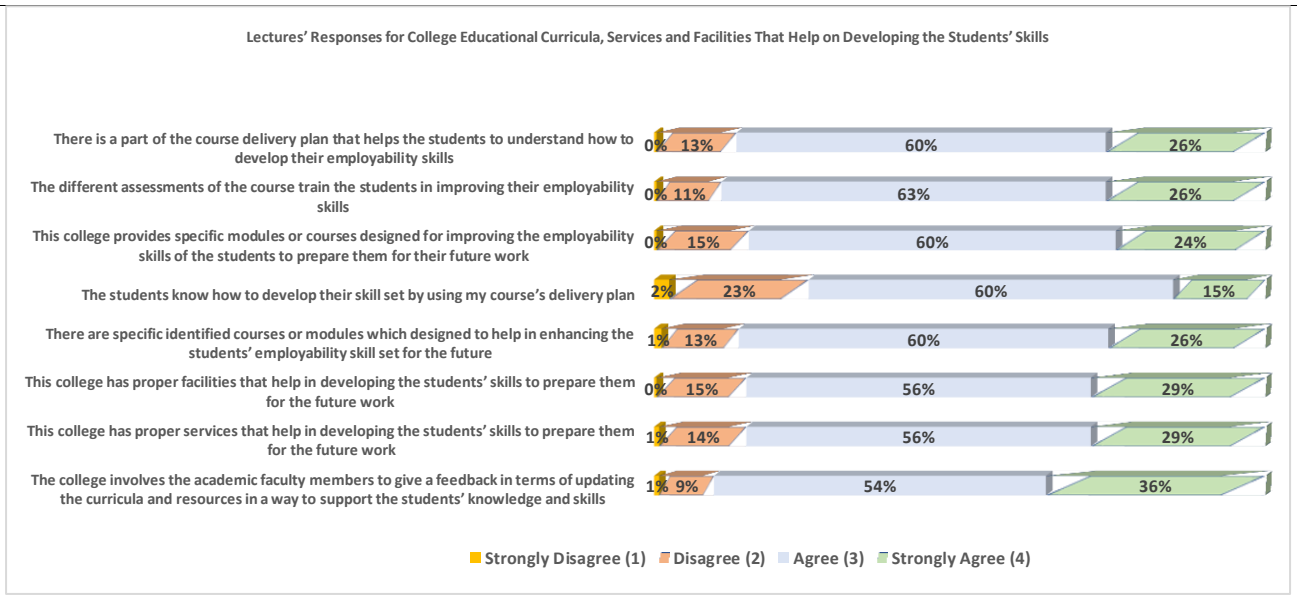


Figure 23: Results of Students Responses of the College Curricula, Services and Facilities Related to Developing Skills

As shown in in Figure 23, the students' agreed with 64% to 71 %that the CDP is useful in determining their employability skills, the different assessments provided in the course to improve their employability skills, the provided modules, and the facilities and services to practice relevant skills (e.g., IT).



Mean Rank
3.1
3.1
3.1
2.9
3.1
3.1
3.1
3.3

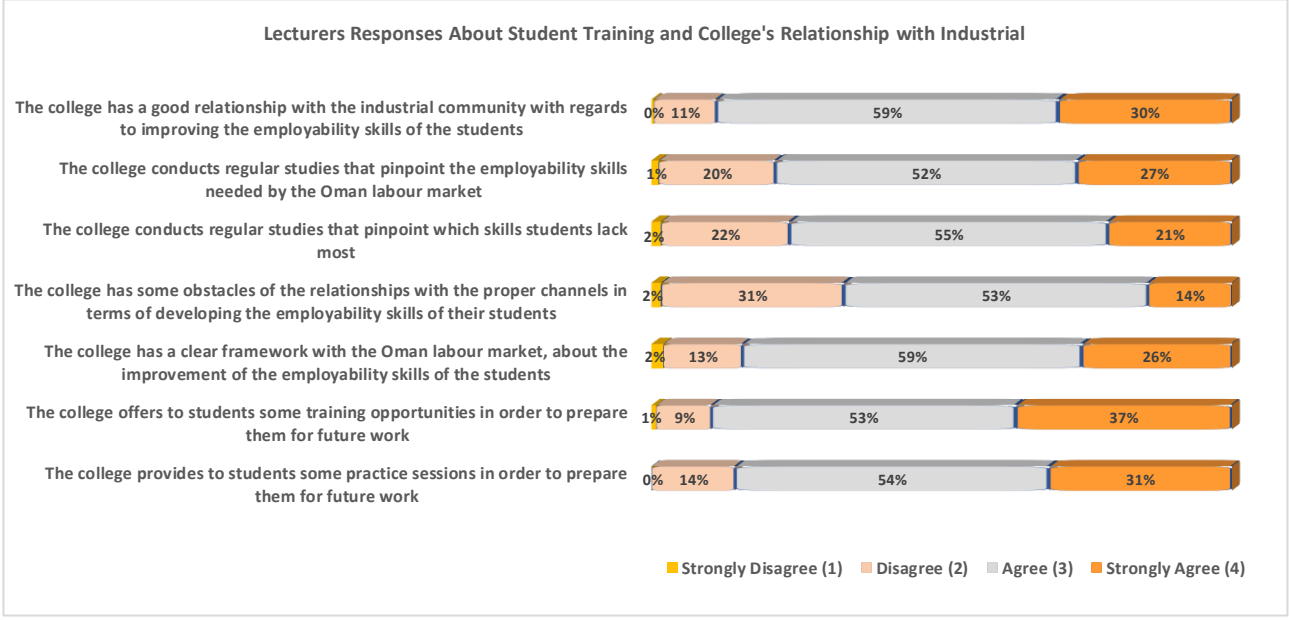
***Figure 24*:** Lecturers Opinions on of the College Curricula, Services and Facilities Related to Developing Skills

In Figure 24 the lecturers' responses show 85% agreement regarding the CDP, the different course assessments, facilities, and services in training and improving the student's employability skills. Also, the same rate of agreement indicates that the college asks them to give feedback in terms of updating the curriculums and resources in a way that improves the students' knowledge and skills. 25% of respondents disagreed about the impact of the CDP on students' skills development, but the mean rate of 2.9 shows an overall agreement.

The above two figures indicate that the variables listed regarding college curriculums and facilities supports the skills development of students. The question about the CDP and its reliability shows difference between the two answers, with a mean rate of 0.2; both answers are considered almost on the same level of 'agree'. However, students may need further guidance on CDP for skills development.

The lecturers' responses about students training and the relationship between college and industry are summarised in Figure 25. Most respondents (85%) agreed that the college provides practice sessions and training opportunities for students, and the college has a good relationship with the Omani labour market and operates within a clearly defined framework. At 21% to 24%, there was a significant disagreement about the college's efforts to identify the employability skills needed by the local labour market and the students' proficiency in those

skills. Lastly, 67% of the respondents indicated that they have some concerns in regard to the channels used.



Mean Rank
3.2
3
3
2.8
3.1
3.3
3.2

Figure 25: Lecturers' Responses about Students Training and the College and Industry Relationship

The findings above indicate that the participants are confident in the role played by the college in providing students with hands-on sessions and training opportunities as well as establishing strong links with the labour market and the industrial community in Oman. However, they are less satisfied with the availability of relevant studies in this area. They also believe that the college faces some obstacles in terms of creating a viable network that may contribute to their employability. I believe this might be due to the lack of research studies conducted in the colleges to examine these factors.

5.4. Findings Part Two

5.4.1. Findings of Theme (3): E-Learning in the College Education System

This theme is aimed to operate the sub-sequential question: **What are stakeholders' perceptions about the functionality of E-learning in the college study system?**

It covers sections 5.4.1.1 to 5.4.1.4 where the interviewees' responses to the E-learning services subthemes were discussed, including its implementation, development, and usage

in the educational system, the influence of E-learning in teaching and academic management, and the E-learning policy. In sections 5.4.1.5 to 5.4.1.7 the results of the surveys involving the students, faculty members, E-learning technical support teams, and coordinators were presented. Since the survey participants were more involved in the aspects of E-learning, variables such as the most frequently used technology services in the college educational environment and the role of E-learning as part of these technology services appear in the findings. In addition, the responses to how often students use their E-learning portal for college work and for what reasons were identified. Subsequently, information on the E-learning policy, awareness among students, its positive impact on the students' personal learning needs and goals, and feedback on the development and updates of E-learning were obtained from the survey results. The survey respondents also gave their assessment of the on-site E-learning system based on various factors such as the quality of the E-learning system, its features, accessibility, usability, and the attitudes of students towards accepting E-learning as means to improve their skills.

5.4.1.1. E-learning Implementation, Development and Usage in the College System

CDSs speakers explained that the role of the college in implementing and developing E-learning services as follows:

1. The college plays an important role in further developing the E-Learning implementation and culture. Firstly, the college sets the roadmap for adopting and improving the platform used to implement E-Learning. Also, the college plays a major role regarding the source of materials that course tutors include in their online course. Through the policies approved by the College Council (CC), the college also sets how copyrights and plagiarism will be implemented. In terms of infrastructure, it also shows responsibility to decide the overall policy in terms of technology management and portfolio that plays a major role in improving access to the E-Learning portal. Lastly, the college management also regularly reviews the work of the E-Learning group to determine the overall implementation of E-Learning in the college.

2. The college offers an online learning platform (Moodle) which records the utilisation rate of students and staff. In addition to that, a special effort is made to offer online learning resources such as ProQuest and other OER.

3. The role of the college in implementing and developing E-learning services is to ensure that each student has access to E-learning. Its Educational Technology Centre (ETC) ensures that the module is working properly and is easily accessible.

The three **CDS** interviewees listed the use of E-learning by students and faculty members according to their different perceptions which include the following:

- The college E-learning group meets regularly to determine the progress of E-learning implementation. The E-learning coordinator in the department monitors the utilisation of online courses and identifies any issue or problem that might arise. Through this, the needs of both students and staff are identified and taken care of, on the department and college level of implementation.

- The above is a crucial strategy for improving the college's internal processes and improving the quality of teaching and learning.

- E-Learning helps students and faculty to become more familiar with current technology in teaching and learning. Active learning is also encouraged, and students' IT skills are improved through the use of E-learning. E-learning makes communication easier and more accessible, and students and staff can work from any location using a variety of devices such as mobile phones, laptops, or tablets.

The four **FGD** interviewees highlighted the following points about E-learning usage based on their experience:

- Downloading course material and lecture slides and other assessment tasks.
- Uploading assignment answers, completing online quizzes, and checking scores.
- Communicating with course lecturers and classmates (should be more).
- Meeting course requirements.
- Using discussion boards (should be more).
- Some lecturers do not use it at all (should be mandatory).

In terms of E-Learning usage, two **FGD** speakers gave the following statements according to their experience and opinion:

FGD1: If I have any questions about the course, I recommend that I connect with my classmates on WhatsApp rather than using another college service.

FGD4: E-learning would not be as per our expectations, because most of the topics we need for the course would not be there; it is half dead.

The **EMY** interviewees indicated that the college should encourage the students to use E-leaning to its maximum advantage. This can be done by letting the students use different types of applications such as E-learning platforms and the LinkedIn Learning platform. Thus, a three-year E-learning strategy is very important. **EMY3** said: "In fact, we as a company have recently launched the LinkedIn Learning platform for all our staff."

The employer participants believe that students must have access to the right facilities to improve their skills. Nowadays, with technology, they have their courses and the library resources available on their mobiles. They can, therefore, access information independently; for example, their teachers can provide them with links to download course materials and submit course assignments. These materials should also be audible, so they can just download or listen to a course while driving or walking.

EMY3: Similarly, with those millennials, I think they would really like it. But it needs to be more engaging and interactive. So, it should not be just the traditional way. The user experience should be good.

5.4.1.2. Influence of E-learning in Teaching and Academic Management

In terms of the influence of E-learning as a tool for teaching and academic management as well as enhancing student skills, two of the **CDS** speakers made the following points:

- E-learning provides substantial support: it allows users to organise the course files, helps with the delivery of lessons, makes some aspects of assessment easier, and improves the way students monitor their performance by making all assessments, whether online or offline, available on the E-learning platform. These functions greatly help teachers in improving classroom documentation and the way in which courses are delivered and managed. In terms of improving student skills, it helps students to become more adept in technology, become more independent learners, and makes them more confident through

participating in more online activities. The colleges believe that it is a very good tool to help improve their overall skills.

- E-learning influences teaching and learning, as students and staff are introduced to the latest technology. The E-learning environment also promotes active learning. The students IT skills are enhanced with the use of this application. Communication becomes easier and more accessible using E-learning. The students and staff can continue to work or study wherever and whenever it suits them. The students can access the content of lessons, PPT, and other files updated by the teachers.

- The third **CDS** respondent said, “Up until this moment, no assessment has been done in this regard.”

Furthermore, **EMY3** explained that E-learning is about how messages can be created in a way that is appealing to students. This change, however, cannot happen overnight because it requires a shift in the mindset, and users need time to adjust. It is necessary to add the latest technology, such as virtual reality, augmented reality, and mixed reality to E-learning environment. Also, it is not just E-learning that should be more engaging. E-learning education must involve teaching and academic management, not only at university level but also at primary and secondary school level. This process must begin with the young generation of learners who can easily adapt to new technology.

5.4.1.3. Policy of E-learning

This part involves the college management participants and their comments about their college’s policy of using E-learning. The **CDS** participants explained their views summarised as follows:

1. To ensure standard institutional implementation of E-learning practice, the policy management committee has developed the E-Learning implementation policy to be followed by all academic units. In this regard, all courses are required to have an online presence through the college E-learning portal. These courses should also follow the

prescribed format to present the course information according to the template provided by the college E-Learning group.

2. All staff are directed by CC instructions (very soon to be a policy) to upload all course materials to the E-learning platform. Student quizzes are conducted via E-learning. Also, the performance reports are shared on the E-learning platform.

3. E-learning guidelines are prepared by ETC and communicated to students and staff on the college portal.

5.4.1.4. E-learning Strengths and Weaknesses:

The graduate participants were most suited to discuss the strengths and weaknesses of E-learning, because they were among the primary users during their study. The table below present a summary of the perceptions of the **FGD** respondents:

Strengths	Weaknesses
• The use of videos. • Mixed courses with good YouTube links; educational and easy to grasp. • It improves students' computing skills. • It helps in work organisation and documentation. • It helps a lot, especially if the students want to work on weekends.	• It downloads and uploads very slowly. • Not all lecturers upload the course material or use it for assessments to suit the students' needs. • The chat group function needs to improve, and the students should be encouraged to use it. • A mobile version should be developed (online app). • It should contain more detailed information and be updated regularly. • It does not have attractive features. • It should include links to all relevant announcements. • Most items are purely academic and do not catch the students' attention. • It is somewhat difficult to use (not user-friendly). • It does not function optimally. • There is not enough awareness about using it. • It requires a computer and good internet speed.

Table 27: FGDs' Points of View about the Strengths and Weaknesses of E-learning

5.4.1.5. E-learning Usage in the Survey Results

The chart below gives information about the college's technology services that are used by the students. It shows that more than half of the students use their college's E-learning portal, while 31% use the college email, 12% use the college website, and 1% answered 'other'.

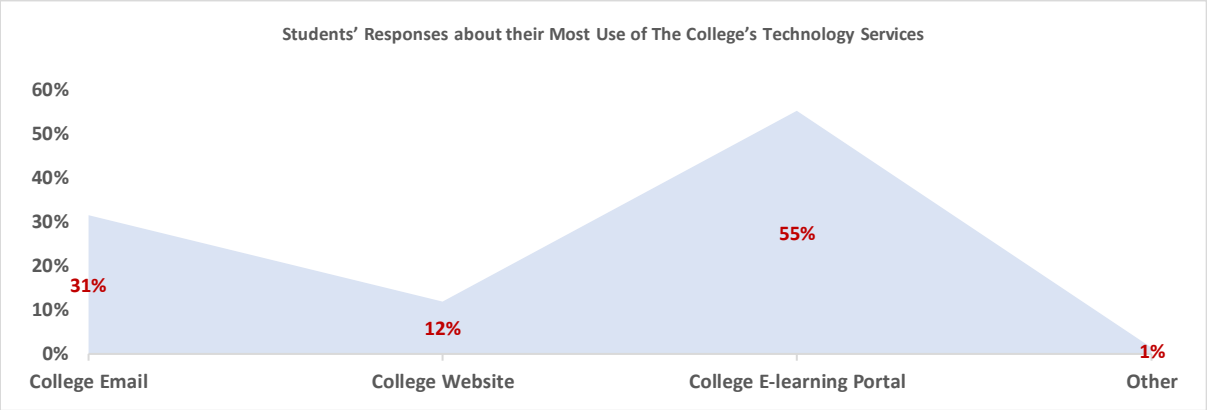


Figure 26: College's Technology Services Students' Usage

The ranking from 4 to 1 (high to low) of E-learning technology services at the college used by the students is shown in the line chart below:

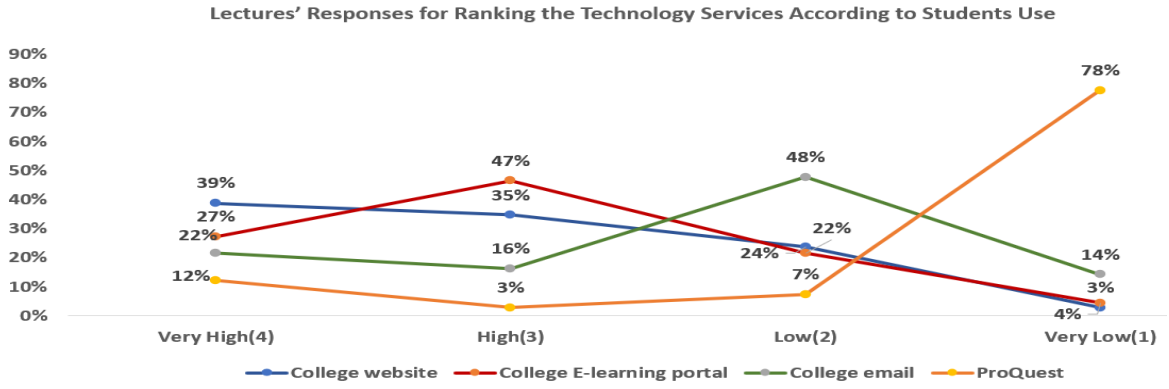


Figure 27: Lecturers Ranking the College's Technology Services Students' Usage

The above graph compares the usage of the college's technology services by the students as perceived by the lecturers. It shows that the rate of using the college's E-learning portal and website occupy the higher levels. In contrast, the rate of email use and ProQuest is at the lower levels. As shown in the two graphs, the E-learning platform is more involved in the

students' work than the other technological services, and this would, therefore, represent more advantages for them.

In terms of how often the students use the E-learning portal, the pie graphs below show the results of the students' responses when asked about their frequency of use of the college's E-learning portal. As the figure displays, 33% of the participants use E-learning daily, 28% reported that use E-learning more than three times weekly, 37% use E-learning two to three times a week, and 2% do not use it at all. This finding indicates that the number of participants using E-learning is high, and this will allow them to perform different features with more practice.

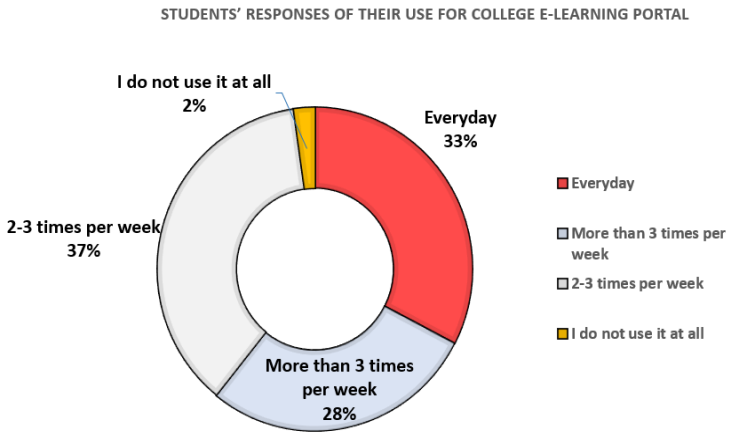


Figure 28: The Students' Frequency of Use of the College's E-learning Portal

It was helpful to know their views on the source LMS. The E-learning technical support staff and coordinators were asked to name the source LMS used in the college.

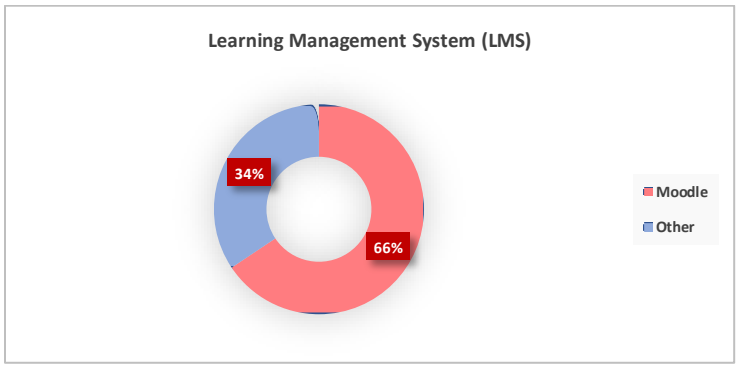
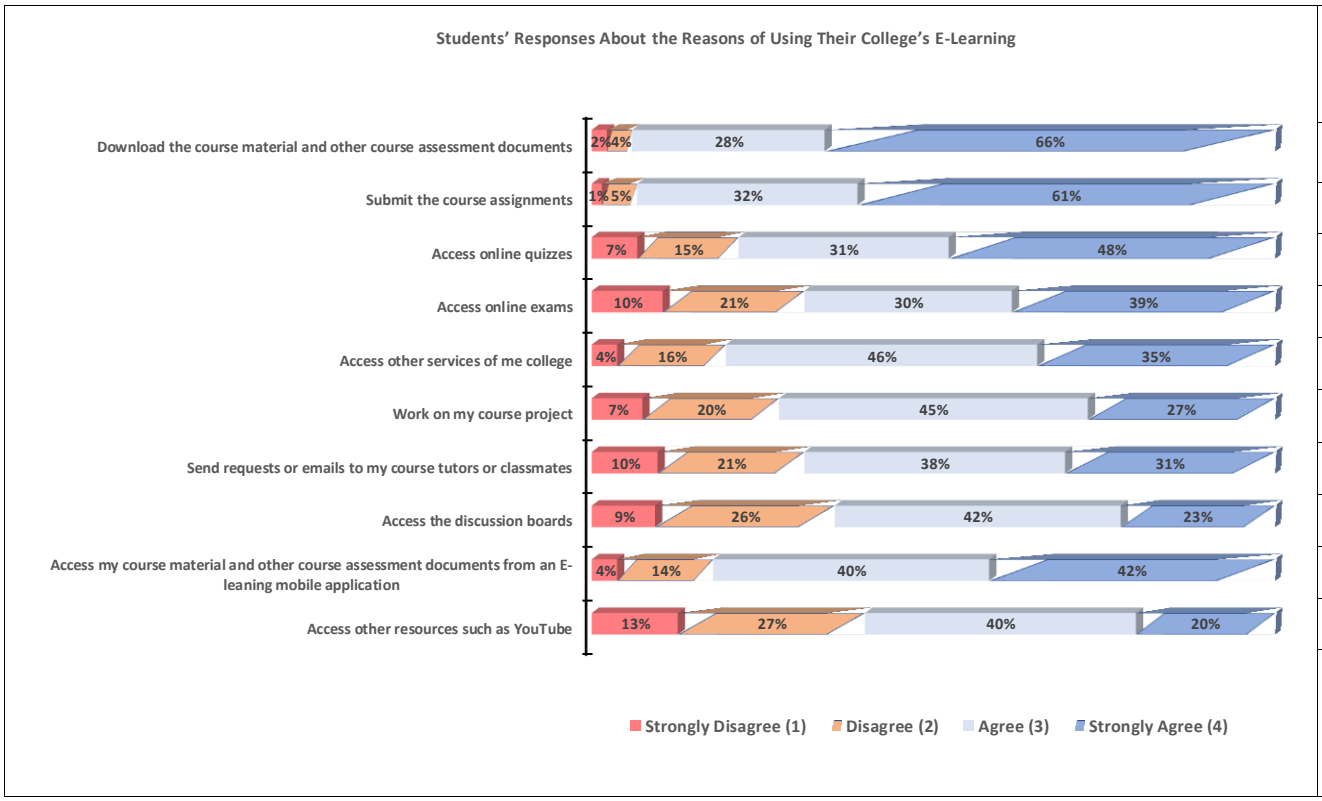


Figure 29: E-learning Technical Support Staff and Coordinators about LMS

The question was opened-ended, and the respondents were free to type whatever answer they wanted, but their responses were not easy to understand, perhaps because of their lack of knowledge about E-learning, or the question was not clear, as only one answer was given. Moodle as a free open learning source featured strongly in the answers.

The respondents were asked to clarify their purpose of using the college's E-learning system. From the graph in Figure 30 it can be observed that 72% and 94% agreed and strongly agreed that they used it for downloading course material and other assessment documents, submitting course assignments, accessing online quizzes, accessing other services, working on their course projects, and accessing course material and other course assessment documents from the E-leaning mobile app. However, the usage of the college's E-learning system shows a low level of use in sending requests or emails to course tutors or classmates mean rate is 2.9, access the discussion board with mean rate 2.8, and accessing other resources such as YouTube that mean rate is 2.7. The rate of agree or strongly agree in terms of the usage of these three items is between 60% and 69%.



Mean Rank
3.6
3.6
3.2
3
3.1
2.9
2.9
2.8
3.3
2.7

Figure 30: Students' Purposes for Using the College's E-learning

5.4.1.6. E-learning Policy, Awareness, Impact, and Feedback

The two tables below display the results of the survey questions on E-learning policy, awareness, encouragement of use among students, providing feedback and updates about E-learning development, and the impact of E-learning in improving and enhancing students' learning processes and skills.

The results of students' responses indicating their level of agreement with the following statements:	Agree levels (4–3)	Disagree levels (2–1)	Mean Rank
I am aware of my college's policy for using E-learning	84%	16%	3.2
There is awareness among students of using the college E-learning system	80%	20%	3.1
There is encouragement from the college among students in terms of using the college's E-learning education system	81%	19%	3.1
Academic faculty members in my college support E-learning education as a way to enhance students' graduate skills	78%	22%	3
My college involves me in providing feedback about E-learning developments and updates	75%	25%	2.9
E-learning education meets my personal learning needs and goals	77%	23%	2.9
The use of E-learning is helping me to improve and enhance my learning process	80%	20%	3
The use of E-learning helps me to improve my employability skills	71%	29%	2.9

Table 28: Students Answers about E-learning Statements.

The results of the lecturers' responses indicating their level of agreement with the following statements:	Agree levels (4–3)	Disagree levels (2–1)	Mean Rank
The college has an E-learning policy	91%	9%	3.5
There is sufficient awareness among students about using the college's E-learning platforms	95%	5%	3.5
There is encouragement from the college among students in terms of using E-learning education	97%	3%	3.5
The students know how to access the college's policy on E-learning	86%	14%	3.3
E-learning education can positively impact the students' personal learning needs and goals	96%	4%	3.5
The college involves me in providing feedback about E-learning developments and updates	91%	9%	3.4
E-learning might play a good role in improving and enhancing the students' learning processes	97%	3%	3.5
E-learning, as a technology in learning and education, has a positive effect on the learning and educational journey of students	97%	3%	3.5

Table 29: Lecturers Answers about E-learning Statements

Table 28 shows that 80% to 84% of students agreed that they are aware of their college policy, that the college encouraged students to use E-learning, and that the use of E-learning helps them to improve and enhance their learning processes. Between 22% and 29% of students disagreed with the statement that academic faculty members supported students in their use of E-learning to improve their skills, that their lecturers provided regular feedback on E-learning updates, that E-learning education meets their personal learning needs and goals, and that it helps them to improve their employability skills.

In comparison, the lectures' responses Table 29 show a very high positive rate of 91% or more for all the mentioned variables related to E-learning policy, awareness, and encouragement of use among students, its positive impact on the students' personal learning needs and goals, its positive role in improving and enhancing the learning processes, and their involvement in providing feedback about E-learning developments and updates. The

rate of disagreement, at 14%, indicates that the students do not know how to access the college's policy on E-learning.

The above results reveal that students and faculty members have proper knowledge and understanding of the E-learning environment but need more awareness of the college's E-learning policy. Also, the students should be allowed to offer their input on E-learning.

To confirm that the technical support teams and E-learning coordinators know of the existing college policy on E-learning, they were asked if there is one in place. The pie chart below shows the result of this question.

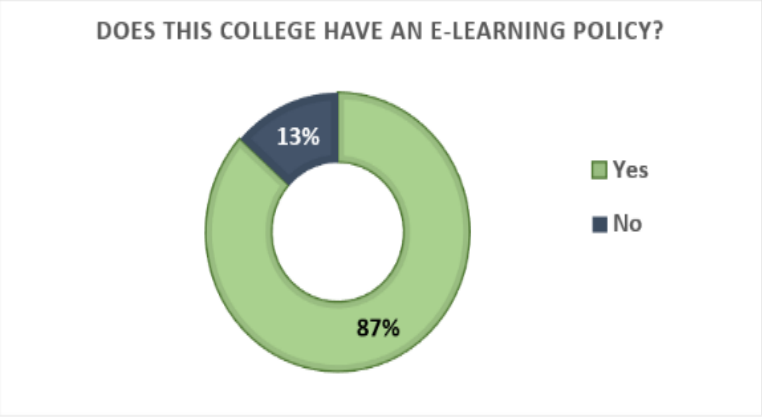


***Figure 31*:** The Existing of College Policy

As shown above, 87% of the respondents responded positively, and the remaining 13% responded negatively. To expand on the result, the participants were asked to comment on their answers. The specifications the respondents gave regarding the E-learning policy included its usage for assignments and discussions and its approval since 2007. Also, they highlighted that the policy states that it is compulsory for lecturers to upload their course learning materials to Moodle. Students can access the learning materials for the courses they have enrolled through Moodle, and lecturers are required to encourage students to upload their supplementary exercises to an E-learning platform on a weekly basis.

This result shows that in certain colleges the policy is accessible, with clear rules and instructions but is not implemented in other colleges. It may also be that the policy was decided the respective administration teams or departments, without the involvement of other stakeholders. Such policy needs to be discussed with the staff, and there should be command rules between the colleges in terms of its implementation and instructions for use. This would help demonstrate the beneficial outcomes when evaluating it to produce better outcomes from the E-learning concept.

Also, the participating E-learning technical support teams and coordinators were asked about the level of academic staff and students in giving feedback about the E-learning system. As can be seen from the results represented in the line graph below, academic staff involvement in giving feedback is higher than student involvement. As this shows, the feedback from students on the E-learning system requires more engagement.

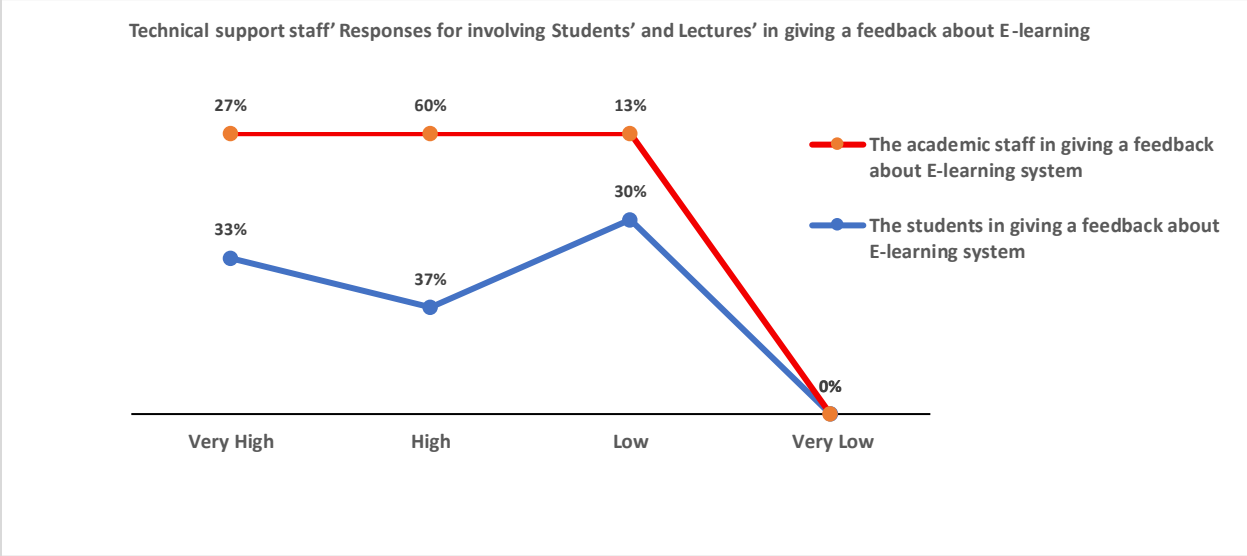


Figure 32: Academic Staff and Students Involvement in Providing Feedback about E-learning

5.4.1.7. Evaluation of the In-Place E-learning System

Figures 33 and 34 show the students' and lecturers' evaluation of the E-learning platform respectively. The students indicated their agreement in terms of the variables, with a mean rate between 2.8 and 2.9. Altogether 31% thought that the quality of the E-learning system and the college's effective utilisation is low, similarly in terms of its overall accessibility. It is worth noting that between 1% and 3% answered with 'not applicable'. As illustrated in Figure 33, the lecturers' responses reflected a high level of agreement with the E-learning variables, with a mean rate above 3.1. Very few students (1%) responded with 'not applicable' in relation to accessibility through the E-learning mobile app. Both figures suggest that the students' and lecturers' attitudes towards the impact of E-learning on employability skills development is the same, with a mean rate of 2.9.

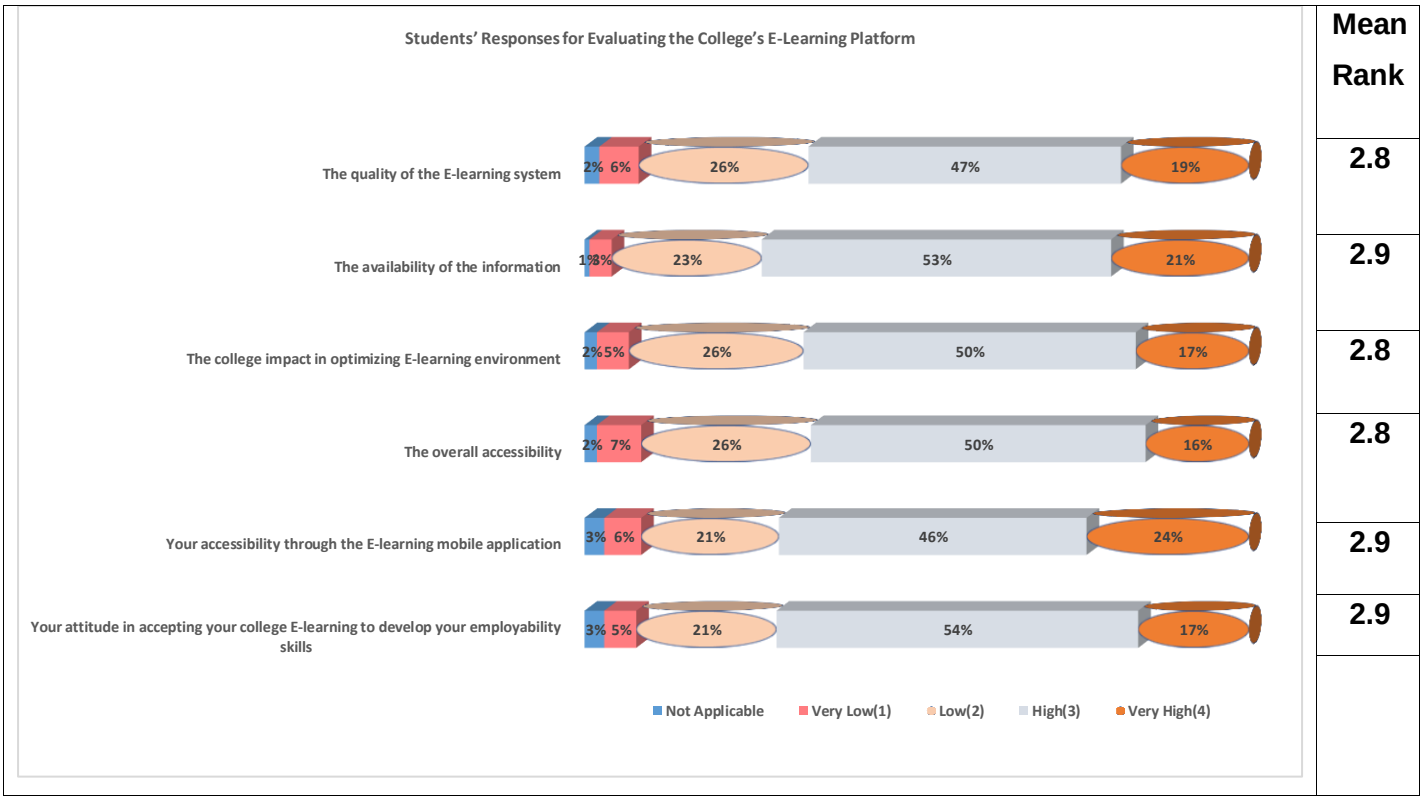
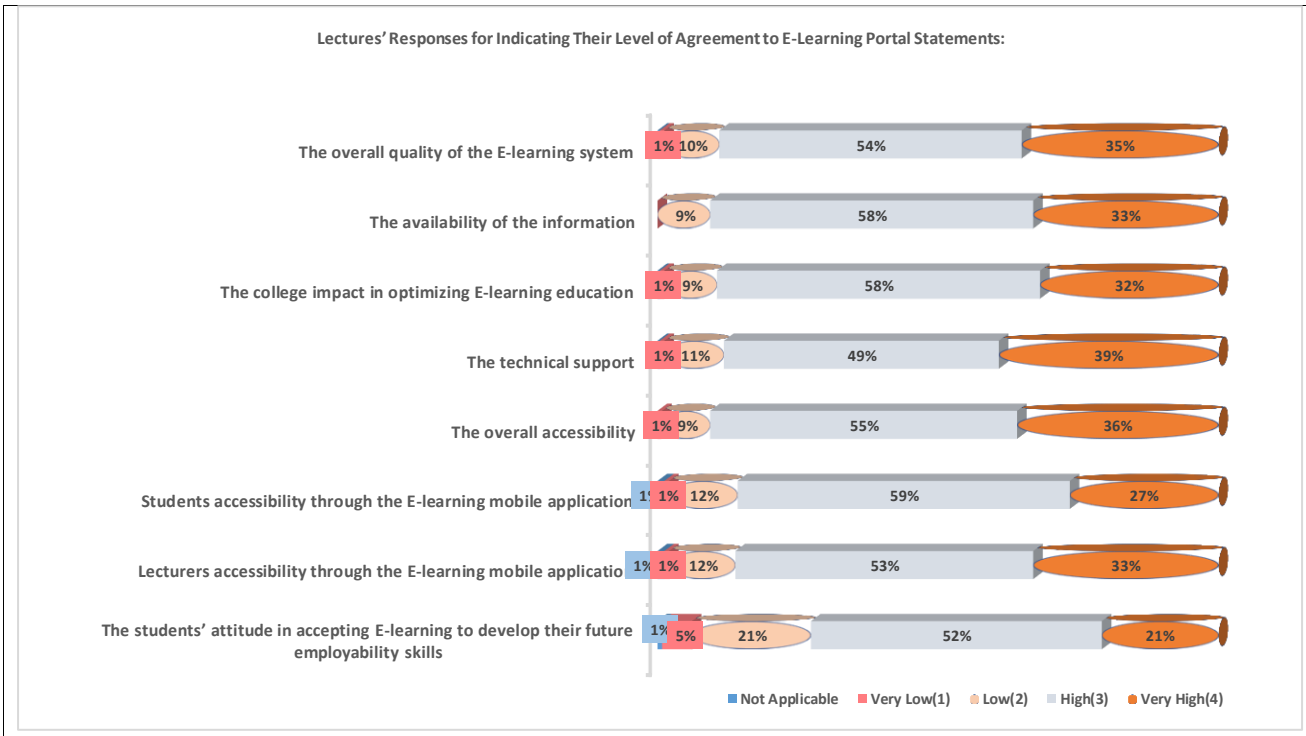


Figure 33: Students' Evaluation of E-learning Statements



Mean Rank
3.2
3.1
3.2
3.3
3.3
3.1
3.2
2.9

Figure 34: Lecturers' Evaluation of E-learning Statements

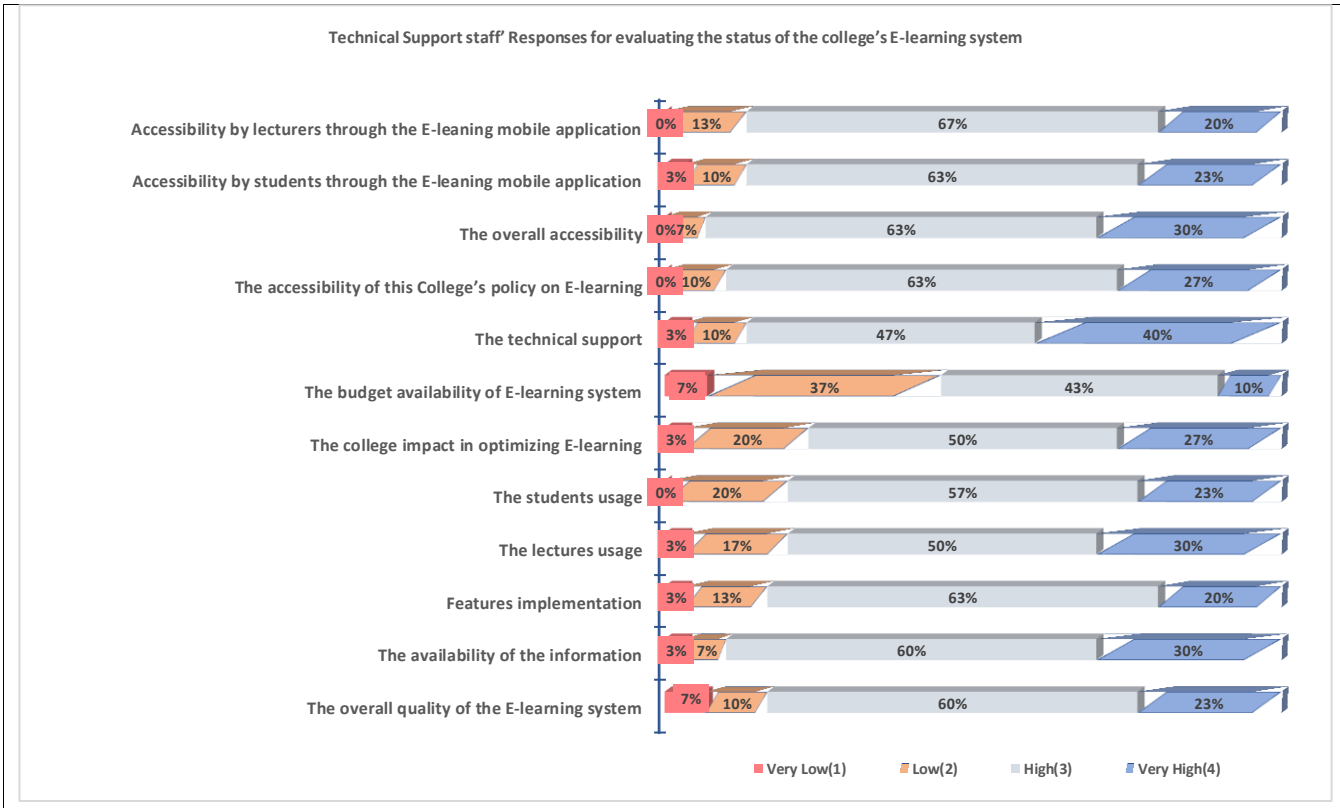
Here again, the findings emphasise the need for a better understanding of the E-learning environment and the quality of the system, its features, accessibility, and usability. At the same time, adopting E-learning as a means of improving their skills would add advantages to the students' potential. Another part of the evaluation covers the variables, as shown in Table 30 below:

To what extent do you think your college E-learning education is…?	Students			Lecturers		
	High extent (4-3)	Low extent (2-1)	Mean Rank	High extent (4-3)	Low extent (2-1)	Mean Rank
Functional	78%	22%	3	93%	7%	3.4
Regularly Updated	71%	29%	2.9	89%	11%	3.3
Features Implemented	75%	25%	2.9	81%	19%	3.1
User Friendly	77%	23%	3	88%	12%	3.2
Connected to Other Educational Resources	72%	28%	2.9	70%	30%	2.8

Table 30: Students and Lectures Answers about E-Learning Education Variables

The above table displays both students' and lecturers' responses on the level of E-learning functionality, updates, features added, user-friendliness, and connectivity to other educational tools. The surveyed lecturers rated the levels of E-learning higher than the students. However, both groups agreed that E-learning only provided a low level of access to other educational services, with 28% and 30%. These findings mean that increased access to other educational opportunities via E-learning would help students to enjoy more of the benefits.

The E-learning technical team and coordinators were also asked to evaluate the same items related to E-learning, and their responses resembled those of the lecturers closely. However, their responses differed on the usage of E-learning among students and lecturers and the accessibility to E-learning through the college's policy, at a high level, with rates of 80% and 90% respectively. Also, they reported that a proper budget for the E-learning system was not available (43%).



Mean Rank
3
3.2
3
3.1
3.1
3
2.6
3.2
3.2
3.2
3.1
3.1

Figure 35: Evaluating E-Learning Elements from the Point of View of E-Learning Technical Team and Coordinators

5.4.2. Finding of Theme (4): E-Learning's Impact in Developing Students' Skills.

This theme was aimed to operate the sub-sequential question: **What are stakeholders' perceptions about accepting the use of E-learning to develop student skills?**

This section discusses the results of the questions on students accepting E-learning as a tool to develop their skills. The results were expanded through the survey questions on those aspects that need to be amended or optimised to improve the E-learning system. It was important to understand the views of the survey participants on E-learning to support the development communication, teamwork, time management, ability to work under pressure, computing, and English writing skills.

5.4.2.1. Students' Attitude Toward Accepting E-learning as Tool for Developing Skills

The interviewees views regarding the students' use of E-learning as tool for developing their skills can be summarised as follows:

Regarding E-learning acceptance, all **CDS** speakers highlighted that E-learning is already an integral part of delivering all courses. Students have already embraced this culture and are at ease doing quizzes, assignments, and other activities online. In terms of developing lifelong learning and other graduate skills, they think E-learning supplements the role of the course tutors, as the students are not only immersed in using technology to supplement and reinforce their learning, but more importantly, student develop more responsibility, accountability, and independence, which are very important characteristics for successful employees.

The opinions of the **CDS** interviewees about the students' positive attitude toward E-learning centred on the following points:

CDS1: They are more welcoming to integrated technology in the learning process and the embedded skills on it. I think that a proper utilisation of the social media tools has made it so easy and effective.

CDS2: They accepted that the college has a no-paper policy in terms of distributing course materials, and thus, they rely heavily on E-Learning portal for their course materials and handouts.

CDS3: Most communication between teachers and students are done online using E-learning.

The **FGD** perceptions are reflected in the following statements:

FGD1: I assume students will be happy to try it in this part, and it will be useful. If E-learning updates to all new technology with good and free examples based on the field of study, that will help a lot.

If E-learning is functional in a proper way that will really help, and they will accept it as a method of online communication, and there should be more awareness of using the E-learning platform.

FGD2: I believe that eighty percent of the students will be happy to accept E-learning for their skills development; however, I think maybe a few will not be interested in using computers. This is because during high school not all students were well prepared in terms of using computers in the educational environment. General education only teaches students the simple basics of using computers. We were not too aware of the importance of using computers and technology tools for future work.

FGD3: Students are happy to use it, especially if E-learning has been updated to all new technology with good and free examples based on the field of study, that will help.

FGD4: It depends on the level of awareness of the use and the benefits of E-learning.

The **FGD** interviewees added that there is a lack of awareness among students in the form of 'invisible awareness'. E-learning is not encouraged that strongly, and students only use it to meet the course requirements. They only use it to submit their assignments and download course material.

The **EMY** interviewees thought that the acceptance of E-learning as a tool for developing skills depends on the resources available in each institution. Some students like to use different types of technology, such as E-learning, while others do not. It is the responsibility of the college to encourage the use of E-learning among students.

EMY3: When we say E-learning, there's lots of things about how interactive it is, and in terms of gamification. And there are things to do with virtual reality for example, or augmented reality.

EMY4: It just depends on the person, and his or her commitment and responsibility.

The views of the **PDM** participants about students' attitudes towards accepting E-learning as a way of developing the mentioned skills can be summarised as follows: It will become accepted by the students and will encourage them to manage their workload. As a result, it will increase their potential through gaining more knowledge and skills. However, the colleges should consider some issues, such as the level of awareness of the use and the benefits of E-learning. Also, they must realise that some students need more guidance and encouragement in using computers or new technology.

PDM5: I believe that the first year in college is very important, and the colleges should give the students all of the guidelines about its available services as well as giving them good examples of how to use them and what are the benefits of using them.

5.4.2.2. Requirements to Modify E-Learning Features

The purpose of this survey question was to understand the level of lecturers' involvement in improving E**-**learning to make it more effective**.** As seen in Figure 36 below, about 74**%** of the respondents agreed that E**-**learning education in their college needs to be upgraded to enhance the employability skills of students. 87**%** of the respondents supported the point that students should regularly use E**-**learning to help build their employability skills**.** 29**%** thought that their college did not need to change much that about E-learning, while2**%** and 3**%** rated the first two statements as not applicable**.**

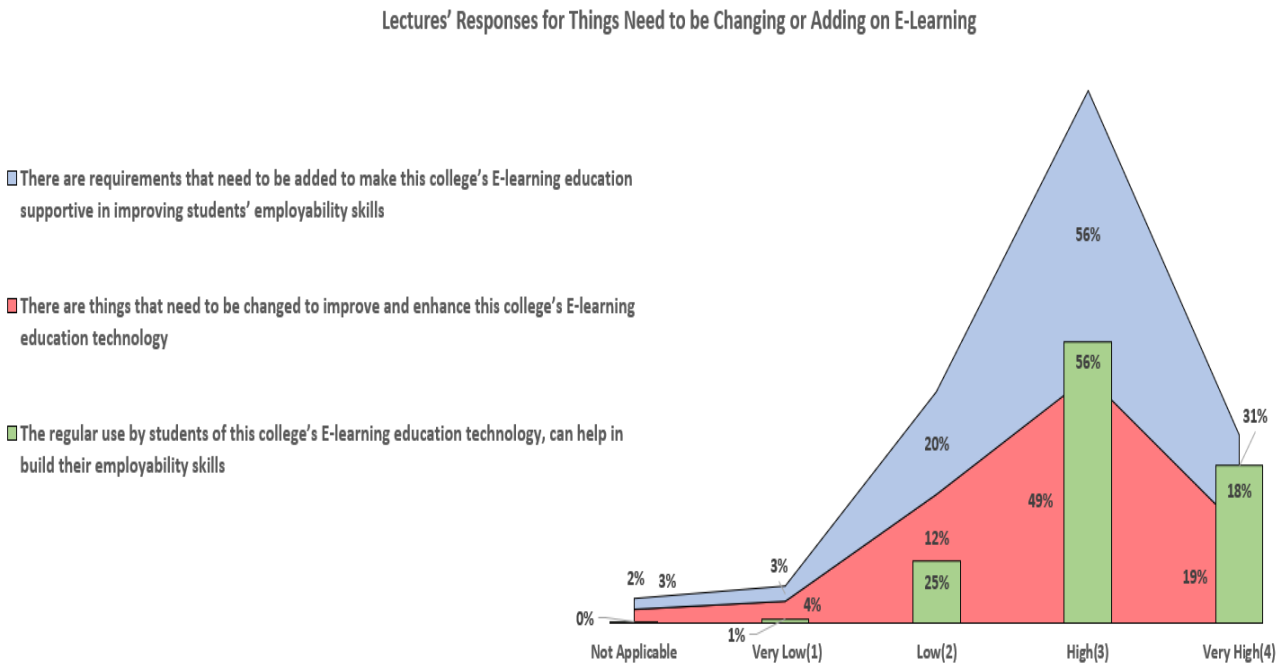


***Figure 36**:* E-Learning Modification Expected by Lecturers

As an academic person, I agree that meeting the requirements of E-learning such as have the applicable LMS and the education environment will make E-learning more flexible, readily available, and easy to access. This will promote this online service among students. Also, when students practice E-learning activities and benefit from its advantages in terms of knowledge and skills acquisition, they will become more independent and responsible learners. The respondents felt that it is better to focus on fulfilling the existing requirements rather than make changes. The lecturers' primary concern seems to be about the teaching and learning process rather than the specific features and items of E-learning.

To elicit more information from the participants, they were asked about their perceptions of the things which need to be changed to improve E-learning to build the students' employability skills. This question was included on all three sets of survey questionnaires as an open-ended optional question. The question received 144 responses out of 545, and the following paragraph includes a summary of the points indicated by the respondents.

Currently, the E-learning assessments are anchored to the attainment of GAs and employability skills; however, the colleges must check whether this is being done properly across all courses and in all departments. E-learning should support active learning modes such as classroom learning. Once a new technology has been developed and introduced, the college has to offer a new course related to that new technology in response staff. Providing students with information regarding job opportunities and the most widely required skills in the industry (national or international) is crucial. Therefore, both students and teachers need to be motivated and ready to engage with the E-learning resources available to them, and students should be trained well to use them.

There are some changes which should be made to the different elements of E-learning, such as its features and usage, infrastructure, and the support of students' skills, with a focus on employability skills and labour market needs. Further, students need to be more encouraged to use it and recognise its potential benefits. In terms of its features, additional functions related to examinations are recommended. In addition, students do not make full use of this platform, so more interactive features are required to make it more colourful and attractive, and an increased space size would make it more user friendly. Furthermore, some points which were raised include that the college is on a par with the latest technology and students are using the system well. If the students use all the available features, that by itself would support their employability skills. Moreover, with regards to an assessment plan, preparing a separate CDP can be avoided, as E-learning can carry this function well.

In terms of the current E-learning usage and encouragement, students are encouraged to use this platform, but it is not mandatory. As a result, only few students engage in it. The college needs to encourage students in terms of the importance of E-learning by giving a proper orientation before the start of the academic year. The college could introduce the E-learning portal to all college users and give a brief on the updated software. The change of the assessment type from pen and paper exams to online practical exams is necessary because increased focus will be given to online practical classes and skills training. Moreover, CDPs need to be revised to incorporate E-learning and it should also be part of the assessments, so that the students give it more attention during their studies.

The E-learning environment, infrastructure, and portals need improvement, better E-learning training (with adequate time and resources) needs to be provided, and E-learning needs to be further developed in relation to practical subjects. Also, the current E-learning system should be simplified, and the academic staff must be required to use it consistently. At present, many courses do not include E-learning, and virtual classrooms have yet to become standard practice. The respondents also highlighted that the E-learning resources available to the students need to be more engaging, interesting, and relevant to their needs. For example, more technology resources, computer labs, software, and facilities should be added to the learning environment. Also, the responses indicated that there is a lack of e-books and other resources available on the E-learning platform. The respondents believe that adding more open labs where students can use the internet in their free time and have remote access to college facilities (e.g., e-library and college intranet) would be helpful. Added to that, the means for developing step-by-step OER videos on the existing E-learning platform is very good. However, infrastructure factors such as bandwidth and server storage must be enhanced, and all classrooms require internet connections or Wi-Fi. Similarly, online class streaming, social learning, and E-learning through mobile devices are to be encouraged.

The inclusion of instructional videos to promote students' involvement and awareness of using E-learning should be encouraged, and regular feedback from the students is required, because students need to be able to learn independently and manage their time, knowledge, skills, and experience. These skills are essential in terms of making them employable in the future. Foremost, students' awareness and understanding of the use of E-learning must be raised and cultivated, as a large proportion of them ignore its importance or underestimate it.

In terms of the above point, some respondents mentioned that certain skills can be learnt through E-learning, such as reading skills, analytical skills, and problem-solving skills; that is if all the information is updated by lecturers throughout the semester. However, to enhance student skills via E-learning, requesting the feedback from staff and students at regular intervals and strictly implementing changes based on this feedback is very important.

When it comes to involving E-learning in developing employability skills, special courses on employability skills need to be developed and uploaded. Projects can be assigned to students, and students can be encouraged to make presentations and videos on

employability skills and share them on the E-learning system. This would support the changing of students' attitudes towards E-learning. This can be shared with the labour market by providing certain industries access to the E-learning system. Also, offering special courses for skills development and awarding certificates is necessary, and a link to other universities and on-line portals.

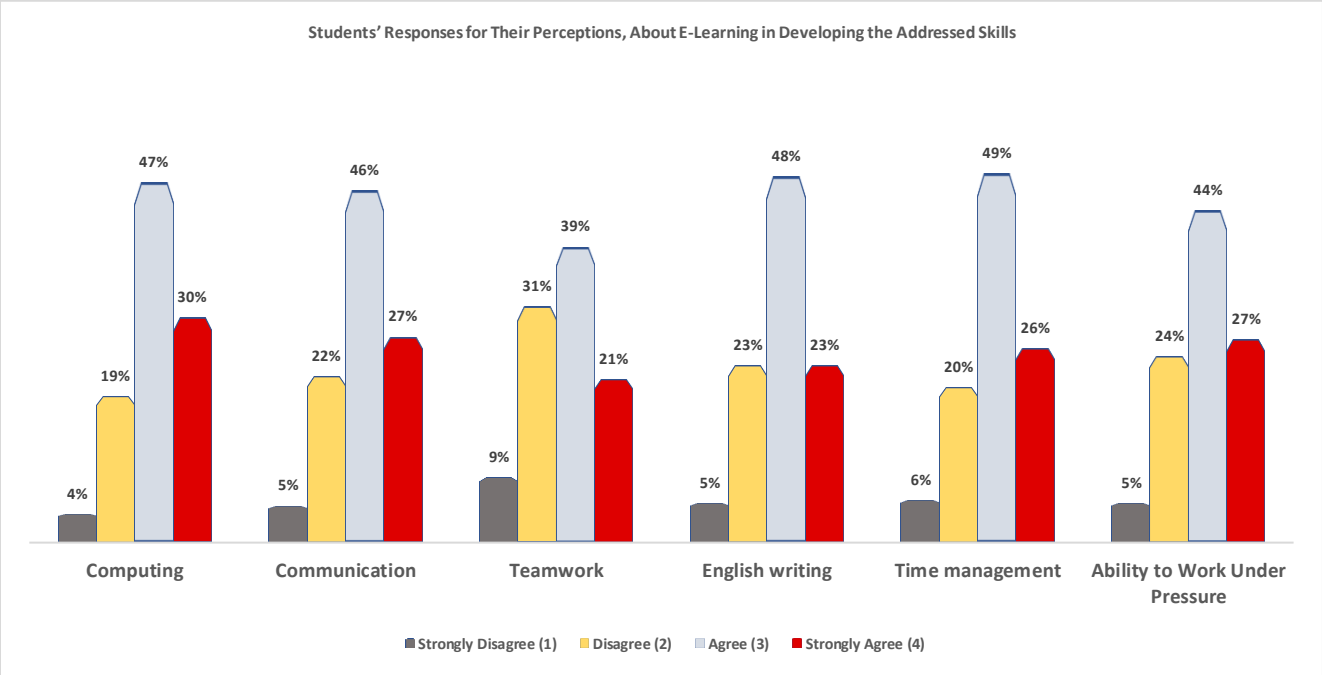
Some participants shared their thoughts about improving the mapping of assessments to employability skills, and the need for video tutorials and streaming to provide interactive learning related to employability skills. Some clarifications were offered in that there are some employability skills improvement programs available in the market via live training sessions. Such live streaming and video conferencing options should be accommodated on the Moodle platform and framed according to the demands of the labour market. Furthermore, activities and assessments could be modelled on authentic employment situations, which would provide more exposure to the modern job market. Information on technological advancements could also be made available on Moodle; for example, some activities could include communication and personality development ideas.

The job market in Oman requires people who are apt in using technology for communication. The college's E-learning system prepares students for this, and it is a great tool to augment students' learning and facilitates the teaching process. However, it is not sufficient to develop students' employability skills alone; their personality and academic profile has also to be considered. In this matter, on the one hand the participants provided some recommendations such as adding course material which includes the basic and important concepts in terms of students' specialisations for building their employability skills, such as assessments. On the other hand, others highlighted writing, time management, communication, teamwork, ICT skills, and critical thinking. Offering E-learning tutorials on these topics could provide students with important information to enhance their reading, communication, vocabulary to improve communication, time-based English writing skills, using different types of applications. Also useful are tutorials on how to deal with the technical support service and online mock interviews.

5.4.2.3. The impact of E-learning on developing communication, teamwork, time management, ability to work under pressure, computing, and English writing skills.

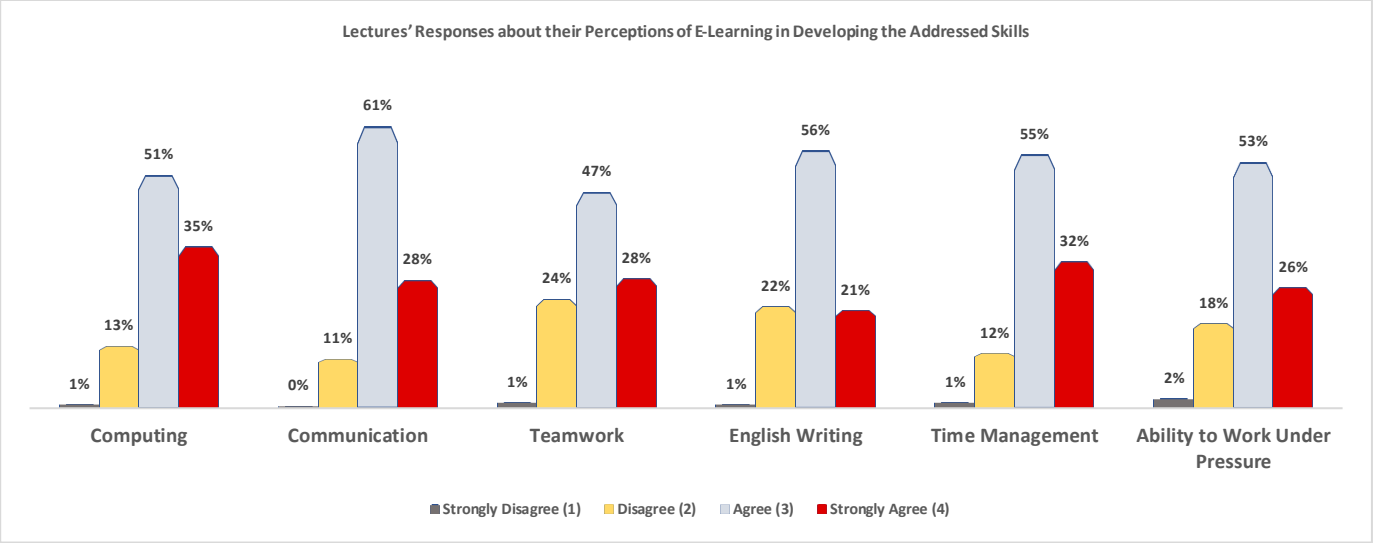
This subtheme belongs to survey part and operates the sub-question: **What are the students, lecturers and E-learning technical team and coordinators perceptions towards E-learning for the development of students' communication, English writing, teamwork, time management, the ability to work under pressure, and computer skills?**

From the responses gathered from the survey participants, the three following bar charts (Figures 37–39) illustrate the results related to E-learning and the above-mentioned skills:



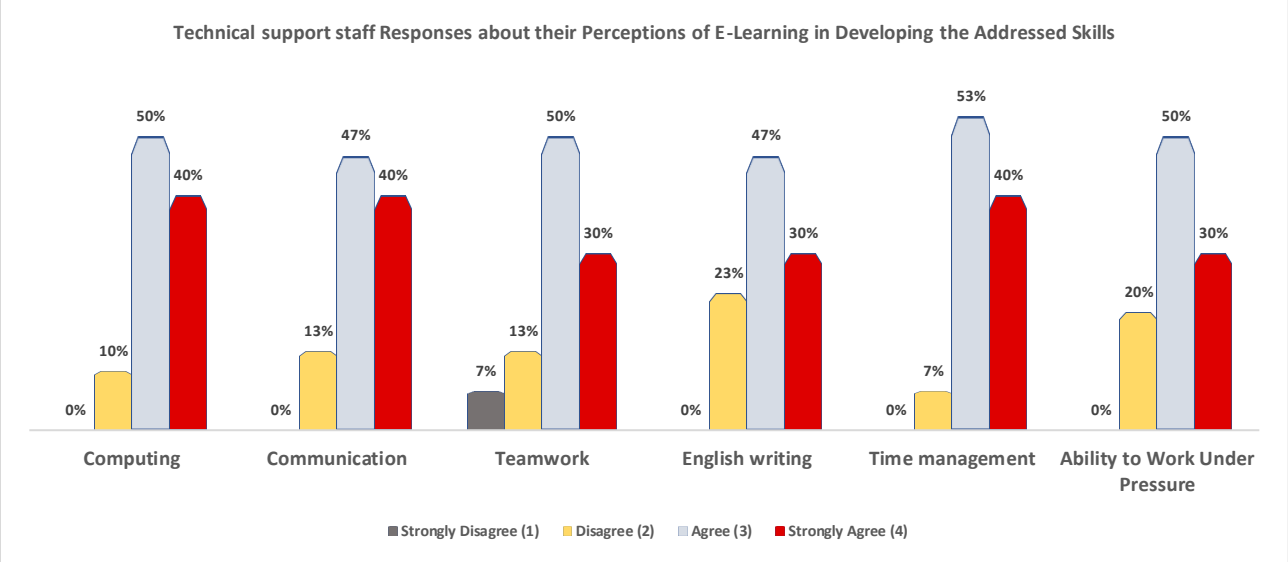
Mean Rank	**3**	**3**	**2.7**	**2.9**	**2.9**	**2.9**

***Figure 37**:* Students' Perceptions about E-Learning and Developing Student Skills



Mean Rank	**3.2**	**3.2**	**3**	**3**	**2.9**	**2.7**

Figure 38: Lecturers' Perceptions About E-Learning and Developing Student Skills



Mean Rank	**3.4**	**3.3**	**3.1**	**3.1**	**3.4**	**3.1**

Figure 39: E-learning Technical Team and Coordinators' Perceptions About E-Learning on Developing Student Skills

As can be seen from the first two graphs, the majority of those who responded, both students and lecturers, agreed to a high degree that E-learning helps develop students' computing,

communication, teamwork, English writing, time management, and ability to work under pressure skills. The highest strong disagreement level is in relation to teamwork. The third graph, Figure 39, displays the responses of the E-learning technical team and coordinators participants to the same question and shows a high level of agreement for all skills, including teamwork.

This question showed a strong agreement response among the three groups with a minimum mean rate of 2.7 and a maximum mean rate of 3.4. This result reflects that E-leaning is considered as a trusted resource for developing student skills. The participants indeed focused on the advantages, benefits, and all other key items of using E-learning.

5.5. Outline of the Relationship of the Key Findings with Themes and Conceptual and Theoretical Frameworks

Following the discussion of the findings and linking them to the explored themes, this section will provide my reflections of E-learning as a whole, including the relationship between all its elements and the themes and the linking them to the conceptual and theoretical framework. Therefore, I decided to begin this section by developing the E-learning atmosphere, considering the criteria described in the literature review (e.g., its components based on Gautam and Tiwari's (2016) design), its benefits, and its drawbacks. The factors presented as important E-learning elements in the conceptual framework belong to UTAUT and digital literacy. Each of these factors contributed to the discovery of the results; thus, there was a need to investigate their relationship with the aspects of this research as part of the conceptual framework, GAs and the relationship between GAs and E-learning. As a result, I was able to redesign the E-learning environment from my perspective that included all the elements that influenced the findings on the stakeholders' perceptions of the E-learning role in developing undergraduate work-related set of skills, as shown in Figure 40 below.

The E-learning environment was examined considering the stakeholders' UTAUT perceptions of social influence and conditions for facilitation, digital literacy, and components

of E-learning, in addition to its benefits and drawbacks. This was because these elements belong to the second aspect of CF. It was also important to discuss the other two aspects of CF relating to GAs definition and GAs (first aspect of CF), and the relationship between GAs and E-learning (third aspect of CF); further, the connections between the three aspects and the explored themes.

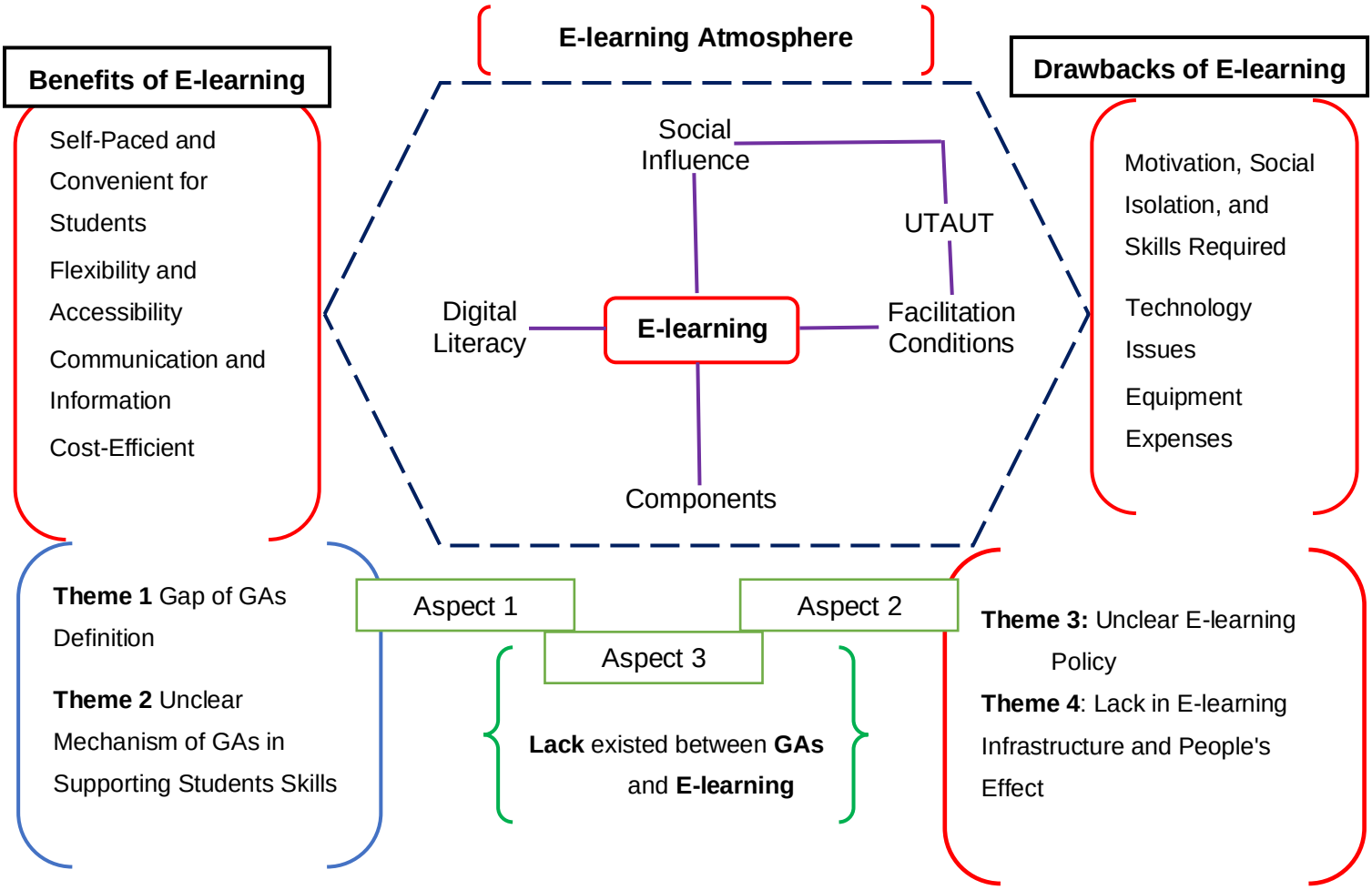


Figure 40 : E-learning Atmosphere and Skills Development

E-learning constituted the core of this study. The E-learning atmosphere or environment was composed of several interrelated variables; neglecting one variable may reduce the others' benefits. These factors including components as well as benefits and drawbacks were the interactive areas that encourage the user behavioural intention towards its use. For this research I found that UTAUT social influence and conditions for facilitation and digital literacy

supported the analysis of the findings regarding the perceptions of the participants. Given that all these areas were discussed in Chapter 3, it was necessary to include some examples that demonstrate the link to the conceptual framework that helped explain the problem and answer the research question.

I found that the UTAUT social influence and conditions for facilitation were the factors that explained the perceptions of the involved stakeholders about their behaviour and intention to use E-learning. The findings were linked to the understanding of digital literacy that would not be variable without the system components. Further, the user behaviour and intention would be positive if the system's benefits and drawbacks are recognised. Based on the analysis of this research and from my point of view, the diagram I created in Figure 40 served as an appropriate sample to be included in the E-learning atmosphere that this research wants to establish. Also, it contained all encountered elements as described in Chapter 3 which were helpful in building the interview and survey questions.

Aspect 2 of the CF which covered the E-learning components, benefits, and drawbacks that influence the users' behavioural intention and digital literacy is shown in Figure 40. Therefore, if students are considered the audience component of E-learning, they will undoubtedly be active and engaged once they discover its benefits (e.g., self-paced learning, convenience). This is reflected in a positive user behavioural intention in UTAUT social influence and a level of awareness about the use of digital literacy. In this research this part was found to have a good level of positive perception of the involved stakeholders.

However, if other disadvantages exist, such as a lack of motivation or required skills, or if there is no encouragement and awareness of the importance of using E-learning, this may result in a socially isolated audience who finds this environment incapable of supporting them. This also reduces the value of usability and results in a negative user behavioural intention in terms of UTATU social influence and conditions for facilitation and as well as digital literacy. And this research highlighted perceptions of such lacks.

Other components such as course structure, page design, and content engagement, provide advantages such as flexibility, accessibility, communication, and information. This part of the research analysis indicated some negative perceptions in terms of UTATU social influence.

Nevertheless, if these elements confront any hurdles, such as technological issues, all the advantages will be diminished. Furthermore, the cost-effective value of E-learning may become a challenge if students face excessive equipment or internet expenses. These elements were included among the UTAUT facilitation conditions based on the perceptions of the participants.

According to my own observations, the findings of the results studied the consequences of the stakeholders' perceptions with respect to UTAUT social influence, conditions for facilitation, and digital literacy. All E-learning components, benefits, and drawbacks can be divided into three major concerns: infrastructure, policy, and people's effects. As these three major concerns contain all the various parts of E-learning, any E-learning environment should include these three principles. These three elements have already been thoroughly explored in this chapter as well as in the review chapter. Consequently, I paid more attention to the effects of infrastructure, policy, and people's effects as well as their connections to the study's themes. To be more precise, my reflection is based on an analysis of the data and on the points raised in connection with digital literacy and UTAUT elements, as described in Chapter 3 on pages 82-86 I noticed that the findings related to the themes in the summary are primarily focused on points, such as Individual usage, engagement, knowledge, experience, trust, productivity, and potential and are strengthened by the system's ability to complete given tasks. Users will like working with the system if it makes work and activities more engaging. Moreover, with the appropriate instructions and support, this type of technology allows users to work at their own pace. All of this is, in my opinion, due to people's effects. Equally important are factors like the resources, knowledge, and support needed to operate the system as well as the system's compatibility with other known systems, and the organization's impact. All these elements influence and promote positive user behaviour. They will be more successful and better organized if there is an all-encompassing policy that provides suitable guidance in all its parts.

The created diagram (Figure 40) shows the relationship of the elements with the themes. The lack of E-learning infrastructure and people's impact are both addressed in **Theme 4**, while an unclear E-learning policy was mentioned in **Theme 3**. This result, which is related to **Theme 4** on the E-learning infrastructure, demonstrates a lack of UTAUT conditions for facilitation factor about the resources required to use the system as well as user behaviour.

Also lacking are UTAUT social influence factor items such as behavioural intention and experience in terms of the people's impact on E-learning, users' feedback on E-learning, and students' motivation to use E-learning services. In addition, the findings link to the outcomes of the effect of E-learning on developing student skills (**Theme 4**) demonstrate a lack of digital literacy in terms of students' views toward system usage and encouragement. This part of E-Learning in the college education system (**Theme 3**) results also demonstrates a lack of behavioural intention of UTAUT social influence over organizational support for E-learning policy.

Aspect 1 of the of the CF discusses GAs definition and GAs and student skills. In terms of GAs definition, there are positive indicators in the findings, for instance students are capable of overcoming barriers to skill development which aids graduates in obtaining knowledge, practical skills, and confidence in preparation for the job market. However, the lack of a definite title for a course or module means to build student skills produces an ambiguous conclusion regarding whether students understand the meaning of GAs. This is because the results of stakeholders' perceptions of students' skills development (**Theme 1**) shows that there is an overlap between GAs and graduate skills due to the gap in the definition of GAs. However, I believe that the data corroborate GCM's human capital which strives to assist graduates in gaining knowledge, practical skills, and confidence in preparation for the job market.

With respect to GAs and student skills, the views of the stakeholders about the college educational system and preparing students for future work (**Theme 2**) suggests that there is unclear mechanism of GAs in supporting student skills. As these GAs are mapped to all course delivery plans, students can locate a description of their college's GAs; however, there is a lack of attention on employability and skills. Expanded information about this issue can be found in the conclusion chapter section 7.2. The diagram above demonstrates GCMs' lack of identity capital in terms of making graduates aware of their skill sets, competencies, and experiences so they can close this gap.

The final component, labelled as **Aspect 3** reveals the link between GAs and E-learning and indicated a gap in GAs and E-learning correlation. This part is linked to the views of the stakeholders on the college educational system and its role in preparing students for future

work (**Theme 2**) as well as the impact of E-learning in developing the skills of the students (**Theme 4**). An example of this gap is found in the underperformance of E-learning in the development of employable skills. This means that there is a lack of UTAUT social influence on students' behaviour when using the system as well as a lack of organisational support. However, this part emphasises the GCM cultural capital, whereby graduates need to select the appropriate techniques to present themselves in a targeted manner (on paper, online, and in person), and sensitivity to different cultural contexts.

Furthermore, I observed that there were some points I needed to critically reflect upon in terms of the analysis results of this research. This involved in particular the areas to which I paid more attention: the effects of infrastructure and policy, and UTAUT social influence and facilitation conditions. The table below lists two critical gaps that I thought were preventing the UTAUT factors to be linked to the findings.

UTAUT Factor	Effective and Consistent	Self-Critical Refection
Social Influence	Policy	UTAUT social influence explains the organizational impact, but the organization's implications on the system's rules and regulations need to be examined further.
Facilitation Conditions	Infrastructure	UTAUT facilitation conditions are lacking when identifying the system's budget.

Table 31 : Gaps Between Research Results and UTAUT Social Influence and Facilitation Conditions Factors

Upon closing this section, I wanted to demonstrate that the critical focus of the CF and the findings are associated with the themes and the theoretical framework in terms of GCM and UTAUT social influence and facilitation conditions as well as digital literacy. And all needed factors as summarised in the diagram above will be further explained in Chapter 7, following further discussion of the themes and factors as provided in Chapter 6.

5.6. Key Strengths of E-Learning Environment

Based on this research sample, findings, results, and analysis, E-learning already constitutes an essential aspect of providing lessons in all CoT courses in Oman and fits the intended purposes. Furthermore, the educational environment for E-learning has a greater usage rate than the institution's other services and is accessible from any location and time via numerous internet devices. E-learning can boost student skills and the students have a positive attitude toward using E-learning. It helps students to improve their communication, teamwork, time management, ability to work under pressure, computing, and English writing skills. There are also signs that E-learning can be of benefit to other skills such as reading, analytical thinking, and problem-solving.

As a result, E-learning has proven to be a crucial instrument in delivering efficient online services through easy and inexpensive internet access as well as supporting other areas such as students' skill growth and development. The role of E-learning technologies during the COVID-19 pandemic is indeed noteworthy. From my own observations I learned that E-learning played a crucial role at all levels of education. It helped academic institutions to maintain their operations during the pandemic, to the benefit of the students, the staff, and society at large. It allowed learners around the world to gain new knowledge and skills in technology that will help to improve their future career prospects, in Oman and elsewhere. Many sectors suffered under the COVID-19 restrictions, but not so much the education sector which could make use of online learning. Teaching and learning were allowed to continue via different online portals, platforms, and applications.

5.7. Summary

This chapter presented the research findings derived from the interviews as well as the survey responses. The chapter was organized according to each research question and explored the themes related to student skills development, college system, and E-learning. Also shared were the researcher's reflections on areas pertaining to the research outcomes and the remarks on E-learning elements and their linkage to the themes as well as the connection to the study's conceptual framework in terms of GCM and UTAUT theories and, digital literacy and the key strengths of E-learning environments are presented. The following chapter will discuss the study's findings, tying together the data and literature.

Chapter 6: Discussion

6.1. Introduction

In the previous chapter, the findings and result analysis for the CoT in Oman were discussed. The aim of this chapter is to present a complete picture of this research by answering the main research question: **What are the perceptions among stakeholders of E-learning, a part of the college study system, towards developing a set of future work-related skills for university students in Oman?** This was done through discussing the findings and results taken from the content of the relevant literature review and the theoretical framework. The chapter starts with a discussion of student skills development during their study time (Section 6.2), followed by a discussion of the college educational system and preparing students for future work in Section 6.3. In Section 6.4 the focus is on E-Learning as part of the college educational system. The impact of E-Learning on developing student skills is discussed in Section 6.5, and the relationship of the discussion points to the theoretical framework in Section 6.6. Finally, Section 6.7 features a summary of this chapter.

6.2. Students Skills Development During Study

Theme 1: Stakeholders' Perceptions of Student Skills Development

This part explores all aspects of the findings from the colleges' various activities and cooperation among all stakeholders in terms of stakeholders' perceptions of students' skill development during their study time, as well as relating these findings with the literature.

6.2.1. The College Different Activities

With respect to all the participants' perceptions of student skills development that was explained in Section 5.3.1. of the previous chapter, it was found that the different college activities such as course study, self-study, and assessment make it easy to identify student skills in the long run. Also, students can embrace the concepts of cooperation, reading, teamwork, and facing challenges. There was also some follow-up feedback on the gap between student and employee skills development. All the participants agreed that it is crucial that students should take every available opportunity and resource to enhance their interpersonal skills and prepare them for their future careers. Additionally, the participants

believe that colleges can play a critical role by enabling students to succeed. The findings verified the work of UNDP (2020), emphasising the fourth sustainable development goal which focuses on the high level of education for youths and adults with relevant skills for employment, decent jobs, and entrepreneurship. Furthermore, the findings corroborated research Bridstock (2009) and Singh, Thambusamy, and Ramly (2014), who asserted the importance of people with a range of generic, hard, soft and employability skills, as well as technological knowledge skills, and how these skills relevant to their discipline or occupation can support students in the future workplace.

However, the findings revealed some significant issues related to student skill development, such as the lack of a specific name for a course or module designed to improve student skills, and the need for a higher level of proficiency in certain skills, such as office management and entrepreneurship. The issue was also brought up by the participants in connection with the lack of studies on underdeveloped skills among fresh graduates. Additionally, specific skills such as IT literacy, communication, teamwork, time management, ability to work under pressure, computing and English language as well as other required soft and interpersonal skills continue to fall short of expectations. Although employability and its skills are considered as a critical component of a college's mission, it has received little attention. It was suggested that students should be reminded of this goal regularly, and colleges should make a more concerted effort in this area. Additionally, it would be beneficial if colleges were to offer specific job-oriented courses that train students in the relevant employability skills. These results further support the idea of Goodwin et al. (2019), which is that targeted skills should be combined into programmes or courses and course learning outcomes to increase students' chances of obtaining future work skills. The findings agree with those obtained Green (1994) and Monkut (1998), which suggest that activities should be aimed at improving required HE knowledge and skills by delivering graduates who can meet the labour market needs, as well as encouraging more studies into all related aspects. With respect to this study sample, the findings seem to be consistent with other research that identified the lack of skills is a reason for the high rate of unemployed graduates in Oman (Al Hinai, 2018; Naqvi et al., 2018; Belwal, et al., 2017; Al Yaqoubi, 2017; Baporikar and Shah, 2012).

6.2.2. Cooperation Between Stakeholders

There is an effective showing of cooperation between all college stakeholders in the development of employability skills and employer needs, such as engagement with industry or organisations, benchmarking, external membership, and feedback. These results relate to the finding of Chinta, Kebritchi and Elias (2016), that HEIs are part of society. The HE framework is based on context, input, process, and product, as shown in Figure 4. These findings also further support the relationship between HE and the labour market, which has taken on a new dimension for the development of relevant regulations (Suleman, 2018).

Also, the results suggested that students are insufficiently aware of the labour market environment. Colleges should offer more outdoor courses, OJT, and short courses in communication, such as mock job interviews and CV writing, to help students improve and develop their skills, and materials should be updated to link the field of study to the required employability skills. Furthermore, the respondents emphasised that there should also be a separate application process for graduates. They should be tracked and offered to practice tasks for skills development, including how to prepare for an interview and what skills must be demonstrated. Besides this, programmes should be offered that assist students in improving their employability skills, such as live videos with graduates who can share their work experiences and employability skills. Some respondents indicated that extra training is important because it creates a real-life connection to the real-world working environment where employers can share their experience with students. Further, they suggested that training should be made mandatory, particularly for students who are working on their graduation projects. For those who are interested, this type of training could be counted as part of OJT or as extra training during the summer break. Also required are additional resources, as well as encouraging students' creativity. These findings demonstrated the need for schools to serve an education system, and the recognition that learning is a lifelong framework for developing skills (Green, 1994). These results are corroborated by Mason, Williams and Cranmer (2009), who recommend that HEIs are required to identify three methods to improve employability skills: internal skill evaluation, employer engagement in course development and delivery, and student participation in work experience through courses and related activities. This finding broadly supports the work of other researchers who highlighted the importance of graduate training and the use of resources and

programmes to encourage the optimisation of such training. This is to develop a broad range of discipline-specific and general skills at the undergraduate level in order for graduates to lead responsible, effective and innovative lives (The World Bank, 1994; Mason, Yorke and Harvey, 2005; Williams and Cranmer, 2009; Nabaho, Aguti and Oonyu, 2019). Some examples of these skills can be found in Section 3.4.1.

6.3. The College Educational System and Preparing Students for Future Work

Theme 2*:* The views of the Stakeholders About the College Educational System and Preparing Students for Future Work

This section discusses the findings from the GAs, educational curriculums, facilities, and services of CoT, the connection between HEIs and the labour market. Also discussed is how these findings compare to the literature.

6.3.1. College GAs

Based on this study sample of CoT in Oman, the results show that the MoM organised workshops for building and developing GAs following the college mission and vision. The participants' input and feedback of the stakeholders, including students, faculty, industry, community, and alumni, were received. The participants' feedback suggested that the students' understanding of what GAs and skills they will possess upon graduation is enhanced by course orientation in the outcomes of each semester, programme, and course. In addition, mechanisms for assessing students' understanding of GAs vary from college to college; however, all CoT familiarise the students with GAs through course activities and aligned assessments, students' performance in classes, course tutor and departmental responsibility. In terms of evaluating GAs, feedback is collected twice during the academic year from students and lecturers. There is a positive link between these findings and those of Daniels and Brooker (2014) and Yorke and Harvey (2005). According to Daniels and Brooker (2014), GAs offer HEIs a recognisable way to 'sell their products' while also training their students to be competitive and effective in the workplace. If students are inspired to develop these attributes or skills, they can focus on bridging the skills gap and produce positive outcomes by thinking outside the box, meeting obstacles with confidence, taking on more responsibilities, and driving their corporation ahead (Yorke and Harvey, 2005). The findings

also endorse the recommendations of Oliver and Jorre (2018), such as aligning GAs with institutional priorities, demonstrating the importance of student GAs and measuring their performance, and ensuring that they are integrated into the curriculum and published at the course level. In addition, these findings are in support of the human capital of GCM that helps graduates in becoming skilled and confident in preparation for the job market (Tomlinson, 2020).

Further observed was the lack of special sessions that need to be offered to students at all levels regarding the GAs they must acquire. Induction programs should discuss the individual GAs with the students. Moreover, according to some participants, graduates do not have a firm understanding of the critical role of GAs in the acquisition of knowledge and skills required for work areas, because they are unaware of the role of GAs and how these GAs effectively meet the course learning outcomes. They also believe that the mechanisms of measuring GAs should be more transparent. These mentioned drawbacks are highlighted in the literature reviewed by Hill, Walkington and France (2016) and Green, Hammer and Star (2009). According to them, integrating GAs is not an easy task and usually takes more than two academic years. GAs must be designed, implemented, mapped, and evaluated in the form of curriculum reporting, student attitudes, and survey design, with input from alumni and employers. These results are confirmed by the conclusions drawn by Hill, Walkington and France (2016) about mapping GAs within the curriculum, which will promote the development and evaluation of GAs as well as assist students and teachers in tracking their progress. However, measuring GAs is also necessary; otherwise, students and teachers are likely to disregard them. Hill, Walkington and France (2016) proposed that institutes should provide career development opportunities for academic staff, reward and recognise their contributions to incorporating GAs into the curriculum through providing better support and improve the relationship between academic and professional staff. As shown in the literature on HEIs in Oman, Belwal et al. (2017) explained that the focus on GAs is for three reasons: 1) increased competition for career and employment opportunities among students and institutions; 2) a reduction in education quality; and 3) a recent OAAA initiative. In specific CoTs, as indicated by HCT (2020), NCT (2020), ACT (2020) and ICT (2020), seven GAs were designed and authorised to help the CoT fulfil their motto, vision, and mission.

6.3.2. The Educational Curriculum, Facilities, and Services

In terms of the educational curriculum, facilities and services, the results indicate that the CoT provide a range of academic and non-academic resources as well as a range of services to assist students in meeting course learning objectives and developing more specific skills. In this context E-learning is highlighted as one of the important tools that students use on a daily basis. The participants, on the other hand, are concerned with the challenges that colleges face, such as what the curriculum needs to promote future work skill development, employer perspectives, rapid technology involvement in the educational environment, and improving the quality of education to meet the needs of future jobs. These findings are compatible with what was addressed in the literature review, as discussed by Chan (2016), which is that HE is facing a major challenge in terms of the programmes that colleges and universities may offer and the skills that the community expects of graduates. Today's community requires college graduates who are academically trained and skilled to be able to contribute to their communities. The literature review showed many successful examples of the support for using technological resources and tools to enhance student and graduate projects. For example, the HE system in New Zealand has been successful in improving graduate skills by implementing a competitive environment model that encourages universities and technical schools to compete for profitable graduates. As a result, Wellington has a booming technology market which is supported by two universities with IT programmes, several technical schools, and many private educational institutions (Stevens and Norman, 2016). In terms of improving the quality of education to meet the needs of future jobs, Osmani, Weerakkody and Hindi (2017) emphasised the importance of universities investigating employers' expectations and specifications for skills and graduate quality. This is because the universities must continue to update and improve their curriculum in response to changing market demands.

6.3.3. Connection Between CoT and Labour Market

Most participants in the study emphasised the strong link that exists between CoT, the labour market, and other organisations. This includes the development of graduate employability skills according to labour market needs, receiving feedback on employed graduates, involving the industry sector in corresponding visits, participating in workshops to review the college

curriculum, and incorporating labour market recommendations into teaching materials to make them more market relevant. Additionally, the viewpoints indicated that the colleges should use the proposed actions based on the available resources, as well as convening meetings with policymakers and decision-makers, to recognise more concrete gaps and obtain input. These results are significant indicators that confirm the findings of Hughes and Barrie (2010), who indicated that all stakeholders, including academia, industry and government officials, must work together to develop a set of policies that facilitate a more student-centred partnership, effective curriculum alignment, and professional employability initiatives through co-curricular activities. These results support the point raised by Chan (2016), which is that policymakers must consider strategies such as encouraging faculties to develop creative courses, curriculums, and activities that demonstrate expertise in 21st century skills. Additionally, the findings support the work of James et al. (2013), who used the example of the UK government implementing policies to move towards economic competitiveness by increasing the number of universities and students to improve student qualifications and skills.

Consequently, the suggestions made by the participants include adhering to global standards and promoting best practices in strategy plans, achieving the targets outlined in strategy plans such as Oman Vision 2040 and the national educational strategy 2040. Additionally, they recommended partnering with other organisations to produce graduates based on work demands and specialisations, strengthening and expanding employment opportunities in collaboration with employers to determine the available types of positions and vacancies, incorporating more technology into all educational activities, and focusing more on the creation of soft skills (e.g., such as communication, IT, and English language skills) which will assist alumni in their job quest.

The above findings are aligned with the elements highlighted in research as shown in the literature review. First, in terms of HEIs meeting the international standards a quality framework can be created by recognising international standards in terms of HE programs. According to Green (1994), this refers to the strategies for education, comprehension, skills and attitudes as well as the resources available to students, such as teachers, buildings, libraries, and equipment. Hendarman and Cantner (2018) emphasised that individuals must know how they are prepared to meet all international standards. These findings support the

cultural capital of GCM as defined by (Tomlinson, 2020) that involves helping graduates to acquire values in relevant field assessments, and the level of awareness and attentiveness to various cultural contexts. In the specific context of HE in Oman. Tawafak et al. (2018) indicated that public and private HEIs must meet the international standards in education through obtaining OAAA approval. Baporikar and Shah (2012) added that to meet international HE criteria, HEIs in Oman have imported the curriculum, employed international expatriates and faculties, and used, for example, English as the language of teaching and learning. Second, the Education Council Report (2018) revealed that according to the Education Council (2018), skill development is valued in Oman's educational system, and Vision Oman (2040) for better education aims to provide an adaptable and productive workforce that will increase productivity and improve efficiency in the market. In addition, according to the Education Council Report (2012), the need to change the skills growth for Omani citizens is one of the primaries aims of education strategy for 2040. Regarding the need to maintain close relationships with all stakeholders, this reaffirms the point made by Osmani, Weerakkody and Hindi (2017) about the importance of cooperation among all involved stakeholders to meet employer expectations and market needs.

Third, the literature review highlighted some of the most significant reasons for meeting work demands in Oman and providing job opportunities for Omani graduates. For example, Ennis and Roberts (2018) stated that Oman has made progress in improving its national human capital in line with its Omanisation policy. Some of the official Omani news publications, such as the Omani newspapers Al-Watan (2017) and Shabia (2016), discussed the specialisations and fields required in Oman's labour markets. Also, MoHERI (2020) declared that one of its departments OGSS is responsible for monitoring studies and reporting on the needs of Oman's workforce in terms of required skills, specialisations, and qualifications. Furthermore, OAAA (2010) noted that the CoT are among the best technical institutions in the country dedicated to building a sustainable infrastructure, competent human capital, and a diverse student body to meet Oman's changing educational and employment needs. However, Al-lamki (2000) and Ansari and McGlade (2017) emphasised that there is a lack of coordination and planning between training and development as part of education and labour market requirements. Further highlighted was the lack of skills exhibited by employees in various positions was noted as a major cause for very low employment and vacancy rates. Belwal et

al. (2017) said that Omani graduates lack employability skills due to a lack of clarity among stakeholders regarding their separate roles and duties or the process of connecting GAs to employability skills. Al–Maskari (2018) argued that education and training need to be promoted to ensure that graduate job seekers are given the requisite skills to be employable in major industries.

Fourth, in terms of the role of technology in developing student skills, many of the reviewed studies showed that technological resources contribute to skill development. As a result, HE, which is responsible for training future information technologists and computer professionals worldwide, must be compatible with the needs of the community that uses and creates much of this technology. These studies include Stevens and Norman (2016), who described the experience of New Zealand in improving graduate skills through the development of academic programmes and technological education. Further, Swinney and Williams (2016), studied the example of Liverpool John Moores University (LJMU) and its partners via the World of Work digital career platform. This platform was formed to provide students with regular feedback on the core skills that employers seek in new graduate hires and provide opportunities for development training on issues such as communication skills. Rafiq et al. (2020), addressed the fact that many organisations around the world have recognised MOOC as a free learning platform that can be used to improve skills such as English communication.

The recognition and relevance of computing, communication, teamwork, English writing, time management, and the ability to work under pressure in the future were significant. This finding presumed that students are well-aware of the value of this set of skills for their potential jobs, either through the information shared by their college or through the shared experiences of graduate job seekers. In contrast, some participants commented that instead of focusing on English writing courses, for example, the college curriculum should emphasise on effective communication skills, particularly spoken communication skills. As a result, colleges should offer classroom training before students begin any course programme. Also, to improve students' communication skills, all reports must be submitted online via email or E-learning rather than on paper or by hand. In this regard, some respondents expect more options for communicating with instructors related to the level of study to practice the desired skill. Another point related to GAs that was noted by some respondents is that too much emphasis is put on teamwork, at the expense of individual effort. The concern is that too many lecturers

have started focusing on how their students can improve their teamwork skills, while individual work receives less attention. This ignores the fact that weak students will not be able to contribute much to the group and need sufficient attention to their individual knowledge and skills first. The results, however, suggest that students may need additional guidance regarding the course's delivery strategy to optimise skill growth.

The findings bring attention to the existing literature in terms of the set of graduate skills that best fit the present job market needs, despite the facts confirmed in the studies by Hart Research Associates (2013) and Drummond and Rosenbluth (2015, cited in Goodwin et al., 2019), who believe that soft skills such as communication and teamwork are necessary. Further, the employability skills listed by employers for undergraduates include oral and written communication, leadership, teamwork, conflict management, initiative, transparency, decision-making, problem-solving, and critical-thinking skills. The findings also corroborated Olivier et al. (2014) regarding the six key field skills required by employers: writing and oral communication, the ability to adjust to new situations and workplaces, teamwork, IT skills, coping with pressure, being flexible, and managing deadlines. In terms of how to improve students' effective and spoken communication skills, the literature cited Osmani, Weerakkody and Hindi (2017) and Succi and Canovi (2020), who found that prospective employers expect students to use a range of written and verbal techniques to communicate directly and clearly and to be able to express thoughts, ideas, and opinions vocally and in writing. Compared to the GA of teamwork skill, individual work receives less attention; this argument is in accord with the comment of Nabaho, Aguti and Oonyu (2019) about the balance and equality that needs to be achieved between learning subject skills and generic skills. In terms of guidance for course delivery strategies that optimise skill growth, as the aim of this research is to investigate E-learning as a delivery service for the development of student skills, the reviewed literature included a similar point made by Musawi (2017) about Oman's need to increase investment in human and technical resources, as well as cultural values and preferences, to overcome the challenges of online learning delivery.

6.4. E-Learning as A Part of The College Education System

Theme 3: E-Learning in The College Educational System

This part covers the results of the findings about E-learning implementation and development and its usage in the educational system, E-learning policy, and the influence in teaching and academic management. It also highlights the expectations of the participants about the strengths and weaknesses of on-site E-learning systems and the attitudes of students towards accepting E-learning to improve their skills.

6.4.1. E-Learning Implementation, Development, and Usage in the Education System

In terms of the participants' shared impressions of E-learning implementation, development, and usage in the college's educational environment, the findings revealed that CoT provide an online learning platform (Moodle) and track student and staff usage. Each college's responsibility in relation to establishing and developing E-learning services is to ensure that every student has access to E-learning. ETC in each college ensures that the platform is operational and easily accessible. In addition, the college administration teams review the work of E-Learning regularly to determine the general E-learning impact on each college. These findings are consistent with Šumak et al. (2010) who discussed the many types of E-learning used in HEIs that include different types of LMS, such as Moodle. It also confirmed Guragain's (2016) finding that LMS is one of the main resources required in the development of an E-learning system. LMS is a software application that is used to create, implement, document, track, and access E-learning resources. Specifically in relation to Oman, the findings contradict the work of Musawi (2017) on the integration and dissemination of Moodle and E-learning platforms in various Omani HEIs and the findings of UNA (2020) which confirmed the use of Moodle as the major window for student E-learning system engagement in CoT.

When it comes to the use of E-learning, the rate of students utilising the college's E-learning portal is significantly greater than the rate of students utilising the institution's other services such as email, ProQuest and the college website. The findings demonstrate that the primary purpose of using E-learning in the educational system is to download course materials and lecture slides, accessing online short quizzes, checking results, posting assignment

responses, and other assessment activities. It was also discovered that the college has a significant impact on the supply of the materials that course teachers can utilise and incorporate in their online courses. The findings emphasised the need to gain a more comprehensive understanding of the E-learning environment, as well as the system's features, accessibility, usability, and quality, while also recognising that using E-learning to improve the existing skills set would bring advantages to the students' potential. These findings are compatible with many sections of this literature review on the benefits of E-learning, such as its self-paced nature, convenience, flexibility, and accessibility; E-learning materials are placed online and are available to students at any time (Hismanoglu, 2011; Guragain, 2016; Gautam and Tiwari, 2016; Nia and Kurniawan, 2019; Lara and Rico, 2020). Additionally, the findings emphasise the examples provided by Salsabila, Abdurachman and Marpaung (2019) of the various activities that students can engage in when utilising E-learning, such as downloading course materials, participating in online quizzes, and submitting tasks or assignments. It also supports the various E-learning elements identified by Nistal, Rodriguez and Castro (2014) in their literature review, such as knowledge levels, training, usage, comprehension of training skills, quality, content delivery, exercises, learning paths, and student tracking. In terms of the environment of E-learning systems, according to Bayona, Chavez and Sicha (2018), it has improved, allowing students to take advantage of features such as accessing, sharing, and exchanging information, time saving, the flexibility of time and place, connectivity, and better problem resolution. As stated in the literature by Villesseche et al. (2019), E-learning is an aspect of educational design that has opened new possibilities in the learning and teaching environment. Thus, adopting it is a good approach to gaining a better knowledge of students, evaluating their skills, and influencing their learning tactics to improve their performance. Regarding the importance of the usability and quality of E-learning in the reviewed literature, it has been referenced by Gautam and Tiwari (2016) that the things to keep in mind when doing usability analyses on E-learning are that all activities should work reliably, examine the material to make sure it is correct, and do a test in an appropriate server environment to assess learning goals and expectations. Quality can be defined as a reaction to a student's needs, and there is no easy definition of quality in E-learning. Scholars, on the other hand, have proposed several aspects of E-learning quality, such as it belongs to learning resources, learning processes, and learning setting (Rodriguez, Rainer and Miralles, 2014). It relates to the three quality subconstructs of system, information,

and service (Isik, 2008) and it is classified into three quality system constructs: technology, information, and service.

However, the findings showed that accessing online tests, submitting requests or emails to course instructors or classmates, and expanding other resources such as YouTube should all be included in the college's E-learning environment. Even though the percentage of students who use E-learning is much higher than the rate of students who use other services, the participants remarked that it involves too much effort on part of the staff who prepare the E-learning content, while student usage remains low. The students' insufficient use of E-learning has been attributed to a lack of awareness, that is effective E-learning introduction. The findings confirm the importance of additional E-learning components as identified by Nistal, Rodriguez and Castro (2014), for example, the importance of accessing exams, forums and chats, email and communication activity, surveys, group work, calendar, FAQs, glossaries, videos, and podcasts. The results align with Gautam and Tiwari (2016) who included audience among the important components of E-learning, which in this case are the students. Students are a vital component of the process of developing online learning. When developing an online course, it is critical to keep the following student aspects in mind: expectations, learning abilities, hardware/software availability, learning environment, task duties, and preferences. Šumak et al. (2010), listed many elements such as age, gender, experience, literacy, and individual learning styles as factors that can positively influence students' E-learning perspectives. Consideration should also be given to Lin (2011), who found that those students who have less expertise with utilising technology tools in education should not accept this education technique, as it impairs the quality of E-learning and user satisfaction. Additionally, Sawchuk (2013) attributed students' limited use of E-learning to factors influencing E-learning usage and limiting its benefits, some of which are connected to how it is presented to users, and how these users perceive it, and how effectively they use it.

6.4.2. E-learning Policy

Regarding the availability of policies on E-learning, the results confirmed that the E-learning policy is accessible to the college population, with clear rules and guidelines in certain colleges. However, it appears that it is not applied in other colleges. The results demonstrated that some colleges have developed the E-learning implementation policy through the policy

management committee, while other colleges' staff are directed by CC instructions to upload all course materials to the E-learning platform. Also, E-learning guidelines are prepared by ETC and distributed to students and staff.

Based on the findings, the participants suggested that the policy should be properly communicated to both students and faculty, and command regulations should be established between colleges in terms of implementation and usage instructions. Furthermore, the results highlighted the participants' expectations that, through E-learning policy, it should be mandatory for all course lecturers to upload learning materials to Moodle, so that students can access the learning materials for the courses they are taking via Moodle. Lecturers should also encourage students to upload their supplementary exercises or activities to the E-learning platform regularly.

The results in this part reflected the ideas extracted from the literature review that an effective E-learning strategy considers aspects, such as the organisation's guiding principles and policies as well as the development of course content (Ismail, 2001) and the classification of the policy on E-learning education. This was highlighted by Avellis, Scaramuzzi and Finkelstein (2004) as one of the aspects relating to ease of use. The results also emphasised the explanation provided by Nazarenko (2015) of the importance of having a clear academic policy and administrative support for the use of technology in education as a foundation for successful learning, and that these policies must be prioritised.

6.4.3. Role of E-Learning in Teaching and Academic Structure

On the role of E-learning in education and academic management, the results showed that the participants recognise the importance of E-learning as a teaching and academic management tool. The participants asserted that E-learning facilitates the organisation of course files, aids in the delivery of lessons, and enhances the way in which students monitor their performance by making all components of assessments easier to complete and accessible via the E-learning platform. Also, the results noted that some of the aspects of the influence of E-learning as a learning and education technology tool are to promote skill development by assisting students in becoming more proficient at technology, enhancing student skills in computer technology by accessing the platform, and facilitating

communication. Additionally, E-learning was found to have a significant impact on assisting students in becoming more confident and independent learners through participating in various online activities. Further, the college administrators view it as a useful tool in developing their overall skills. Moreover, the findings indicated that E-learning has an impact on teaching and learning, as students and faculties are familiarised with contemporary technology and study or work at their convenience.

In general, the above-mentioned results reflect the findings of the literature review on the meaning and concept of E-learning; for example, this research supported the statement by Klein and Ware (2003) that E-learning refers to the use of various electronic packages and methods to provide students with a better, easier, and more flexible type of education. It also confirmed the definition provided by Nistal, Rodrguez and Castro (2014), that E-learning applications are web-based software for managing, distributing, and supervising an institution's educational operations. Further, Gautam and Tiwari (2016) explained that E-learning is a network that transmits skill and knowledge, and learning can be acquired through E-learning technologies (e.g., virtual classrooms, virtual collaboration, and computer-based training). Furthermore, the results demonstrated strong evidence in support of the points raised by Costley, Lange and Lange (2017) about E-learning engagement in educational and training contexts. This means that it is employed for instructional materials, such as forums, webinars, and chats, which allows for the integration of interaction techniques across subjects. The findings lend considerable support to a recent study by Villesseche et al. (2019), which discovered that E-learning is part of educational design and has opened new possibilities in the learning and teaching environment. Thus, adopting it is an effective method for identifying learners, estimating learners' skills, and influencing learners' learning strategies to increase performance. The results also agree with Šumak et al. (2010) and Pardamean and Susanto (2012) who described E-learning as services that enable teaching and learning to take place anywhere, at any time, and through using a variety of technical tools, devices, and equipment.

However, this study discovered that considerations should be given to adopting the most up-to-date technology tools or resources. Expand, E-learning education must involve teaching and academic management, not only at the university level but also at the primary and secondary school level. In reviewing the literature, data was discovered on adopting the most

up-to-date technology tools or E-learning resources in terms of budget availability, which was articulated by Villesseche et al. (2019) as one of the most important issues to be identified in implementing E-learning training which is dependent on aspects such as staff and learners' demands. Eventually, E-learning is more cost-effective, but it could still be excessively expensive for some universities. Guragain (2016) and Dašić, Dašić and Šerifi (2012) both reported on this resolution. Guragain (2016) inferred that such enterprises may find it difficult to acquire new appliances, computers, projectors, and software as well as the increased cost of creating training materials, while Dašić, Dašić and Šerifi (2012) judged that any system requires costly high-tech support and an increasing level of tech improvement to meet user demands. In terms of the primary and secondary school level, younger pupils must also be made aware of the importance of E-learning education, as has been highlighted in the literature. For example, most schools in Oman are equipped with learning resource centres, computer labs, and other facilities employed in the development of interactive self-learning skills in all areas of the curriculum (Musawi, 2017).

6.4.4. Barriers of the Existing E-learning

As well, the results indicate that E-learning is not meeting the expectations of students, since the majority of course materials are not available or uploaded, and the participants noted that it is unattractive, and they also stated that more communication, awareness and encouragement among students and teachers are required. It was also suggested that colleges should specify at least one course outcome to be delivered via E-learning, and that students must be aware of E-learning. Besides that, an assessment of E-learning in all its aspects is critical, because the participants feel that such an assessment would be a critical strategy for improving each college's internal processes and enhancing the quality of teaching, learning, and embedding responsibilities in all those who are part of it, and they think that the colleges should develop, for example, a three-year E-learning strategy.

The above aspects were discussed in the literature review. Guragain (2016) said that every component, including the subject matter, the audience’s knowledge, and environment, influences the progress of E-learning. Users are an integral part of the process of defining how they learn. It is crucial to keep in mind that each user must determine what information is important to them at a given time, and how much they can take in. According to Kassymova

et al. (2020), students must be able to function in today's and tomorrow's communities, hence new technologies must be used to incorporate E-learning into the educational system. Everyone must participate in HE; teachers, for example, should prioritise interactive, readily available, and easily accessible online teaching and learning resources for their students. Salsabila, Abdurachman and Marpaung (2019) added that E-learning as a means of internet and digital technology support is increasingly commonly used in the lecture process to facilitate access to course materials. From an examination by Lara and Rico (2020), some teachers advocate for introducing E-learning activities that entail discussion or practice into their courses, while others believe it is more practical to establish E-learning projects in which students gain data by reading materials. These arguments are strongly supported by Byeon, Go and Lee (2019), who concluded that E-learning programmes occasionally fail to satisfy expectations in some way. A lack of E-learning literacy could be one issue, and another reason is that E-learning is commonly used to shift learning objectives, such as emphasising ‘deep learning’, which is something of which learners desire to do more. As has been mentioned in the literature, Robinson (2009) made some recommendations for handling the adoption of E-learning. To fulfil the needs of early adopters, it is necessary to ensure that the community of innovators is frequently engaging, providing support both face-to-face and digitally, focusing on ease of use, sustaining egos, hiring, and training some students as peer educators, and maintaining relationships with regular feedback.

A number of issues were identified. For example, when compared to direct training in practical oriented programmes such as engineering, E-learning has its own limitations in terms of developing employability skills. Given this, some courses cannot be delivered via E-learning, and therefore suitable methods should exist to deal with this problem. For the participants it is not sufficient to encourage E-learning alone; the challenge is to change the pedagogy of teachers accustomed to traditional education. This idea is strongly supported by what has been discussed in the critical review on using E-learning; for example, E-learning differs from traditional learning in terms of learning roles, skills, interaction styles, and motivational strategies. As a result, those unfamiliar with the E-learning environment will require time to promote their E-learning skills (Lin, 2011). There are additional issues that are hindering the usage of E-learning and limiting its benefits. Some of them are related to how it is introduced to users and how these users can believe in it and use it to build a better world for them (Sawchuk, 2013). Also, some studies have demonstrated the impact of E-learning on the

academic identity function of teachers, as faculty members must be well-known within the educational paradigm (Hanson, 2009). These results show that there is a misunderstanding around the blended learning concept as a type of E-learning, as it was stated early that blended learning is described as a solution that integrates a variety of delivery methods and activities, such as face-to-face classrooms, live E-learning, and self-paced training (El-Bakry and Mastorakis, 2009; El-Ghareeb, 2009; Bencheva, 2010). The findings also draw attention to the challenges that this study has revealed through the colleges' official social media accounts. Students have complained that the platform occasionally does not respond or the website freezes, preventing them from completing work, even though the page view for mobile devices is not active (ACT, 2020; HCT, 2020; IBRCT, 2020). Additionally, some students indicated that it would be ideal to record lessons and upload them to the platform so that students can access them at their leisure, and they emphasised the fact that there is no special online evaluation for practical sessions (SHCT, 2020). Other students reported issues including the fact that internet connectivity can be an issue because the wi-fi signal is weak, and that some of them do not have computers or laptops which would allow them to access the platform, and other students were unhappy with the exorbitant price of the internet service (HCT, 2020; IBRCT, 2020; SHCT, 2020).

6.4.5. Advantages and Disadvantages of the Existing E-learning

The results highlight the advantages and disadvantages of the existing E-learning system, and these points are presented in the following paragraphs. When it came to determining the advantages of the existing E-learning, it was discovered that certain courses included instructional YouTube links and videos that were educational and easy to understand. Additionally, it is a highly beneficial service for strengthening students' computing skills and organisation of work online, rather than holding a large amount of paperwork, and it is accessible for students who wish to work at any time and from any location. Also, E-learning functionality and regular item modifications are also suitable in some cases, according to the findings. These findings are strongly in support of what was discovered in the reviews of the literature which have already been discussed in more than one part of this chapter, which is that the benefits of E-learning include it being self-paced and convenient for students, its flexibility and accessibility, and communication and information, and here I will give more

focus to these points by linking them to E-learning in Oman. For example, the results are supported by the work of Tuzlukova, Busaidi and Coombe (2016), who carried out an evaluation of various publications to examine a multidimensional approach to technology-based language teaching in Oman and discovered that YouTube applications are helpful for English language acquisition. In addition, the results agree with the findings of Tawafak et al. (2019) about how online models in Oman have led to students' significant academic gains, allowing them to soar. Students and teachers can collaborate online to produce classroom tests and assessments. Tawafak, Romli and Arshah (2019) describe several academic programs that can enhance the online assessment of students' knowledge and skills. Deployment of E-learning programs such as Moodle will boost faculty performance through the associated declaration facilities, announcements to sections, assessment and evaluation approaches, and open access to electronic material. These results support the statement by UNA (2020) regarding E-learning in the CoTs, indicating that these colleges use a variety of programs, including Moodle, as the key link between students and E-learning systems. These applications are supposed to help students improve their skills and learn new ones, as well as transform the traditional educational method from dictation to engagement and creativity.

When identifying the disadvantages of the existing E-learning, it was discovered that E-Learning is extremely slow when downloading or uploading files. Another reported drawback was that the E-learning portal's performance is not sufficiently evolved to accommodate a relatively large number of users, because when work or activities are carried out on the portal, at times pupils are incapable of accessing the E-learning page because they have a weak connection to the internet or because of technical issues.

These results also highlight most of the drawbacks of E-learning, including technological factors such as how a slow internet connection or a computer failure can complicate and lengthen the learning process (Guragain, 2016), and a lack of access to E-learning can also result in overcrowded or heavily used websites, which might incur unanticipated costs in terms of both time and money (Arkorful and Abaidoo, 2015). According to Al-Hajri and Echchabi (2017), E-learning has recently become a highly used IT resource in Oman's HE; the main challenge, however, for the university's E-learning environment is cost-effectiveness and a lack of adoption.

According to the findings and based on the participants' observations, E-learning online discussion board has to be enhanced; students should be encouraged to use it, and a mobile version as an app should be established. These results reflect items which were discussed in the literature review, one of which is the benefit of communication and information when using E-learning, and the other is about M-learning (mobile learning) education. First, the use of E-learning communication and information can inspire students to communicate, and share their thoughts and value them, and working with others enriches the learning connection. Information and skills are more readily accessible because of the availability of so much learning (Arkorful and Abaidoo, 2015). On this point, students can also connect with other students and teachers by using information technology. Students may use discussion boards or chatrooms to ask their lecturers for assistance (Hismanoglu, 2011; Nia and Kurniawan, 2019). Second, in their research into M-learning as a type of E-learning, Bayona, Chavez and Sicha (2018) highlighted that the M-learning environment of E-learning systems is developed to help students enjoy the benefit of certain advantages such as easy access to information, sharing and exchanging information, time reduction, flexibility of time and place, connectivity, and better resolution of problems. With regards to Oman's undergraduates, Qoussini and Al-tabib (2019) described how M-learning in Oman's HE is regularly used by undergraduates for a wide range of activities and purposes. M-learning helps with key insights such as utilising interactive platforms for learning. In this way, learners can be encouraged to talk to other people and to acquire new knowledge and skills.

The findings show that not all lecturers put course material on the E-learning platform, it is not easy to use, it is not functional enough for the students' demands, and more details need to be updated in terms of searching for information. E-learning materials must grab students' attention, and connections to all the college's major announcements must be included. Furthermore, the results reveal that students are unaware of the benefits of using E-learning (there is a lack of awareness about using E-learning among the students). Additionally, if a student does not have a computer or the internet connection is slow, he or she will be unable to complete their assignments. According to the findings, the participation of students in providing feedback on E-learning development and upgrades is low, and E-learning has a limited reach in terms of offering access to other academic activities; its features are restricted, some perspectives consider the E-learning portal to be unfriendly, and a lack of availability of the E-learning system budget was indicated. All of these results are a reflection

of the points that have been examined in the literature review about the quality of E-learning, as explained by Rodríguez, Rainer and Miralles (2014), who said that it is important to put in mind all E-learning quality aspects including learning resources, learning processes, and learning setting. According to Rodrguez, Rainer and Miralles (2014), initial learning resources include support staff and faculties, as well as instructional materials, equipment, and frameworks. Second, learning processes encompass the monitoring of instructional design, recruitment, assessment, and development. Finally, learning setting refers to the principles governing the learning environment, such as the framework, cultural context, learning context, and financial and legal factors.

6.5. E-Learning Influence in Creating Students' Skills

Theme 4: E-Learning Impact in Developing Students' Skills.

In this section, all the factors influencing E-Learning in developing student skills are addressed. These include students' attitudes towards accepting E-learning to improve their skills, requirements for E-learning from the participants' points of view, required modifications, lack of students' awareness, E-learning and the development of employability skills, and the impact of E-learning on developing certain skills. The findings are also referenced to the literature.

6.5.1. Students' Attitudes Towards Accepting E-Learning to Improve their Skills.

The results of the findings reveal that students' attitudes toward E-learning as a means of promoting their skills are overall positive. As previously stated, E-learning is already an integral part of delivering lessons in all courses, and students accept this culture; however, they believe that additional modifications should be made to make it more effective in developing employability skills. This finding is not surprising given that Pardamean and Susanto (2012), found that utilising online educational tools to increase students' awareness and critical attitudes toward learning and learning outcomes presents a significant difficulty. Thus, it is critical to poll students' attitudes toward the use of E-learning systems and gather their thoughts on the use of E-learning platforms.

6.5.2. Necessary Requirements of E-Learning from the Participants' Point of View

A summary of requirements based on the participants' perceptions revealed that, presently, E-learning assessments are being developed with the goal of increasing students' employability through GA achievement. They believe that the CoT may need to check that this goal is achieved across all courses and departments. Also, E-learning should support active learning modes such as classroom learning. From their point of view, as soon as the most recent technology resources and services enters the labour market, a course related to that technology must be introduced without delay into the colleges' educational environment, and staff must be trained in that technology. They consider that it is critical to provide students with information about job opportunities as well as the most widely required skills in the industry. The students must learn how to use the E-learning resources, and their instructors must train their students to do so. The findings in this area are aligned with the CoTs' value of the pursuit of knowledge and excellence, which aims to foster lifelong learning achievement in education, application, and innovation, as well as technological expertise (UTAS-Muscat, 2020; UTAS-Nizwa, 2020; UTAS-Musanna, 2020; UTAS-Ibra, 2020). The findings also confirm the results of the LIFELONG LEARNING (2016) report, in which it is stated that over the last three decades, the kind of skill required to participate successfully in the workforce has shifted, requiring continual learning in today's digital world. Further, reading, writing, and computing, digital and IT skills are now included in the list of the four critical competencies in education. The inclusion of digital job sectors in industrial professions continues to expand, demanding regular IT qualifications and skills. It is emphasised in the report that because digitisation has penetrated all aspects of social life, it is expected that learning should follow suit. Due to the benefits of E-learning, such as flexibility, convenience, self-paced learning, accountability, and time management, it should play a growing role in HE.

6.5.3. Required Modifications of E-learning

When discussing potential changes that should be made to E-learning, the participants suggested to change its features and usage, encouragement, and infrastructure, as well as the connection to improving students' skills, including employability skills and labour market requirements. Most of the aspects that need to see some changes have already been discussed in this chapter, but some more new points are explored in this part. For example,

in terms of the features of E-learning, the participants pointed out that more features need to be added related to examinations, and it is necessary to develop more interactive platforms. On this point, the results of the findings indicate that if students practice on all the available features, they will improve their employability skills, while also making the E-learning environment more comfortable and user-friendly. These findings provide some support for the concept of E-learning components in terms of course structure and content engagement, which is related to how E-learning is intended to be used for a course; also the importance of incorporating additional features such as integrating interactive concepts, and using hyperlinks for more concepts, explanations or descriptions to illustrate ideas, concepts or categories (Gautam and Tiwari, 2016). The findings may also assist us in comprehending how effective E-learning can be when it is guided by a clear concept and objective. The examples of successful projects and studies in applying E-learning for skill development mentioned in this study have demonstrated this point. These examples include the twin approach of a web-based version (E-learning) and a mobile application (M-learning), as proposed by Malik et al. (2019), to examine the benefits of adopting E-learning in IT courses through problem-solving skills app. Also, Yusoff and Salim (2012) suggested six guidelines for E-learning components: effective medium communication; well-informed multimedia; well-structured design patterns; embedded (built-in) training; automated problem solving; and decision making. Additionally, the example of the University of Ss. Cyril and Methodius in Trnava revised the syllabus of its business communication courses to better prepare the graduates.

Regarding usage and encouragement, the results show that the colleges must enlighten students about the value of E-learning by providing an appropriate orientation before the start of the academic year. The participants held the opinion that online practical classes and skills training must be conducted regularly, so a shift from pen and paper exams to online practical exams is required. Furthermore, the CDP should be revised to incorporate more E-learning elements. E-learning should be part of the CDP and assessments, so that students take it seriously. These findings are supported by Sawchuk (2013), who investigated the issues influencing E-learning use and lowering its benefits, some of which are related to how it is introduced to users and how users perceive it. Further, E-learning can also be used in shifting learning goals, such as putting a heavy focus on deep learning (Byeon, Go and Lee, 2019).

However, in reviewing the literature, no data was found on the association between E-learning and CDP.

Concerning the E-learning infrastructure, the respondents stated that the resources accessible to students with regards to adopting E-learning should be more engaging and relevant to their needs. More technology resources, computer laboratories, software, and facilities should be provided. Furthermore, the respondents stated that there was a lack of e-books or resources available on the E-learning platform; therefore, they believe that adding more open facilities where students can use the internet in their spare time, as well as allowing students to have remote access to college services such as an e-library and the college intranet, would be useful. As mentioned in the literature review, the seven CoT are recognised as the best technological schools in the country, committed to establishing a sustainable infrastructure and equipped with skilled human resources and an excellent student body, to satisfy the changing demands of education and the job market in Oman (OAAA, 2010). However, according to Njenga and Fouriec (2010), E-learning requires more human capacity resources as well as costly infrastructure, such as computers and necessary hardware and software, training and support, maintenance, electricity, internet access, system upgrades, and licencing.

6.5.4. Lack of Students' Awareness of E-learning

The results show that students' awareness of E-learning should be increased, and regular feedback is required from them. For students to manage their time, knowledge, skills, and experience efficiently, they have to embrace E-learning as the best approach to has to developing their employability skills. To begin with, students' awareness and understanding of the use of E-learning must be raised and nurtured, as many of them still ignore or undervalue it. As mentioned previously in this fieldwork, researchers have produced data conclusively demonstrating that using online technology tools in education, such as E-learning, is quite suitable for students in terms of collecting high-quality multimedia data and improving students' knowledge, ability, and performance. These parts of the data confirm the importance of digital literacy and E-learning literacy in particular. Digital literacy, as described by McGuinness and Fulton (2019), is the level of awareness, ability, and attitude to use digital tools and facilities effectively to search, access, manage, participate, assess, and evaluate

digital materials. As explained in Edutech Wiki, E-learning literacy (2019) covers the online learning abilities or E-learning skills that are associated with abilities, knowledge, attitudes, and behaviour, and contains sets that are required to engage in partial or complete learning situations. As Zakarneh (2018) advised, E-learning as a new kind of digital education helps learners to assume responsibility, become more engaged, and deliver several benefits, including support for greater understanding and creating equitable opportunities for learners.

6.5.5. E-Learning and the Development of Employability Skills

When it comes to incorporating E-learning into the development of employability skills, the findings were mixed. Different ideas were offered, including the idea that special courses are needed to be developed, students can be assigned projects, and they can be encouraged to create presentations and videos on employability skills which are shared in the E-learning system. This will aid in the transformation of students' attitudes toward E-learning. The participants also suggested that linking to other universities and online portals could help students improve their employability skills, because such a connection will serve as a window to the rest of the world, and they will gain a variety of skills from such an experience. However, in reviewing the literature, no data was found on the association between E-learning and the development of employability skills or the suggestion to offer a specific module or course that focuses on E-learning benefits and the development of employability skills. As described in the literature, E-learning is a supportive technology for developing skills, and there are examples of successful projects and studies using E-learning for skills development. Regarding the use of E-learning as a means of improving student skills, Clarke (2008) mentioned that learners need to go through a series of stages when using E-learning. Once students feel comfortable in the E-learning environment, they can concentrate on acquiring various skills, including time management, responsibility, planning, self-assessment, problem-solving, stress management, motivation, reflection, listening, and research (Clarke,2008). There are examples such as the twin approach of a web-based version (E-learning) and a mobile application (M-learning), as proposed by Malik et al. (2019), who established an application focused on developing problem-solving skills to investigate the benefits of incorporating E-learning into IT courses. In terms of linking to other universities and online portals that could help students improve their employability skills, Liverpool John Moores University's World of Work digital career platform, founded in 2009, is an excellent

illustration of this. 400 companies offer monthly feedback to recent graduates on the skill sets they need. Also, employers actively seek out new graduates, which provides opportunities for them to apply for open positions at those companies (Swinney and Williams, 2016).

6.5.6. The Impact of E-learning on Developing Communication, Teamwork, Time Management, Ability to Work under Pressure, Computing, and English Writing Skills.

For this part of the findings, the results are very encouraging, because they indicate that most participants agreed that E-learning helps students in developing their communication, teamwork, time management, ability to work under pressure, computing, and English writing skills. There is an agreement among researchers that E-learning aids in the development of students' skills. Further, based on the findings of this study and the reviewed literature, many instances have already been provided and addressed in this chapter. To focus more specifically on HE in Oman, I considered that the first part of the findings was echoed in the literature in the research by Slimi (2020) who explored the role of online learning and teaching in HEIs in Oman during the recent COVID-19 pandemic. The study found that students in Oman can benefit greatly from learning new skills and developing innovative approaches to online learning and teaching. This recent experience promoted new methods of learning and teaching and was also well-received by many students, who gained independent learning skills in problem-solving, communication, digital engagement, and IT.

Regarding another point of the findings that students are strong in teamwork skills, there are debates on the extent to which E-learning supports students in strengthening their teamwork skills. This argument appears to be acceptable because teamwork is considered one of the seven GAs. As well as teamwork, according to HCT (2020), NCT (2020), ACT (2020) and ICT (2020), the aim of E-learning is to help students develop a set of skills such as collaboration, tolerance, flexibility, planning, organising and time management.

Surprisingly, in terms of the support for E-learning in building other types of skills, there was a significant favourable response to the idea that skills such as reading, analysis and problem-solving may be acquired through E-learning; that is if all the information is updated and displayed to students throughout the semester. On the other hand, the findings revealed that

there is a high level of expectation for the use of E-learning in the development of other types of skills in conjunction with regular feedback from staff and students to implement the suggested changes. The data gathered at the start of the COVID-19 pandemic and showed that all participants, whether students, lecturers, or coordinators, are coping with the use of online teaching and learning, and that it has a positive impact on the development of student skills. This finding drives the attention of the review of the literature that COVID-19 and the use of technology tools, devices, platforms, and applications have improved students' independence, while also prompting teachers to upgrade their skills. For example, in one of these studies, by Al-matari and Al-maqbali (2020), the Microsoft educational community platform embraced very effective instructional techniques during the Covid-19 pandemic. The app supported teachers and students in acquiring future-ready skills by focusing on skill development, such as the utilisation of various technical elements or broader training courses on a subject.

Many participants commented on the need to improve students' English writing, time management, communication, teamwork, ability to work under pressure, technology and ICT skills, and critical thinking skills. They proposed that these skill-related tutorials on E-learning might provide students with crucial information that could improve their interaction skills, build their vocabulary for better communication and time-based English writing skills, using different types of applications, in addition to d dealing with a technical support service and using new technology devices. The findings here created overlapping notions about the strong or weak level of teamwork; however, this indicated that a good support for the implementation of various academic programmes in an E-learning paradigm, according to Tawafak, Romli and Arshah (2019), can help to improve students' knowledge and skills. Further, the findings, for example, support the study conducted by Tan (2013) on the effectiveness of E-learning websites in teaching and learning English language skills showed a positive result. Furthermore, it confirmed the discussion by Qoussini and Al-tabib (2019) to employ the communication and interaction aspects of mobile devices to encourage students to engage with one another and acquire new knowledge and skills. M-learning offers crucial insights into a wide range of educational technologies, such as help for interactive learning systems.

6.6. Outline of Discussion Points and their Relationship to the Theoretical Framework

Following the discussion of the results of the findings and linking them to the review of the literature, in this section the outlined points of ***Themes 3 and 4*** of E-learning and their relationship to the theoretical framework are discussed, based on the second part of the literature review chapter that covers all aspects of E-learning.

Theme 3: E-Learning in The College Educational System		
Classification	**Outlined points**	**Relationship to the Theoretical Framework**
Strengths	The educational environment for E-learning has a higher usage rate than the institution's other services.	It supports E-learning literacy (or E-learning abilities) through increased user participation in E-learning activities (Edutech Wiki, 2019) and behavioural intention of UTAUT performance expectancy factor through increased system usability and task completion help (Venkatesh et al., 2003).
	E-learning fulfils the purpose that was intended for it in the course.	
	E-learning has the potential to enhance student skills.	It reveals the behavioural intention of UTAUT effort expectancy, which means that having a positive attitude towards the system can help individuals to become more skilled (Venkatesh et al., 2003).
	E-learning is accessible from any place and time via various online devices.	It corresponds to digital literacy in terms of people's attitudes towards using digital tools to access the system (McGuinness and Fulton, 2019).
Weaknesses	Lack of access to other resources through E-learning, such videos, and educational tutorials.	It demonstrates a weakness in user behaviour of UTAUT conditions of facilitation regarding the resources required to use the system (Venkatesh et al., 2003).
	E-Learning content involves more work by the staff compared to student usage.	UTAUT behavioural intention on the students' use of the system is lacking (Venkatesh et al., 2003).
	Unclear E-learning policy description in certain colleges.	It highlights UTAUT lack of user behaviour and experience of social influence over senior management and organisational support (Venkatesh et al., 2003).
	Lack of newest E-learning tools and resources.	
	E-learning education is not widely used in primary and secondary schools.	NA

	Some course materials are unavailable or have not been uploaded.	This issue has a consequence on the system's adoption in terms of utility, as measured by behavioural intention of UTAUT performance expectancy (Venkatesh et al., 2003); abilities and attitudes towards using digital tools and facilities in the construction of knowledge (McGuinness and Fulton, 2019).
	E-learning is insufficiently functional to meet the needs of students.	
	Activation of E-learning discussion boards is lacking.	Inadequate attitudes regarding UTAUT user behaviour and experience on how the system makes work more interesting (Venkatesh et al., 2003); skills and attitudes towards interacting effectively utilising digital tools and facilities (McGuinness and Fulton, 2019).
	Lack of E-learning assessment.	This could affect UTAUT's user behaviour and experience of attitude toward using technology related to whether using the system is a bad/good idea (Venkatesh et al., 2003), and the abilities and attitudes of people towards effectively using digital tools and facilities to engage in, evaluate and analyse digital resources (McGuinness and Fulton, 2019)
	E-learning portals might be slow and unreachable.	UTAUT anxiety is emphasised in terms of users' fear of information loss.
	M-learning is an unsatisfactory subset of E-learning.	It is not compatible with the usage of several technological tools in peoples' daily lives, such as a phone (BBC Learning English, 2017)

Table 32: Results of the Findings (*Theme 3*) and Link to the Theoretical Framework (UTAUT and Digital Literacy)

Theme 4: E-Learning Impact in Developing Students' Skills		
Classification	**Outlined points**	**Relationship to the Theoretical Framework**
Strengths	The students' attitudes toward E-learning for promoting their skills is positive.	It supports UTAUT behavioural intention, performance expectancy, and effort expectancy through system usage and increased productivity; it helps individuals become more skilled (Venkatesh et al., 2003).
	A positive indicator of E-learning assisting students in increasing their communication, teamwork, time management, and ability to work under pressure, computing, and English writing skills.	It indicates that UTAUT behavioural intention, experience, and effort expectancy through increased system usage helps individuals become more skilled (Venkatesh et al., 2003).
	A positive indicator of E-learning building other types of skills such as reading, analytical thinking, and problem-solving.	

Weaknesses	Recent labour market technology resources and services must be brought into the educational environment.	NA
	The motivation of students for using E-learning services is inadequate.	It expresses UTAUT lack of social influence over student behaviour when utilising the system as well as lack of support by the organisation (Venkatesh et al., 2003).
	Lack in E-learning usage and encouragement.	This reflects a lack of digital literacy in terms of students' attitudes toward various types of system utilisation (McGuinness & Fulton, 2019).
	Lack in E-learning features.	This reveals a flaw in user behaviour and experience UTAUT attitude toward using technology; whether the system is a bad/good idea, interesting, and fun to use (Venkatesh et al., 2003).
	Lack in E-learning infrastructure.	The UTAUT conditions of facilitation with regards to the resources needed to use the system and user behaviour are raised (Venkatesh et al, 2003).
	Lack of students' awareness of using E-learning.	This reflects a lack of digital literacy as a level of awareness in terms of students' attitudes toward various types of system utilisation (McGuinness and Fulton, 2019).
	Lack of recognition of the role of E-learning in the development of employable skills.	Lack of UTAUT social influence on student behaviour when using the system and organisation's support (Venkatesh et al., 2003).
	Lack of feedback from students and faculties on the usefulness of E-learning in the development of student skills.	It emphasises that the level of engagement in evaluating digital resources must improve (McGuinness and Fulton, 2019).

Table 33: Results of the Findings (*Theme 4*) and Link to the Theoretical Framework (UTAUT and Digital Literacy)

6.7. Summary

This chapter discussed the findings of the study against the literature review and theoretical framework. Overall, the results were relevant and supportive of the literature, which was useful in answering the research questions and meeting the research aims. The following chapter will complete this thesis report by offering the conclusion of the research, contribution to knowledge, its implications for practice and recommendations, its strengths and limitations, and suggestions for future work.

Chapter 7: Conclusion

7.1. Thesis Conclusion

As stated in the first chapter, this study aims to investigate how E-learning can play a key role in building and improving the skill set that college graduates need for future employment. To fulfil this research aim, the following main question and five sub-sequential questions were developed:

What are the perceptions among stakeholders of E-learning, a part of the college study system, towards developing a set of future work-related skills for university students in Oman?

Sub-Sequential Questions

1. What are stakeholders' perceptions about student skills and the need of the labour market?

2. What are stakeholders' perceptions about the college study system and its key role in improving student skills to prepare them for future employment?

3. What are stakeholders' perceptions about the functionality of E-learning in the college study system?

4. What are stakeholders' perceptions about accepting the use E-learning in order to develop student skills?

5. What are the students, lecturers and E-learning technical team and coordinators perceptions towards E-learning for development student skills in communication, English writing, teamwork, time management, the ability to work under pressure, and computer skills?

The first chapter already outlined the main objectives of this research and briefly explained my point of view as a researcher to justify the research topic. It also explained my positioning

in relation to the context of this study and the introductory chapter stated the six objectives to meet the research aims as summarised below.

First, the second chapter outlined the context of the research by giving an overview of Oman and its HE system, as well as information on Omanisation, employability, graduate skills gap, and the education system. It also discussed E-learning in Oman and outlined some of its opportunities, challenges, and online learning experiences in the context of the COVID-19 pandemic. Then, relevant information related to the CoT study sample was presented, including the CoT education system, GAs, and E-learning. Finally, in addition to the chapter summary, I established the research CF, and I included an example of the use of technology tools during the COVID-19 pandemic and related my own experience in using these tools to complete my work and study tasks.

Second, the study completed the literature review dealing with skills and HE frameworks and the other with various aspects of E-learning in Chapter three. Part one which covered the skills section discussed the various types of skills categories such as employability skills, and the definitions of the skills examined in this study (i.e., communication, English writing, teamwork, time management, the ability to work under pressure, and computer skills). Here, HE was considered in terms of its framework, role in students' skill development, GAs, and relevance to employability. The second part of literature review covered E-learning definitions, types, functions, components, benefits and drawbacks, quality, and LMS. Additionally, it presented students' attitudes toward E-learning and the use of E-learning as a supportive technology in skills development, while providing examples of successful projects and studies. This also included the critical review of the use of E-learning combined with the importance evaluation of E-learning in terms of digital literacy and IS theories. Furthermore, GCM, UTAUT, and digital literacy, were chosen as the theoretical frameworks suitable for parts one and two and applied to the findings. I expanded each section summary by adding my own points of analysis, critical evaluation, and self-reflection.

Third, as explained in Chapter four, the research data were collected by employing a multi-method design that combined the qualitative and quantitative approach with several research methodologies; semi-structured interviews were used as a qualitative research method and an online survey as a quantitative research method. The stakeholders who took part in the interviews included employers, graduates, college administration, as well as policy and

decision-makers. Participants in the online surveys came from three CoT groups: students, lecturers, E-learning coordinators, as well as technical support.

Fourth, the findings of the research were presented in Chapter 5, preceded by the result analysis using TA to analyse the data gathered from the interviews and NVivo software as a supporting technological tool. As the gathered online survey questionnaire data were collected in the form of descriptive information, they were suitable for analysis using Microsoft Excel 365 PivotTable. Also addressed were the four themes of this study, and the conceptual frameworks elements belong to the evidence that linked to UTAUT, digital literacy, and GCM were outlined, in addition to my views on the findings, outline of the relationship of the key findings with themes and CF and key strengths to E-learning environment.

Five, the research discussion was completed by considering the findings and results derived from the literature review in chapter six, including the theoretical frameworks of UTAUT, digital literacy, and GCM.

Finally, the seventh objective is met in this last chapter, which provides the thesis conclusion based on the key research findings of the study questions. This is followed by the study's contribution to the field and its practical implications and recommendations, besides discussing the research strengths and limitations and offering suggestions for future research.

7.2. Key Findings of the Research Questions

The research questions examined the role of E-learning in developing and enhancing the skill set that college graduates need for employment. The study was interested in seeing how stakeholders perceived the role of CoT in helping students develop their work-related skills, how E-learning can assist in this process, and the challenges and obstacles CoT face concerning these aspects. To provide a specific and rich account of this phenomenon, a mixed method approach was employed to obtain the relevant information from different sources, including semi-structured interviews with stakeholders from the labour market, education, and government sectors in Oman, in addition to an online survey questionnaire that was distributed to students, lecturers, E-learning coordinators, and technical support staff. The overall conclusion drawn from the research findings to promote student skill

development is that CoT offer a variety of activities, academic and non-academic, and a wide range of resources and services to aid students in fulfilling course learning objectives and enhancing their skills. Thus, college students are equipped with the necessary tools to overcome obstacles to skill development and become experts in their field. Furthermore, CoT and their partners collaborate on the development of graduates' employability skills to meet the employers' expectations. Concerning the use of E-learning in the college education system, the results showed several positive aspects such as effects on students' attitudes toward E-learning and positive indicators of E-learning effectiveness in developing the students' skills in communication, teamwork, time management, ability to work under pressure, computing, and English writing. Additionally, the findings suggest that E-learning helps students to develop other soft skills such as reading, analytical thinking, and problem-solving.

However, the findings also suggested that stakeholders perceived that graduates in Oman lack important skills and often fail to meet the expectations of the labour market., pointing at the challenges and obstacles CoT need to overcome in the context of this study investigation. These institutional factors include: 1) lack of relevant programs and resources; 2) lack of GAs awareness and proper mechanism; 3) lack of a unified policy on E-learning.

First, in relating to the colleges' lack of relevant programs and resources, the stakeholders explained that CoT must offer specific courses centred on improving students' skills, conduct more studies on required students' skills, and develop programs or training modules that emphasise on employability, skills development, and awareness of the labour market conditions. Among the other concerns that were raised was the shortage of practical short courses and outdoor programs for graduates who wish to gain work experience and enhance their employability skills. The findings also highlighted CoT must incorporate more technology into all educational activities, with a focus on honing the students' IT skills. Further, E-learning is a critical resource that students should utilize more consistently; however, they tend to lack awareness of its importance in preparing them for the realities of the labour market.

Second, regarding lack in GAs awareness and an unclear mechanism to support it, the results showed that the CoT hold regular workshops on GAs and how to construct and develop them. These workshops are created in consultation with various stakeholders including students, teachers, alumni, industry representatives, and members of the larger community.

Additionally, it is expected that course orientation and outcomes, activities, and assessments increase the students' awareness of the importance of GAs. Every six months feedback is gathered from students and teachers for the purpose of evaluating GAs, but procedures for assessing students' understanding of GAs differ from college to college. Among the issues CoT need to address is lack of special GAs sessions so that students understand their crucial role for developing market-specific knowledge and skills. As the primary goal of GAs is to build capable and confident graduates who can fulfil the labour market demands, a sustained effort is necessary to raise more awareness of the importance of GAs among staff and students. Thus, the findings indicated that there is a critical need to emphasize the benefits of program orientation and course outcomes, as well as to develop a clearly defined and structured mechanism to understand, map, and assess GAs in the existing course programs.

Finally, concerning the lack of a unified E-Learning policy to guide the college study system, stakeholders consider E-learning as a very useful tool to improve the value and functionality of the students' educational environment. They are confident that an integrated E-learning infrastructure can provide CoT students with more opportunities to improve their employability skills. Although E-learning is sure to play a major role in future skills training, the findings also drew attention to the lack of a unified E-learning policy. Thus, more attention should be given to the proper implementation of the existing E-learning policies to improve aspects of the impact of E-learning, such as setting a better E-learning strategy and increase the requirements to build more trust among user groups and create more willingness to adopt the E-learning system. In addition, more attention should be paid to raise more awareness about its role in building students' skills in general and employability skills in particular, while it is equally important to reduce the deficiencies that might hinder the impact of E-learning on student skills development.

7.3. Contribution to Knowledge

So far, several studies have examined the development of student skills and the gap in graduate skills, the role of HE in developing graduate skills to meet the needs of employers, and the role of E-learning in various aspects within or outside the educational environment. Some of the studies focused on HE and student skills in Oman or other countries while others focused on E-learning, and thus their findings may not necessarily agree in all points.

However, the findings of this research confirmed the established findings on students' lack of employable skills, the need to improve the colleges' core curriculum, lack of facilities and services to develop students' skills, and the need to optimize the E-learning portal to meet user expectations.

On the other hand, what sets this research apart from other studies is that it follows an interdisciplinary approach and makes a unique contribution to knowledge research by covering more than one field of study. It addresses the various aspects of skill development, college educational systems in developing students' skills, and E-learning as a technological tool for the enhancement of learning. To the best of my knowledge, no research has been done on a similar topic before. This research significantly expanded my knowledge as a researcher and IT lecturer on a wide array of topics such as university students' skill development, the role of the college educational system in student skills development, and the stakeholder's expectations of E-learning as a part of the colleges' efforts to enhance employability skills in Oman.

In light of the results and based on my own insights as a researcher and academic, I am aware of certain implications that HEIs including CoT as the study sample need to consider in terms of student skills development and E-learning engagement. I sincerely hope that this study can be of real benefit to HE sectors in Oman, specifically in the application of the points listed on page (49). There is a definite need to enhance human skills, and a number of HEIs are increasing their efforts to improve the range and quality of students' skills and acknowledge the demands of the labour market. Thus, my study proposes that enhanced E-learning will assist students in accomplishing this fact. However, there are implications for both theory and practice that I believe should be considered. They will be addressed in the following sub-sections and followed by the recommendations in the next section.

7.3.1. Theoretical Implications

I have distinguished between two types of implications for the theory, the first implication relating to GAs and the second implication relating to E-learning. However, both implications are viewed in light of the results of this research sample.

When discussing GAs, as explained on pages (251-252) of this chapter, several factors need to be considered. A part of their role is, from my perspective, to provide a window into students' and graduates' skill development. HEIs advertise the quality of their graduates to the labour market on the basis of GAs criteria. Thus, CoT try to cover all areas in which students can acquire those marketable knowledge and skills by mapping the seven GAs to CDP in all programs of study, as stated earlier on page (42). However, the findings indicated that there is a lack of clarity concerning GAs in terms of their understanding and evaluation. The findings particularly those related to GCM, showed that there is an overlap between GAs and graduate skills, which may be due to the lack in GAs clear definition, GAs would benefit from being more clearly defined because I believe the items lack definition. For example, as indicated earlier on page (41), the current list of GAs consists of a basic set of skills. However, rather than being formed around a narrow skill set, GAs require a broader explanation of their position and function. While I agree that HEIs are right to define, build, and describe GAs based on their own standards and perceptions, I also believe that the basic definition and description of GAs should be clear and understandable to all stakeholders. In the following paragraphs I will use the research sample (i.e., CoT) to illustrate the confusion that exists around the names or descriptions given to certain GAs, in particular GAs three and seven.

To begin with graduate attribute three (teamwork), the attribute teamwork is rather debatable. Teamwork is defined as a skill that may include a list of activities designed to enhance various types of abilities that individuals can use to develop their teamwork skill. Each of these terms are defined and discussed in the part on the review of the literature Sub-section 3.3.3. of Chapter 3. According to the findings of the survey, the respondents stated that students are stronger in teamwork skills than in other skills. This draws attention to the presence of teamwork as one of the GAs identified in the delivery plan courses. Students readily recognize their importance, and the colleges are undoubtedly putting them into practice through various course assignments and activities. Thus, aside from the debate over the attribute "teamwork" and whether this label is appropriate or not, the findings demonstrated that this particular graduate attribute has a positive impact on students; therefore, it is suggested that more attention is devoted to each of the seven GAs in order to produce more positive results concerning their role in supporting students' skills.

Another issue that drew my attention was the use of "entrepreneurship" to describe the seventh graduate attribute. I believe that entrepreneurship should be understood in a broader sense that includes all aspects relating to a business setting, rather than one element as part of a set of separate skills. The purpose of this attribute appears to be linked to the fact that colleges see all their students as future entrepreneurs, which could lead to a debate over the students' field of study, preferences, potential, skills, and perspectives. Thus, I believe it is more appropriate to consider entrepreneurship as a component of a particular graduate attribute, rather than classifying it as a graduate attribute in and of itself.

Hence, the above-mentioned discussion of the current list of GAs as applied in CoT programmes may reveal some of their strengths and weaknesses that have an impact on students, faculty, and other CoT partners who may find their meaning unclear. Consequently, I found that the concept of reviewing or modifying GAs to ensure that they achieve their objectives is advisable, if not necessary. In the following section I will outline the research recommendations, as well as offer my thoughts on how to achieve GAs objectives.

The second part of the implications for the theory covers E-learning and the various barriers and issues associated with it as discussed on pages (250-252) of this chapter. All the findings in this section, particularly those related to UTAUT social influence and conditions for facilitation factors, underlined the necessity of promoting positive user behaviour and intention as well as the impact of the organization. Students and instructors will be more engaged with the system and obtain as much knowledge and benefit as possible if they see these variables explained in clear and exciting terms in the system's instructions. And this can be done with particular emphasis on developing student skills. When I think about E-learning, the image of a boat comes to mind. When new students begin an educational program, they embark on a journey. In my capacity as IT educator, I believe that E-learning can be likened to a boat students can use to navigate their educational voyage. However, steering the boat to the desired destination is not an easy task; there will be many challenges ahead the individual will have to face and overcome. Also, certain key considerations about this boat must be made, including factors such as the boat type and price, as well as the need for a map or guide containing the correct instructions and directions to reach the destination. In the specific context of E-learning, it has to satisfy students’ usage needs and demands and support their skills development. It is my opinion that the present E-learning infrastructure,

pedagogical policies, and people's effect must all be taken into account. Pertaining to this study sample, the results suggested that each component of the E-learning infrastructure can be optimized, and any such improvement should include offering sufficient technology resources and training, as well as adequate budget allocation. In terms of policy availability, the results showed that such a policy is available in certain colleges but not in others. Regarding the impact of E-learning, its present benefits can be further increased by actively involving all groups, including college administration, faculty, and technical support staff, in addition to students, as well as all other stakeholders from outside the colleges. Here, the findings revealed that each group should increase their efforts to fulfil their responsibilities and maximize their benefits. My proposed views on this aspect of E-learning will be covered in the recommendation section.

7.3.2. Practical Implications

To determine the implications for the practice of E-learning, the focus will be on E-learning portal webpages. Compared to the other technological services offered by the colleges, the level of accessibility and usability of the colleges' E-learning portals and websites is high. This aspect represents the obvious benefits it has for the student skills development. However, several hindrances must be overcome so that E-learning portals can indeed offer as many benefits as they promise. Thus, the need to expand E-learning portals in terms of resources and equipment such as academic activities or assignments, plus other technological tools such as computer labs, software, facilities, bandwidth, and server storage. Also, students need more opportunities to practice the portal's many functions and features. I suggest that any practical improvement made to E-learning should focus on its present infrastructure, pedagogical policies, and people's effect. In the next section, I will make my recommendations based on the theoretical and practical implications of the findings, with particular attention to the three aforementioned aspects of E-learning: infrastructure, pedagogical policies, and people's effect.

7.4. Recommendations

The research's key findings revealed that CoT support student skills development during their time of study; however, the skills of most HEIs graduates in Oman do not fully meet the

requirements of the labour market. The findings showed that E-learning can aid students in acquiring employability skills. Upon carefully reviewing the main findings, comparing them with the literature, and determining their theoretical and practical implications, several recommendations can be made that will be addressed in this section. These recommendations are presented in two parts, one concerning GAs and the other E-learning.

As stated on page (41) of Chapter 2, the seven GAs were established to help CoT achieve their vision and mission as industry leaders in technology education. CoT supply the job market with qualified graduates who possess the necessary professional skills and personal qualities. As the main goal of GAs is to produce competent graduates who are confident and acquire the necessary knowledge, potential, and ability, more emphasis should be placed on future-work-related or employability skills. However, in my view, there is no obvious correlation between these skills and GAs. The current practice of mapping GAs to CDPs in all programmes of study allows lecturers to incorporate them in various learning tasks and activities and provide students with enough opportunities to practice them; however, students may not be sufficiently aware of the relationship between GAs and employability skills.

Following the description of my perspective on CoT GAs in terms of definition, perception, and other aspects, this section proposes certain recommendations to provide GAs classification, create a proper mechanism, and create more awareness of their primary function, namely, to develop student skills and prepare them for future employment. This classification must be understood not only by students but also by academic staff who are responsible for incorporating GAs into their course content. When both students and instructors are fully aware of these aspects, I expect that the adoption of GAs will bring more positive results.

As part of concluding this section, I suggest that CoT should adopt a more detailed framework or model that will enable them to achieve all GAs and meet the expectations of all stakeholders. In view of this, I regard GCM by Tomlinson (2020) about GAs, employability, and skills as discussed in Chapter 3 to offer most valuable experiences in this area. It is acknowledged that changing or modifying GAs is a difficult task which might take years to complete, but I trust that this is an excellent opportunity for CoT. As already mentioned in Chapter 2 on page (39), CoT have merged with other colleges under one university umbrella,

UTAS. This means that certain changes are about to occur in order to align the colleges' goals to those of the university. I hope that more emphasis will be placed on the GAs as currently applied by the university and brought in line with a unified list of GAs applied by all the colleges. In this way any potential gaps can be filled and ensured that the new list of GAs does neither lack in scope nor in clarity.

The feedback collected on the CoT E-learning system is, as previously stated, deemed as satisfactory in terms of its installation, usage, and development. The involved stakeholders rely on E-learning to make the students' educational environment more valuable, functional, and skill-based. In addition, the students' acceptance is positively reflected in their demonstrated skills. However, the findings highlighted several existing gaps, deficiencies, and concerns. In my opinion, these aspects can be classified into three categories, namely infrastructure optimization, effective pedagogical policy design, and positive people's effect. With this in mind, and in light of the findings which revealed that some colleges have an unrecognized E-learning policy, I strongly recommend that developing a unified E-learning policy will help optimize the current E-learning infrastructure and maximize the positive impact of the people involved to render it more functional and effective. Setting up appropriate policies for any work system, I believe, will make the process more structured, intelligible, and user-friendly; the formed policies will impact all areas of the system as they are addressed, and the system's overall quality will be improved in the process.

To illustrate this point, I will use the creation of a good E-learning policy as example. When a unified E-learning policy is adopted, I believe it will initiate the procedures of determining the availability and functionality of required resources such as computer laboratories, on-campus internet access, system type, teaching course materials, and human resources. Even if not all of these elements are included in the E-learning infrastructure, it is very likely that the majority will be. Most such elements require the allocation of a budget; if so, the policy will mention the importance of budget allocation, and the budget will be viewed as a critical component of the infrastructure. For example, if LMS of a college's E-learning platform are free to open sources such as Moodle, they will differ from commercial platforms such as Blackboard or any other sort of this kind. Each type, whether commercial or not, has its own functions and features. The point here is that the policy will require proper planning in terms of the quality the college wishes to achieve, and the budged it requires.

Furthermore, by focusing on the quality, functionality, and features of E-learning systems as well as their role in enhancing student skills it is possible to consider the aspects of each specific skill individually (e.g., communication, English writing, teamwork, time management, the ability to work under pressure, and computer skills). System activation deals with the feature of the discussion board and its function of facilitating communication between students and teachers. It can also be used, for example, for an urgent online chat or requesting technical support from other E-learning centres. When it comes to English writing skills, the system must be able to auto correct the student's language. In terms of supporting teamwork skills, the accessibility of services such as breakout rooms and links would be of benefit since, they will allow those working on the same project to interact, discuss, and share documents. Time management skills should be supported by a deadline alert service to remind students when projects are due and count the time remaining for revision before tests or exams. Furthermore, the skill of being able to work under pressure means that students are prompted to make timely decisions when faced with an array of alternative options and find solutions to urgent technical problems (e.g., in the event of computer failure or portal inaccessibility, whether or not the system's mobile version is suitable and meeting the needs of the students). Concerning computer skills, its success depends on the usability of E-learning. Students should have the opportunity to familiarize themselves and be allowed to practice the use of certain IT tools or services such as browsing, uploading, or downloading content, or operating other accessible IT services.

The above examples describe the relationship between the various elements that are part of the policy design; if the colleges higher management as policymakers consider various aspects from diverse perspectives and ensure that all functionalities of the product are covered, I am convinced that they will produce a proper long-term policy. Identifying such points as the quality, functionality, or features of E-learning systems helps identify those elements and aspects that need further improvement. Also, a system does not operate on its own, and, therefore, requires the continuing input of all parties involved to ensure the optimization of its functions. Commencing from this point, the policy will assign individual responsibilities to the respective people, be it in their capacity as administrative or academic staff, E-learning coordinators, or technical support staff, not to mention the students as end users. Overall, I consider E-learning policy a vital mechanism to establish a reusable vision

of infrastructure, human effects, and all the other components of E-learning. Devising the correct policy on E-learning will help ensure that the educational environment is more organized, relevant, and supportive of the students' requirements and the college's aspirations. Thus, I strongly advise CoT to start working on a new and unified E-learning policy.

7.5. Research Strengths and Limitations

This research, like any other research thesis, has some significant limitations attributable to a variety of factors that need to be acknowledged. Nevertheless, before drawing attention to the potential shortcomings of this study, I will first discuss its strengths.

7.5.1. Strengths of the Research

It was not easy to come up with the final draft of the research questions; however, I decided to adhere to Plowright's (2011) five contexts (i.e., professional, organizational, policy, national, and theoretical) as part of the initial research framework. This helped me gain more confidence in my personal interests, professional responsibilities, and experience in the field. The five concepts also guided me when selecting the appropriate sample for the study. Additionally, they motivated me to consider country and organisation rules, regulations, or policies related to the topic, as well as to provide sufficient background information. The same applies to selecting the relevant literature review, theoretical framework, and creating the CF of the research.

I adopted a multi-method approach and employed the qualitative data collection through semi-structured interviews at the initial stage. I realised that my decision to begin with the interviews was the right decision to make. Through these interviews, I was able to gather detailed information from senior managers who play critical roles in their organizations, added to their high level of knowledge and experience, which increased the level of trustworthiness and reliability of my research. Furthermore, interviewing experts in the field allowed me to cover as many areas and elements of the study as possible, and it allowed me to create three

versions of the online survey questionnaire for qualitative data collection that covered nearly all of the research aspects and participant samples.

In terms of the quantitative approach, dealing with the online survey questionnaires was a major task, but having the initial drafts reviewed by an expert, a peer, and a supervisor helped avoid any overlap between the elements. Additionally, piloting the survey questions and considering the feedback and suggestions I received from the participants facilitated my subsequent task, which was to determine the survey's validity.

I was able to complete the data collected through the online survey questionnaires in one month rather than three months as I had anticipated. Since the distribution of questionnaires corresponded with the start of the COVID-19 pandemic, the majority of the invited stakeholders were working from home, which made them more willing to take part in the survey. As a result, I was able to spend the extra time allotted for data collection on data analysis instead.

Fortunately, I had the opportunity to present parts of my thesis work at multiple conferences and other academic events and received very encouraging responses on the topic of E-learning and students' skill development. My research topic turned out to be a timely and befitting topic during the COVID-19 pandemic. I also received positive comments on the clarity and well-defined structure of my work. And, being awarded a graduate research grant under the block funding program for international students sponsored by the Research Council (TRC) of the Ministry of Higher Education, Scientific Research, and Innovation (MoHESRI) in Oman meant that the quality of my proposed my research work was being acknowledged, which was a very encouraging experience. As well, I was awarded the second prize of the Scientific Posters Competition 2021 that was hold by the scientific committee of the Student Advisory Council under the umbrella of the Oman Cultural Attaché Office in London. I participated in the Doctoral Research Poster Conference 2021 that was arranged by Brunel the Graduate School and I have received very supportive positive feedback. Finally, I was also awarded the poster prize for my participation with a portion of my thesis at Brunel University’s Education Department Research Conference in 2021, which focused on ensuring inclusive and equitable education for all.

7.5.2. Limitations of the Research

One of the concerning limitations was the shortage of references to some of the research fields. This research applied an interdisciplinary approach to make a unique contribution to knowledge by addressing more than one topic of study. It discussed the various components of skill development, the significance of college education systems in the development of student skills, and the role of E-learning as a technology instrument to enhance learning. These factors were linked to several other elements required, such as the link between GAs and E-learning, E-learning policy and budget, and digital literacy. It was at times difficult to find specific resources discussing a particular subject at length. This specifically applied to E-learning policy and budget, and digital literacy. Not available were resources on the link between GAs and E-learning or educational technology resources. However, this lack of resources did not make discourage me or make me less interested in the subject; rather, it made me aware of unique elements that may appear in this work and encouraged me to consider narrowing these topics and address them individually. Such efforts might attract specialists in the future who decide to build on my groundwork and continue the discussion.

Another greatest constraint that I faced during this research was the time limitation for conducting the interviews, as the data collection period would only last for two months, November and December, at the end of the year. These two months are a crucial and delicate period for most public and private sector businesses in Oman. They are busy with ending the 2019-year plans or finishing the academic semester; for example, employers were very busy closing the financial year, college management was busy with graduation ceremonies, approving the results of the 2019 first semester, and preparing plans for the next one, and policymakers and decision-makers were also busy preparing their reports based on the plans they made early in the same year. On the other hand, some of the participants were planning to go on vacation, particularly in December. Therefore, it was not sufficient time for the interviews to be arranged, and almost all of the interviews were rescheduled more than once. All of the dates were set based on agreements made between me and the interviewees, and even though some of them had to be rearranged more than once, they all went well except for three of them. For those three interviews, the interviewees kept requesting to change the time because of some other unplanned commitments, which were shown without any previous notice. Furthermore, the workplace of these three interviewees was very far away

from my accommodation, and in one case I went to meet one of them according to our scheduled interview time, but unfortunately, I was unable to meet the interviewee because the person had another urgent commitment outside their place of work. The solution to this problem was that when the person was in a location close to me, the participant was pleased to conduct the interview in a coffee shop on which we both agreed. For the other two interviewees for whom their workplaces were far away, they said that there may also be a surprise commitment on the day of my interview, but they would be happy to send the information about the interview questions by email, because Skype was not allowed at that time in Oman. So, after they sent the data, follow-up telephone interviews took place. These methods were helpful in terms of avoiding any participant error and bias such as an uncomfortable place or time, which could lead a participant not to focus on the more important information that the research needs, or they might give less information during their interview.

The Arabic language used by some interviewees was another point I encountered, and I consider it a limitation in terms of using the time properly. Using the Arabic language itself and translating it into English was not a problem; the problem was that the transcript had two versions, one Arabic and one English, and it took me a while to do the job twice. I was very careful to use the time correctly, so after I had completed it, I did all of the transcripts directly on the same day of the interview. This helped me to avoid any researcher error or bias such as the required time in transcribing the interviews and being subjective about the recorded data, because I had all the time I wanted without any pressure.

As this was happening at the beginning of the COVID-19 pandemic lock-down, one of the limitations of the online surveys was the time it took to distribute the surveys. The aim of this study was to invite only three technology colleges, but in the context of COVID it was not clear that the number of responses would be an exception, because all seven colleges started working online and the evaluations for that semester were not completely obvious for the staff and students. Therefore, because the research features a multi-case study and the selected groups or colleges are all in the same field with the same system, the responsible department in the MoM recommended that all seven colleges should be invited to participate in the survey. This solution was supportive and useful, and within a very short time, before the survey deadline, the research received the maximum required responses from five colleges.

Miscommunication with one of the colleges was also another issue, because the college was not in line with the other colleges on the date of distribution of the survey. The number of responses from other four colleges at that time was more than 40% of the total number required when the participants from that college started to contribute to the surveys. Therefore, keeping an eye on the process of the survey responses helped me to find this point, and since the study required a total number of participants from 500 to 600, the solution was to increase the maximum responses from 265 to 277 for the student survey, and from 235 to 279 for the staff one.

For the purposes of this study, which is to cover different backgrounds in terms of the participants' different demographic characteristics, and as the main purpose of the sample was to ensure a wider coverage of the data, I chose not to use the participants' demographic information for gender or age analysis because the focus of the research was elsewhere. This limitation raises the purpose of future research in this field.

All of the survey questions were compulsory, and at the beginning of the survey there was a note to the participants about this. However, the survey received the maximum number of responses requested within two to three weeks of its start date. For that number to responds within such a short time is something which I consider a strong performance, and it gave me confidence that those who were willing to participate had made a real and credible effort and contribution, especially when I saw the total number who had closed the screen for various reasons (1,549 for the survey of students, and 63 for the staff) (see Appendices B.12 and B.13). The issue was that of the 11 whom I observed by tracking their answers, this number of participants completed the surveys using the same patterns of response, conflicting answers, and some nonsensical feedback on the open-ended questions, and this type of answer and participation can occur in any survey in the world. Therefore, I have taken the decision to discount them, because the information they have added can influence the research findings and results in one way or another, and this number is considered very few and small compared to the 545 compatible and valid answers.

Some of the research stages took place in the height of the COVID-19 pandemic, which meant that I had to self-isolate at more than one occasion and stay confined to my room on campus. As a result, I was at times not able to fully take advantage of the physical facilities,

equipment, and services offered by the university. Another challenge I encountered early on was writing most of my thesis work on my personal laptop. I discussed this issue with my department at Brunel University London who offered me excellent support. Due to the combined efforts of the university's technical support, the library, and the residences office I was able to offer me laptop and screen as part of the library student laptop loan. Also, while working from home in Oman, I often had trouble accessing several of the references I needed for my thesis report that were only available from other libraries in the UK. Thankfully, the university library staff offered me prompt and timely online assistance whenever I needed scanned copies of certain references.

A definite setback that I encountered on my PhD journey was working under severe COVID-19 restrictions for over two years. This situation was at times extremely frustrating, especially since I was self-funded. As so many other international students who had come to study from abroad, I had hoped to make a truly international educational experience during my stay in the UK and take full advantage of the rich campus life and stimulating environment. Nevertheless, I found this confined lockdown experience worthwhile because I was able to benefit from the many online events that were organised by the university. I also received support and advice from professionals such as my supervisors and other academic staff (RDA). I welcomed the friendly and cooperative social environment in my department and made many new friends among the other PhD candidates who were enrolled on the same programme.

7.6. Future Work

Based on the stakeholders' perspectives, it is found that E-learning contributes positively to the development of future work-related skills for university students, particularly in the educational environment of Oman. However, in order to ensure these activities, meet the expectations of all stakeholders involved, further research is needed to monitor and evaluate the use of E-learning in enhancing the students' employability skills. Therefore, I recommend that future studies explore E-learning and students' skill growth using observation as a qualitative method. I believe that this approach will aid in determining certain factors, such as ways to modify the current system in order to support student skills development. Further

research will also help increase students' awareness of the benefits of E-learning and assist in shaping more positive attitudes, as more students become aware of its significant role in developing their skills. Furthermore, other research might focus on the classification and definition of GAs, evaluate how well GAs are incorporated into the course content, and determine their relationship with students' skill enhancement and other domains, for example, technology tools in education. I assume that such efforts will make matters more transparent for lecturers and help students to recognize the value of GAs and give them the attention they deserve.

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APPENDIX

APPENDIX A: Data Collection Method Semi-Structured Interviews
A.1: Oman Labour Market Employees Set of Questions

Semi-Structured Interview – Employer Sample

Title: The Impact of E-Learning on Developing the Higher Education Undergraduates' Employability Skills in Oman: A Case Study at the Colleges of Technology

Section 1: Demographic Data

Gender: ☐Female ☐Male **Company field:**

Name(optional): **Job title:** **Qualification** **Years of Experience**

Age grouping: ☐25-30 ☐31-35 ☐36-40 ☐41-45 ☐46-50 ☐ 51 above

Section 2:

a) Workplace Background:

1. Please provide a brief summary of your company
2. Currently, how many CoT graduates do you employ?
3. What qualifications do they have?
4. In general, what kind of skills does your company need for its work to be completed?

---

b) Evaluating the Graduates

5. How do you evaluate fresh graduates' employees' knowledge and work-related skills?
6. How do you test whether fresh graduates have the skills required for the work intended?
7. Where do you think fresh graduate's skills are lacking?
8. How do you assess graduates' skills? E.g. communication, teamwork, time management, work under pressure and English writing.
9. How do you train the fresh graduates' employees on develop their employability skills?
10. How do fresh graduates' employees receive your feedback about their work-related skill level?

---

c) Educational Concerns

11. What is your opinion of graduates gaining skills during their studies are they distinct/indistinct from the ones they need in the work environment?
12. What role do you think CoT should play to improve the employability skills of students and graduates to maximize their future employment?
13. What do you think about using technology services to enhance the future work-related skills of graduates and students? give example
14. What do you think about students' attitude on accepting E-learning on developing these skills?

---

d) Link with Other Responsible Education and Employability Organizations

15. What type of link do you have with the HEIs in general and CoT in particular?
16. What do you think the colleges need to change in order to improve and support the future work-related skills of their students?
17. How do you involve the respective organizations about the feedback on graduate skills?
18. How do the other respective organizations involve you on the development of the graduate's employability skills?

---

e) Any other comments / suggestions

A.2: CoT Higher Management Set of Questions

Semi-Structured Interview – College Administration Sample

Title: The Impact of E-Learning on Developing the Higher Education Undergraduates' Employability Skills in Oman: A Case Study at the Colleges of Technology

Section 1: Demographic Data

Gender: ☐Female ☐Male **Name (optional):**

Job title: **Qualification** **Years of Experience** **College Name (optional):**

Age grouping: ☐25-30 ☐31-35 ☐36-40 ☐41-45 ☐46-50 ☐ 51 above

Section 2:

a) College Background:

1. Please provide a brief summary of your college, e.g. college vision, mission, college's education system, total number of students, rate of graduates in every year.
2. How did you build the college GAs, and based on what source?
3. What is the level of awareness among students about graduate skills?
4. How do you measure students understating of GAs?
5. How do you evaluate the GAs?
6. What are the specific modules, or courses designed for improving students' skills for work?
7. What is the college role and process of developing students' skills to prepare them for their future employment?

---

b) Evaluating the Students

8. How do you assess students' lifelong learning skills?
9. According to you experience, how do you evaluate graduate's skills? E.g. communication, teamwork, time management, work under pressure and English writing.
10. What do you think about students' attitude on accepting E-learning on developing these skills?

---

c) Facilities available

11. What type of services the college offers to assists students achieve learning outcomes of the course?
12. What is the role of the college in implementing and developing of E-learning services?
13. What is the policy of using E-learning in the college?
14. How does E-learning as a learning and education technology tool influence teaching and academic running, as well as enhancing the students' skills?
15. How do you recognize the need for students and faculty members to the use of E-learning?
16. What is the new technology/service offered by the college to meet the learning outcomes?

---

d) Link with Other Responsible HEIs and Employability Organizations

17. What is your connection to the labor market with respect to the skills they need in the job?
18. How do the corresponding organizations involve you on the development of the graduate employability skills and labor market needs?
19. How do you get feedback about your college graduates after they start work?

---

e) Any other comments / suggestions:

A.3: Policy and Decision Makers in Oman Set of Questions

Semi-Structured Interview – Policy / Decision Maker Sample

Title: The Impact of E-Learning on Developing the Higher Education Undergraduates' Employability Skills in Oman: A Case Study at the Colleges of Technology

Section 1: Demographic Data

Gender: ☐Female ☐Male Name (optional):

Job title: Qualification Years of Experience Organization Name:

Age grouping: ☐25-30 ☐31-35 ☐36-40 ☐41-45 ☐46-50 ☐ 51 above

Section 2:

a) Organization Background:

1. Please provide a brief summary of your college, e.g. private/public, vision, mission, your role of employability of local national.
2. For how many years have you worked in the position of designing policies or making decisions about graduate employability?
3. What is the main aim of your work when you design policies or make decisions with regards to HEIs graduates?
4. What is your impact on developing the employability skills of fresh graduate / students?
5. What are the studies you have that highlighting exactly skills needed by Oman labor market?
6. What are the studies you have showing exactly which skills fresh graduates are lacking the most?

---

b) Educational Concerns

7. What are the links preventing stakeholders from having a proper channel on developing the fresh graduate work related skills?
8. What facilities do education, or the labor market need to develop as the proper channels for developing fresh graduates' employability skills?
9. What do you think about using technology services to enhance the skills of graduates and students? give example
10. How do you think HEIs colleges might play a big role on developing students' skills to prepare them for their future employment?
11. According to you work experience, how do you assess graduates'/ students' skills? E.g. communication, teamwork, time management, work under pressure and English writing.
12. What do you think about students' attitude on accepting E-learning on developing these skills?

---

c) Link with Other Responsible HEIs and Employability Organizations

13. What is your overall connection with HEIs in general and CoT in terms of policy development?
14. How do you follow-up on and receiving feedback about a policy or decisions you have introduced after it is implementation in HEIs?
15. When you design a policy or make a decision, what is the percentage of the involvement of the respective stakeholders, such as employers, HEIs colleges, students or graduates?

---

d) Do have any other comments / suggestions?

A.4: Omani Fresh Graduates Set of Questions

Semi-Structured Interview – Graduate Sample

Title: The Impact of E-Learning on Developing the Higher Education Undergraduates' Employability Skills in Oman: A Case Study at the Colleges of Technology

Section 1: Demographic Data

Gender: ☐Female ☐Male

Name (optional): **Specialization** **Qualification Level:** **Workplace:**

Age grouping: ☐19-24 ☐25-30 ☐31-35 ☐36 above

Section 2:

a) Background Education Concerns

1. What do you know about Graduate attributes (GAs)?
2. How does your college make sure you understand the importance of Graduate Attributes?
3. How you describe the course delivery plan?
4. During your study you received on-job training, what did it added to your skills?
5. What were the most contributing services available for you during your college time that helped on your skills developments?
6. Have you trained on how to improve your employability skills? If yes, give examples.
7. What guidelines have you received during your study time about the labor market's required skills?
8. What do you think about the effects of college impact on your future job?
9. Have you used E-learning while studying? give examples
10. What were the strengths/the weaknesses of E-learning?
11. What was the level of awareness among students about using the E-learning?

---

b) Self-Evaluation:

12. What skills do you think you own the most?
13. What skills do you think you lack the most?
14. How do you evaluate your skills in communication, teamwork, time management, work under pressure and English writing?
15. What do you think about accepting E-learning on developing these skills?

---

c) Job Concerns:

16. How did you obtain feedback about your employability skills level or improvements from your employer?
17. How would you describe such feedback?
18. What type of training does your employer offer you?

---

d) Any other comments / suggestions:

A.5.: Participant Information Sheet-Interview

PARTICIPANT INFORMATION SHEET

Primary Data Collection Methods

Semi-Structured Interviews

Study title: The Impact of E-Learning on Developing the Higher Education Undergraduates' Employability Skills in Oman: A Case Study at the Colleges of Technology

Researcher Details:

Student Name: Monia AL-Farsi **University:** Brunel University London **Academic Year:** 2019/2020

College: Business, Arts and Social Sciences, Department of Education **Program:** PhD in Education

Dear Participant.

You are invited to participant in interview for a PhD research into ***The Impact of E-Learning on Developing the Higher Education Undergraduates' Employability Skills in Oman: A Case Study at the Colleges of Technology***. Please note that this research is purely for academic purposes, your response is confidential, and all information and data collected will not be shared with anyone. Your decision to participate in this research is voluntary and your identity will **NOT** be disclosed in the research report, and this information sheet provides you with details about the research. Please read the **information below** and ask questions about anything you don't understand before deciding whether or not to take part in the study. If you agree to participate in this research, you will be asked to sign the Consent part at the end of this sheet.

What is the purpose of the study?

The purpose of this research is to investigate how might **E-learning** play a big role on developing students' and graduates' skills to maximize their future employment. The study will focus on English writing, communication, teamwork, time management, work under pressure skills. And based on the researcher's work experience, this study will be on an aspect of HEIs in Oman, which is the colleges of technology (CoT); specifically, the researcher will investigate the skills of the students and graduates in these colleges, and how these skills can be developed and improved during their study time by the impact of E-learning.

Why have I been invited to participate?

You have been invited to participate in this study because the study will carry out an in-depth assessment of the problem, the study will feature more specific data collection, and its first phase of data and information collecting will be through semi-structured interviews. The participants in this stage are higher administration employers, CoTs' higher management, policy makers and fresh graduates who have a job. Interviewing the selected participants will provide more accurate and factual information about, for example, the skills gap between CoT graduates in Oman, the skills required in the workplace, how employers are evolving graduate skills and what advice they are giving, the process of colleges developing students' and

graduates' skills, the link between colleges and the labour market, the policies and plans in place which are helping in this matter, and how graduates are evaluating the skills that they gain during their study time, and whether these skills are the ones that they will need in their jobs. Beside that all interviewees on this part will be involved in giving their experience, roles, point of views and expectations about the use of the new technology tools in education such as E-learning on developing the students' skills.

Do I have to take part?

No, your decision to participate in this research is voluntary and completely up to you.

What will happen to me if I take part?

All what you, as a participant, need to do is to answer some questions in an interview, we will provide you with questions we need you to answer. By providing responses to the questions, you are expected to expose your thoughts about education, students' and graduates' skills, policies, employability, and the role of education stakeholders in developing students' work-related skills showed how important it is to improve the skills of higher education students in Oman through one of the technology tools which is use of E-learning and skills improvement, because in most cases the skills of graduates do not match the expectations of employers. Your answers will contribute will carry out an in-depth assessment of the problem , beside that all interviewees on this part will be involved in giving their experience, roles, point of views and expectations about the use of the new technology tools in education such as E-learning on developing the students' skills..

Are there any lifestyle restrictions?

No, the study doesn't have any lifestyle restrictions

What are the possible disadvantages and risks of taking part?

There are no additional disadvantage and risks involved in participating in this study.

What are the possible benefits of taking part?

There is no direct benefit to you by participating in this research. It may the information gained will benefit the public in the future.

What if something goes wrong?

The researcher will be fully responsible about everything, participants will not be involved in anything. And you as a participant if you wish to complain you can contact the Chair of the CBASS Research Ethics Committee, who can be contacted via cbass-ethics@brunel.ac.uk.

Will my taking part in this study be kept confidential?

Yes, your response is confidential, and all information and data obtained will be anonymous and will carefully examined. Therefore, any information or data acquired from the interviews will not be shared with your institution; nor will your identity be revealed in the study report not be shared with anyone.

Will I be recorded, and how will the recording be used?

The interview will use audio or video recording, please be aware that using any of them is depend on your agreement. But if you don't like to be recorded this will be your freely decision, thus the researcher will manage writing the responses during the interview. Also, be assured that everything related to the research including the tapes of the interview will be destroyed after the research has been conducted.

What will happen to the results of the research study?

The results of the study will be used for academic purpose and It may will benefit the public in the future.

What are the Indemnity Arrangements?

Brunel provides appropriate insurance cover for research which has received ethical approval.

Who is organising and funding the research?

The research is organized by the researcher workplace which is the ministry of manpower in Oman, and the study is funded through a private fund with the cooperation with Brunel university London.

Who has reviewed the study?

The study is reviewed and followed up by The College of Business, Arts and Social Sciences Research Ethics Committee (CBASS) at Brunel university London

Research Integrity

Brunel University London is committed to compliance with the Universities UK Research Integrity Concordat. You are entitled to expect the highest level of integrity from the researchers during the course of this research **for further information or if you have any questions** please contact the researcher into this e-mail: monia.al-farsi@brunel.ac.uk. And if you have any concerns or complaints regarding this project please contact the research supervisor: Mike.Watts@brunel.ac.uk

For complaints, Chair of the Research Ethics Committee: cbass-ethics@brunel.ac.uk.

Thank you for taking the time to consider this research.
If you wish to take part in it, please sign the attached consent form.
A copy of the documents is for you to keep.

Sincerely,
Monia Al-Farsi

A.6: Consent Form-Interviews

CONSENT FORM- SEMI-STRUCTURED INTERVIEWS

Study Title: The Impact of E-Learning on Developing the Higher Education Undergraduates' Employability Skills in Oman: A Case Study at the Colleges of Technology

Name of Principal Investigator: Monia Al-Farsi

APPROVAL HAS BEEN GRANTED FOR THIS STUDY TO BE CARRIED OUT BETWEEN 28/10/2019 AND 27/12/2019

The participant (or their legal representative) should complete the whole of this sheet.		
	YES	NO
Have you read the Participant Information Sheet?	☐	☐
Have you had an opportunity to ask questions and discuss this study? (via email/phone for electronic surveys)	☐	☐
Have you received satisfactory answers to all your questions? (via email/phone for electronic surveys)	☐	☐
Who have you spoken to about the study?		
Do you understand that you will not be referred to by name in any report concerning this study?	☐	☐
Do you understand that:		
• You are free to withdraw from this study at any time • You don't have to give any reason for withdrawing • Choosing not to participate or withdrawing will not affect your rights?		
• You can withdraw your data any time up to 30/12/2019	☐	☐
I agree to my interview being audio and video recorded	☐	☐
I agree to the use of non-attributable quotes when the study is written up or published	☐	☐
The procedures regarding confidentiality have been explained to me	☐	☐
I agree that my anonymised data can be stored and shared with other researchers for use in future projects.	☐	☐
I agree to take part in this study.	☐	☐

Signature of research participant:
Print name:
Date:

A.7: Sample of Invitation via Email and Replies

From: Monia Mohammed Al Farsi
Sent: Monday, November 18, 2019 12:34 PM
To: [redacted]
Subject: Interview Invitation

Dear Mr. [redacted]

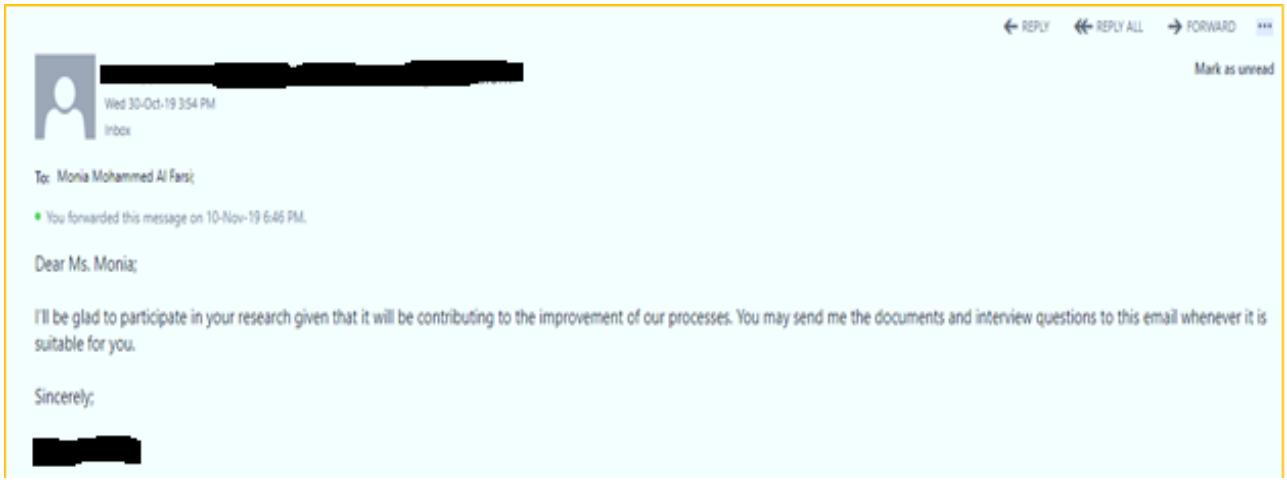
I am writing to request your participation in an interview for a research titled a ***The Impact of E-Learning on Developing the Higher Education Undergraduates' Employability Skills in Oman: A Case Study at the Colleges of Technology,*** this study for PhD research by the researcher Monia Al-Farsi PhD student at Brunel University London.

The purpose of this research is to investigate how might **E-learning** play a significant role on developing students' and graduates' skills to maximize their future employment. This study will be on an aspect of HEIs in Oman, which is the colleges of technology (CoT); specifically, the researcher will investigate the skills of the students and graduates in these colleges, and how these skills can be developed and improved during their study time by the impact of E-learning. The participants in this stage are higher administration employers, CoTs' higher management, policymakers and fresh graduates who have a job. Interviewing the selected participants will provide more accurate information about, for example, the skills gap between CoT graduates in Oman.

Please note that this research is purely for academic purposes, your response will be kept confidential, and all information and data collected will not be shared with anyone. Your decision to participate in this research is voluntary and your identity will **NOT** be disclosed in the research report, for more details, please read the information sheet which attached herewith this email. This interview has been approved by the Brunel University London and collected data will be stored on Brunel servers. The attached documents include more information about the study and the interview questions.

Please feel free to email me about anything you don't understand before deciding whether or not to take part in the study.
I am looking forward to hearing from you soon.

Sincerely
Monia



A.8: Interviews Schedule Planner

EVENT SCHEDULE PLANNER 2019-2020

PROJECT/EVENT	Interview Schedule
ORGANIZER	MONIA AL-FARSI- PHD RESEACHER

The participants in this stage are higher administration employers, CoT senior management, policymakers and fresh graduates who have a job - a total of 16 people.

Project Phase1 Data Collection Interview Schedule	DATE	TIME
Interview 1	7/11/2019	11 am to 11.45am
Interview 2	7/11/2019	1pm to 1.40pm
Interview 3	7/11/2019	2pm to 2.30pm
Interview 4	14/11/2019	11 am to 11.40am
Interview 5	14/11/2019	11.45 am to 12.15pm
Interview 6	14/11/2019	1.30 pm to 2.13 pm
Interview 7	25/11/2019	9.30am to 10.07am

Project Phase1 Data Collection Interview Schedule	DATE	TIME
Interview 8	26/11/2019	4.15pm to 4.45pm
Interview 9	2/12/2019	9.30am to 10.03am
Interview 10	2/12/2019	11am to 11.30am
Interview 11	3/12/2019	4.30pm to 4.55pm
Interview 12	5/12/2019	5pm to 5.32pm
Interview 13	5/12/2019	5.35pm to 5.55pm
Interview 14	8/12/2019	2.20pm to 2.45pm
Interview 15	11/12/2019	10.30am to 11am
Interview 16	12/12/2019	1.30pm to 2.05pm

NOVEMBER 2019

M	T	W	T	F	S	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

DECEMBER 2019

M	T	W	T	F	S	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

JANUARY 2020

M	T	W	T	F	S	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

FEBRUARY 2020

M	T	W	T	F	S	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	

MARCH 2020

M	T	W	T	F	S	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

APRIL 2020

M	T	W	T	F	S	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

APPENDIX B: Data Collection Method Online Survey

B.1: Comments and Feedback - Academic Supervisor Sample:

Part 3: College Educational Curricula, Services and Facilities that Help in Developing Students' Skills:

5. Please indicate your level of agreement to the following statements :		Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
k)	The course delivery plan helps me to understand how to develop my skills				
l)	The course different schemes training me in improving my skills				
m)	The college has designed specific modules or courses for improving my skills for future work				
n)	English courses help to enhance and build my skills.				
o)	IT courses help me to enhance and build my skills.				
p)	The course project helps me to enhance and build my skills.				
q)	Short term courses help me to enhance and build my skills.				
r)	The college has proper facilities and services that help in developing the skills to prepare me for future work				

Markup A

Mike Watts (Staff)

Mike Watts (Staff)
Good, but use numbers not letters

Mike Watts (Staff)
Not clear

Mike Watts (Staff)
Do you need this question here when you ask so many more below?

Mike Watts (Staff)
Are you comparing short courses versus long ones? The question is not clear

B.2: Comments and Feedback - English Language Proof-Reader Sample:

Part 1: Graduates attributes, employability skills and training

1. Please answer Yes/No to the following statements :		Strongly Agree(4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
1.1.	I am aware of my college graduate attributes (GAs)				
1.2.	I understand the meaning of graduate attributes (GAs)				
1.3.	I know where to find my college graduate attributes (GAs)				
1.4.	I understand the importance of the graduate attributes (GAs)				
1.5.	My college involves me in their provision of feedback about the development of the graduate attributes (GAs)				
1.6.	I understand the meaning of employability skills				
1.7.	I know the relation between the college graduate attributes and the employability skill development				
1.8.	My college provides me with guidelines about the required employability skills for the labour market				
1.9.	My college offers different types of training to enhance my employability skills				
1.10.	I know what skills I most lack				
1.11.	I know what skills I do have				
1.12.	My college involves me on creating feedback about the development of graduate skills				
1.13.	To prepare myself for future work, I know I need to enhance and build my employability skills during my study time				

B.3: Comments and Feedback - Academic Expert Sample:

Academic Expert Feedback Form

The Study Title: The Impact of E-learning on Developing the Higher Education Undergraduates' Employability Skills in Oman: A Case Study at the Colleges of Technology

Please provide your feedback about the survey in terms of the following statements:

Statements	Yes	No	Comments (if any)
The survey has a clear aim and objectives	☑	☐	
The language of the survey is clear, easy and understandable	☑	☐	
Contents of the survey is covered in the study title	☑	☐	
The design of the survey is well organized	☑	☐	
The length of each sample is acceptable	☑	☐	
Assessing the questions in each part is easy	☑	☐	
The survey parts cover the required areas of the study	☑	☐	
The survey parts are in right order	☑	☐	
In general, the survey questions have a good sequence	☑	☐	
The elements of the survey are relevant to the college's practice	☑	☐	

Any other comments/suggestions:

The Likert scale score needs to consistent in all parts of the survey. I have also made some comments in the attached survey questions.

All in all, I think the comments and questions would capture the needed information to achieve its goal.

B.4: Comments and Feedback - Peer Reviewing Feedback Sample.

Peer reviewing feedback:

Hi Monia

You might like to seed some 'duplicate' questions, that are phrased slightly differently. This will test the internal reliability of the participants'' response.

If answer to 1.5 is Yes, but to 1.14 is No ... responses are inconsistent. The participant has answered falsely, not read the question carefully or there is an issue with the questions themself etc.

Examples:

1.5 My college involves me in their provision of feedback about the development of the graduate attributes (GAs)
NEW 1.14 I know I can tell my college about how I feel GAs could be enhanced

4.1 The course delivery plan helps me to understand how to develop my skills
NEW 4.6 I know how to develop my skill set by using my course's delivery plan

8.1 I am aware of my college policy for using the E-learning
NEW 8.9 I know how to access my College's policy on E-learning

You can also 'reverse' questions to test internal reliability

4.3 My college has designed specific modules or courses for improving my skills for future work
NEW 4.7 There are no specific courses or modules to help enhance my skill set for the future

B.5: Participants Information Sheet – Online Survey

Online Survey – Participant Information Sheet

Study title: The Impact of E-Learning on Developing the Higher Education Undergraduates' Employability Skills in Oman: A Case Study at the Colleges of Technology

Dear Participant.

I am writing to request your participation in a survey for a research project titled : ***The Impact of E-Learning on Developing the Higher Education Undergraduates' Employability Skills in Oman: A Case Study at the Colleges of Technology***, this study is for PhD research by the researcher Monia Al-Farsi, a Doctoral Researcher at Brunel University London.

The purpose of this research is to explore how E-learning might play a significant role on developing students' and graduates' skills to maximize their future employment. This study will be on an aspect of HEIs in Oman, which are the Colleges of Technology (CoT); specifically, the researcher will investigate the skills of the students and graduates in these colleges, and how these skills can be enhanced and built upon during their study time by the impact of E-learning. The participants in this stage are undergraduate students, academic facilities and E-learning coordinators or technical support staff. Knowing the perceptions of the selected participants will provide more accurate and information about, for example, their skills and how the college can use the available resources such as E-learning to develop the students' skills further.

The research is organized by the researcher's workplace which is the Ministry of Manpower in Oman, and the study is funded through a private fund with the cooperation with Brunel University London.

Please note that this research is purely for academic purposes, your responses will be kept confidential, and all information and data collected will not be shared with anyone. Your decision to participate in this research is voluntary, and your identity will NOT be disclosed in the research report. You are free to withdraw from this survey at any time before submitting your answers and you do not need to give any reason for withdrawing.

This survey is online, and it may take approximately 5 to 15 minutes to complete. Please be aware that no personal information will be asked such as your name or your phone number therefore your identity, data and participation will be anonymised. The survey has been approved by the Brunel University London and collected data will be stored on Brunel servers and if data used in future research can be in line with Brunel University's data retention policies.

There are no additional disadvantage and risks involved in participating in this study, and no direct benefit to you by participating in this research. It may be that the information gained will benefit the public in the future. The study is reviewed and followed up by The College of Business, Arts and Social Sciences Research Ethics Committee (CBASS) at Brunel University London.

For further information or if you have any questions, please contact the researcher by e-mail: Monia.Al-Farsi@brunel.ac.uk. And if you have any concerns regarding this project please contact the research's supervisor: Mike.Watts@brunel.ac.uk. For complaints, contact Chair of the Research Ethics Committee: CBASS-ethics@brunel.ac.uk

Thank you for taking the time to consider this research.

Sincerely
Monia Al-Farsi

B.6: Consent Section – Online Survey

Consent Section:

If you wish to take part in the study, please sign the consent section below by confirm the following:

Consent Section	Yes	No
• I have read the Participant Information Sheet included with this questionnaire.	☐	☐
• I am over the age of 18.	☐	☐
• I understand that no personal identifying data is collected in this study, therefore I know that once I have submitted my answers, I am unable to withdraw my data from the study.	☐	☐
• I agree that my data can be anonymised, stored and used in future research in line with Brunel University's data retention policies.	☐	☐
• I agree to take part in this study	☐	☐

Date:

B.7: Online Questionnaire Survey Form for Students

Section 1: Demographic Data

Gender: ☐ Female ☐ Male

Age Grouping: ☐19-22 ☐ 23-26 ☐ 27-30 ☐ 31 above

College Name: ☐ ACT ☐ HCT ☐ IBRICT ☐ ICT ☐ NCT ☐ SCT ☐ SHCT

Department / Centre: ☐Engineering ☐IT ☐ Business Studies ☐ English Language Centre

Level of Study: ☐ Bachelor ☐ Advanced Diploma ☐ Diploma Year two ☐ Diploma Year One ☐ Foundation Year

Section 2:

Part 1: Graduates attributes, employability skills and training

1. Please indicate your level of agreement with the following statements:		Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
1.1.	I am aware of my college graduate attributes (GAs)				
1.2.	I understand the meaning of graduate attributes				
1.3.	I know where to find my college graduate attributes (GAs)				
1.4.	I understand the importance of GAs				
1.5.	My college involves me in their provision of feedback about the development of GAs				
1.6.	I understand the meaning of employability skills				
1.7.	I know the relation between the college GAs and the employability skill development				
1.8.	My college provides me with guidelines about the required employability skills for the labour market				
1.9.	My college offers different types of training to enhance my employability skills				
1.10.	I know what skills I lack most				
1.11.	I know what skills I do have				
1.12.	My college involves me in giving feedback about the development of graduate skills				
1.13.	To prepare myself for future work, I know I need specific training that will help to enhance and build my employability skills during my study time				

2. How do you evaluate yourself in the following skills?

2.1 Skill Name		Very Strong (4)	Strong (3)	Weak (2)	Very Weak (1)
2.1.1	Computing				
2.1.2	Communication				
2.1.3	Teamwork				
2.1.4	English Writing				
2.1.5	Time Management				
2.1.6	Ability to Ability to Work under pressure				

Part 2: College Educational Curricula, Services and Facilities That Help on Developing the Students' Skills:

3. Please indicate your level of agreement with the following statements:		Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
3.1.	The course DP helps me to understand how to develop my skills				
3.2.	The courses I study include different assessments that train me in improving my skills				
3.3.	My college has designed specific modules or courses for improving my skills for future work				
3.4.	I know how to develop my skill set by using my course's DP				
3.5.	The college has proper facilities that help in developing my employability skills to prepare me for future work				
3.6.	The college has proper services that help in developing my employability skills to prepare me for future work				
3.7.	The college provides different technology services that help me to practice employability skills				

4. How important is your need for further practice in the following skills for your future work?

4.1. Skill Name		Very Important (4)	Important (3)	Less Important (2)	Not Important (1)
4.1.1.	Computing				
4.1.2.	Communication				
4.1.3.	Teamwork				
4.1.4.	English writing				
4.1.5.	Time management				
4.1.6.	Ability to Ability to Work under pressure				

Part 3: E-learning

5. Which of the following technology services do you use the most in your college?

☐ College email ☐ College E-learning portal ☐College website ☐Others

***If others, please specify**:* _____

6. How often do you use your college E-Learning portal? ☐ Everyday ☐ 2-3 times per week ☐ More than 3 times per week ☐ I do not use it at all

7. I can use my college E-learning to:		Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
7.1.	Download the course material and other course assessment documents				
7.2.	Submit the course assignments				
7.3.	Access online quizzes				
7.4.	Access online exams				
7.5.	Access other services of my college				
7.6.	Work on my course project				
7.7.	Send requests / emails to my course tutors or classmates				
7.8.	Access the discussion boards				
7.9.	Access my course material and other course assessment documents from an E-learning mobile application				
7.10.	Access other resources such as YouTube				

8. Please indicate your level of agreement to the following statements:		Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
8.1.	I am aware of my college policy for using the E-learning				
8.2.	There is awareness among students about using the college E-learning				
8.3.	There is encouragement by the college among students about using this college's E-learning education				
8.4.	Academic faculty members in my college support E-learning education to enhance students' graduate skills				
8.5.	My college involves me in providing feedback about E-learning development and updates				
8.6.	E-learning education meets my personal learning needs and goals				
8.7.	The use of E-learning is helping to improve and enhance my learning process				
8.8.	The use of E-learning helps to improve my employability skills				

9. How do you evaluate your college E-learning platforms in the following terms?		Very High (4)	High (3)	Low (2)	Very Low (1)	Not Applicable
9.1.	The quality of the E-learning system					
9.2.	The availability of the information					
9.3.	The college impact in optimizing E-learning environment					
9.4.	The overall accessibility					
9.5.	Your accessibility through the E-learning mobile application					
9.6.	Your attitude in accepting E-learning to develop your employability skills					

10. To what extent do you think your college E-learning education is:		Very High (4)	High (3)	Low (2)	Very Low (1)
10.1.	Functional				
10.2.	Regularly Updated				
10.3.	Features implemented				
10.4.	User Friendly				
10.5.	Connected to Other Educational Resources				

11. From your perceptions, can your college E-learning help in developing your following skills?					
11.1. Skill name		Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
11.1.1.	Computing				
11.1.2.	Communication				
11.1.3.	Teamwork				
11.1.4.	English writing				
11.1.5.	Time management				
11.1.6.	Ability to Work under pressure				

12. From your perceptions, what are the things need to be changed to improve and enhance your college E-learning education in terms of building your employability skills? Please give examples if you can.

13. Any other comments / suggestions:

B.8: Online Questionnaire Survey Form for Lecturers

Section 1: Demographic Data

Gender: ☐ Female ☐ Male

Age Grouping: ☐25-30 ☐31-35 ☐36-40 ☐41-45 ☐46-50 ☐ 51 above

College Name: ☐ ACT ☐ HCT ☐ IBRICT ☐ ICT ☐ NCT ☐ SCT ☐ SHCT

Department / Centre: ☐Engineering ☐IT ☐ Business Studies ☐ English Language Centre

Qualification: ☐ PhD ☐ Master Degree ☐ Bachelor ☐ Other

Years of Work Experience: ☐ Less than 5 ☐ 5 or more ☐ Less than 10 ☐10 or mor

Section 2:

Part 1: Graduates Attributes and Employability Skills

1. Please indicate your level of agreement to the following statements:		Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
1.1.	The students have a good awareness of this college's graduate attributes (GAs)				
1.2.	The students in this college understand the importance of GAs				
1.3.	The students can easily find the description of this college's GAs				
1.4.	The students in this college know the relation between the college graduate attributes and employability skills development				
1.5.	This college involves the academic staff in giving feedback about the development of the college GAs				
1.6.	This college has framework in terms of developing the employability skills of students and fresh graduates				
1.7.	This college involves the lecturers in providing feedback regarding students' employability skills development				
1.8.	The students in this college understand the meaning of employability skills				
1.9.	The students of this college are aware of the employability skills that they have to obtain for their future work				
1.10.	This college has proper facilities that help in developing employability skills for their students to prepare them for future work				
1.11.	To prepare the students of this college for future work, the college should offer them a specific employability skills training to enhance their employability skills during their study time				

2. How do you evaluate the students' following skills?					
2.1. Skill name		Very Strong (4)	Strong (3)	Weak (2)	Very Weak (1)
2.1.1.	Computing				
2.1.2.	Communication				
2.1.3.	Teamwork				
2.1.4.	English Writing				
2.1.5.	Time Management				
2.1.6.	Ability to Work under pressure				

Part 2: Training and Industrial Relation

3. Please indicate your estimation in the following statements:		Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
3.1.	This college has a good relationship with the industrial community with regards to improving the employability skills of the students				
3.2.	This college conducts regular studies that pinpoint the employability skills needed by the Oman labour market				
3.3.	This college conducts regular studies that pinpoint which skills students lack most				
3.4.	This college has some obstacles of the relationships with the proper channels in terms of developing the employability skills of their students.				
3.5.	The college has a clear framework with the Oman labour market, about the improvement of the employability skills of the students				
3.6.	This college offers to students some training opportunities in order to prepare them for future work				
3.7.	This college provides to students some practice sessions in order to prepare them for future work				

Part 3: College Educational Curricula, Services and Facilities That Help on Developing the Students Skills:

4. Please indicate your level of agreement to the following statements:		Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
4.1.	There is a part of the course DP that helps the students to understand how to develop their employability skills				
4.2.	The different assessments of the course train the students in improving their employability skills				
4.3.	This college provides specific modules or courses designed for improving the employability skills of the students to prepare them for their future work				
4.4.	The students know how to develop their skill set by using course's DP				
4.5.	There are specific identified courses or modules which designed to help in enhancing the students' employability skill set for the future				
4.6.	This college has proper facilities and services that help in developing the students' skills to prepare them for the future work				
4.7.	The college involves the academic faculty members to give feedback in terms of updating the curricula and resources in a way to support the students' knowledge and skills.				

Part 4: E-learning

5. How do you rank the following technology services at this college according to students use? From (1 to 4)

a) College email b) College E-learning portal c) College website d) ProQuest

6. Please indicate your level of agreement to the following statements:		Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
6.1.	This college has E-learning policy				
6.2.	There is sufficient awareness among students about using this college's E-learning platforms				
6.3.	There is encouragement by the college among students about using this college's E-learning education				
6.4.	The students know how to access this college's policy on E-learning				

6.5.	E-learning education can impact positively the students' personal learning needs and goals				
6.6.	The college involves me in providing feedback about E-learning development and updates				
6.7.	E-learning can play a good role in improving and enhancing the students' learning process				
6.8.	E-learning, as a technology in learning and education, has a positive effect on the learning and educational journey of students				

7. Please evaluate this college E-learning platforms in terms of:		Very High (4)	High (3)	Low (2)	Very Low (1)	Not Applicable
7.1.	The overall quality of the E-learning system					
7.2.	The availability of the information					
7.3.	The college impact in optimizing E-learning education					
7.4.	The technical support					
7.5.	The overall accessibility					
7.6.	Students' accessibility through the E-learning mobile application					
7.7.	Lecturers' accessibility through the E-learning mobile application					
7.8.	The students' attitude in accepting E-learning to develop their future employability skills					

8. To what extent do you think this college E-learning education is:		Very High (4)	High (3)	Low (2)	Very Low (1)
8.1.	Functional				
8.2.	Regularly Updated				
8.3.	Features implemented				
8.4.	User Friendly				
8.5.	Connected to Other Educational Resources				

9. To what extent do you think:		Very High (4)	High (3)	Low (2)	Very Low (1)	Not Applicable
9.1.	There are things that need to be changed to improve and enhance this college's E-learning education technology					
9.2.	There are requirements that need to be added to make this college's E-learning education supportive in improving students' employability skills					
9.3.	The regular use by students of this college's E-learning education technology, can help in build their employability skills					

10. From your perceptions, can this college E-learning help in developing the following skills of students?

10.1. Skill name		Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
10.1.1.	Computing				
10.1.2.	Communication				
10.1.3.	Teamwork				
10.1.4.	English writing				
10.1.5.	Time management				
10.1.6.	Ability to Work under pressure				

11. From your perceptions, what are the things needed to be changed to improve and enhance your college's E-learning education in terms of building the students employability skills? Please give examples if you can.

12. Any other comments / suggestions:

B.9: Online Survey Form For E-Learning Coordinators or Technical Support Team

Section 1: Demographic Data

Gender: ☐ Female ☐ Male
Age Grouping: ☐ 25-30 ☐ 31-35 ☐ 36-40 ☐ 41-45 ☐ 46-50 ☐ 51 above

College Name: ☐ ACT ☐ HCT ☐ IBRICT ☐ ICT ☐ NCT ☐ SCT ☐ SHCT
Department / Centre: ☐Engineering ☐IT ☐ Business Studies ☐ English Language Centre ☐ Educational Technology Centre

Qualification: ☐ PhD ☐ Master Degree ☐ Bachelor ☐ Other

Years of Work Experience: ☐ Less than 5 ☐ 5 or more ☐ Less than 10 ☐10 or more

Section 2:

Part 1: E-learning

1. **Does this college have an E-learning policy?** ☐ Yes ☐ No

Please comment: _____

2. **What is the source of this college learning management system (LMS)?**

3. Please evaluate the status of the in-place E-learning system in this college in terms of:		Very High (4)	High (3)	Low (2)	Very Low (1)	Not Applicable
3.1.	The overall quality of the E-learning system					
3.2.	The availability of the information					
3.3.	Features implementation					
3.4.	The lectures' usage					
3.5.	The students' usage					
3.6.	The college impact in optimizing E-learning					
3.7.	The budget of E-learning system					
3.8.	The technical support					
3.9.	The accessibility of this College's policy on E-learning					
3.10.	The overall accessibility					
3.11.	Accessibility by students through E-learning mobile application					
3.12.	Accessibility lecturers through E-learning mobile application					

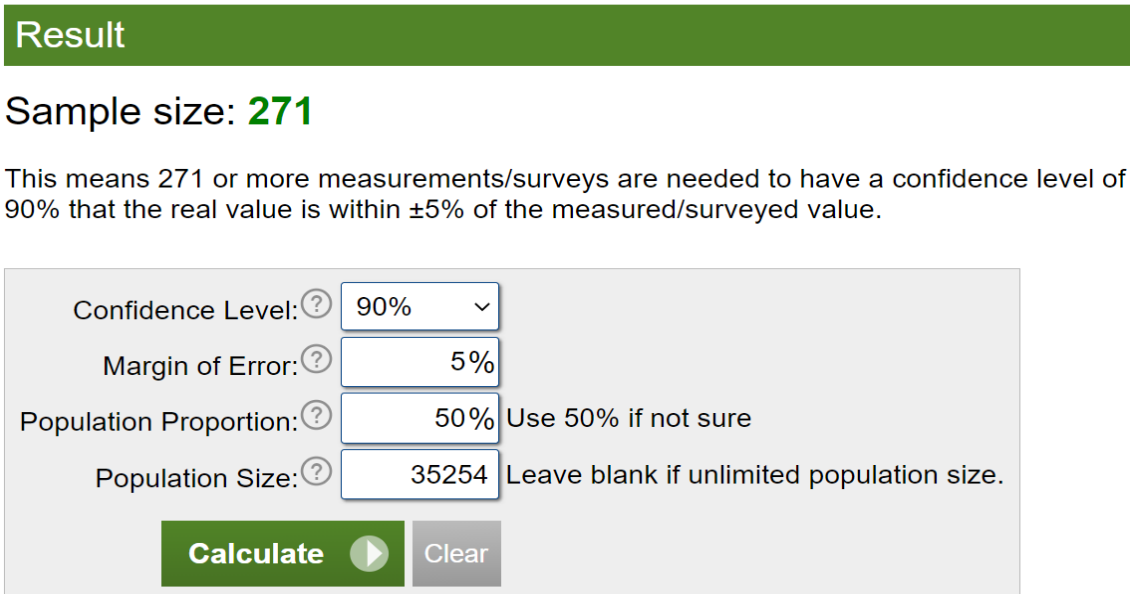
4. To what extent this college involves:		Very High (4)	High (3)	Low (2)	Very Low (1)
4.1.	The students in giving feedback about E-learning system				
4.2.	The academic staff in giving feedback about E-learning system				

5. From your perceptions, can this college E-learning help in developing the following skills of students?					
5.1. Skill name		Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
5.1.1.	Computing				
5.1.2.	Communication				
5.1.3.	Teamwork				
5.1.4.	English writing				
5.1.5.	Time management				
5.1.6.	Ability to Work under pressure				

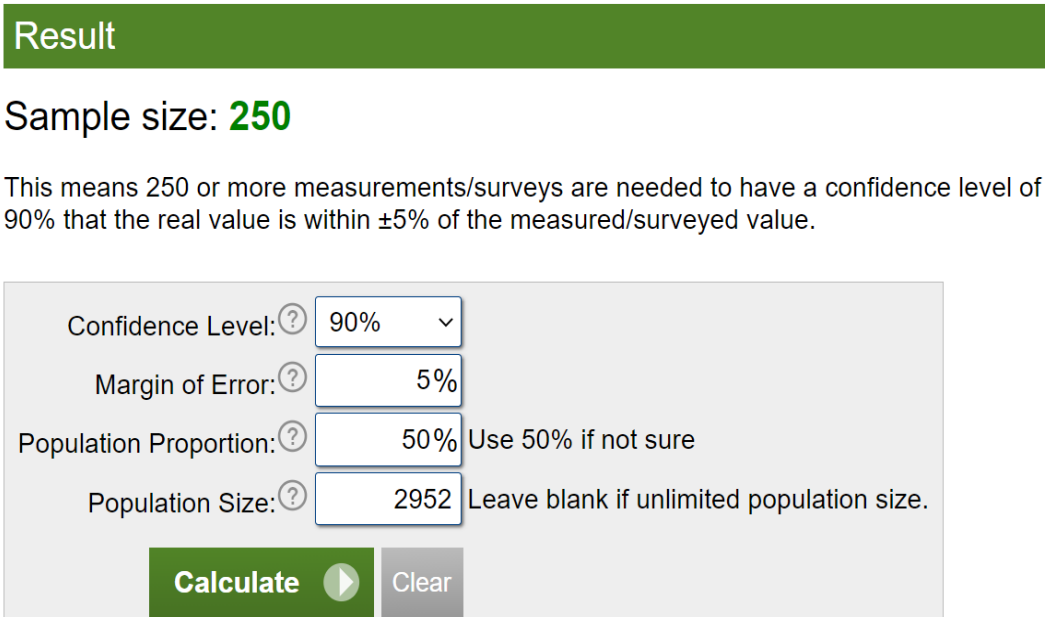
6. From your perceptions, what are the things needed to be changed to improve and enhance your college's E-learning education in terms of building the students employability skills? Please give examples if you can.

7. Any other comments / suggestions:

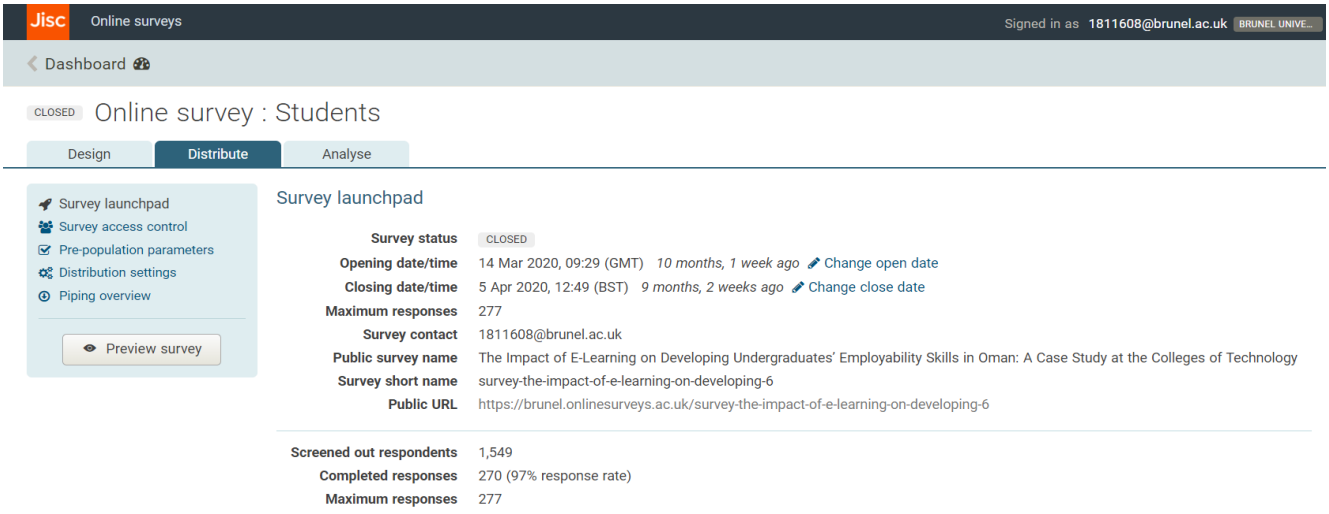
B.10: The Required Sample Size for Online Survey for Students



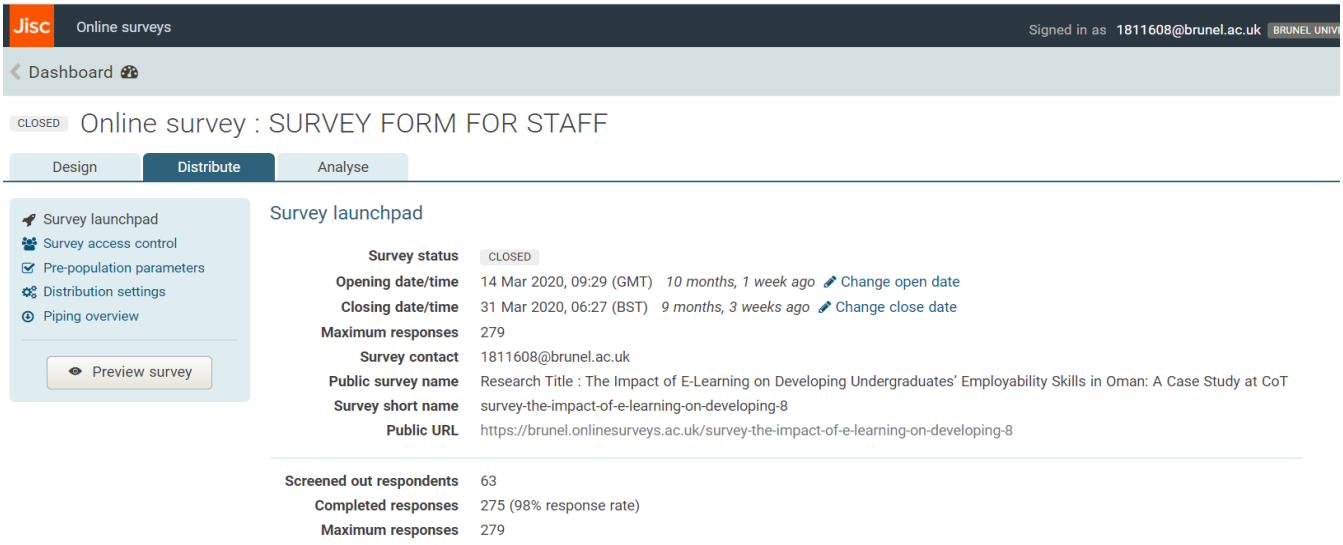
B.11: The Required Sample Size for Online Survey for Faculty Members



B.12: Total Number of Participants on Online the Questionnaire Survey Form for Students



B.13: Total Number of Participants on Online the Questionnaire Survey Form for Staff



B.14: Feedback Form Piloting Survey for Students

Please provide your feedback about the survey in terms of the following statements:	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)	Total
1. The survey has a clear aim and objectives	60%	40%	0%	0%	100%
2. The language of the survey is clear, easy and understandable	67%	33%	0%	0%	100%
3. Contents of the survey is covered in the study title	40%	60%	0%	0%	100%
4. The design of the survey is well organized	60%	33%	7%	0%	100%
5. The length of each sample is acceptable	33%	60%	7%	0%	100%
6. Assessing the questions in each part is easy	47%	40%	13%	0%	100%
7. The survey parts cover the required areas of the study	47%	33%	20%	0%	100%
8. The survey parts are in right order	47%	47%	7%	0%	100%
9. In general, the survey questions have a good sequence	47%	47%	7%	0%	100%
10. The elements of the survey are relevant to the college's practice	40%	53%	7%	0%	100%

B.15: Feedback Form Piloting Survey for Staff

Please provide your feedback about the survey in terms of the following statements:	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)	Total
1. The survey has a clear aim and objectives	50%	40%	10%	0%	100%
2. The language of the survey is clear, easy and understandable	60%	40%	0%	0%	100%
3. Contents of the survey is covered in the study title	50%	50%	0%	0%	100%
4. The design of the survey is well organized	60%	30%	10%	0%	100%
5. The length of each sample is acceptable	50%	40%	10%	0%	100%
6. Assessing the questions in each part is easy	50%	50%	0%	0%	100%
7. The survey parts cover the required areas of the study	40%	60%	0%	0%	100%
8. The survey parts are in right order	50%	50%	0%	0%	100%
9. In general, the survey questions have a good sequence	50%	40%	10%	0%	100%
10. The elements of the survey are relevant to the college's practice	40%	60%	0%	0%	100%

APPENDIX C: Ethical Approval

College of Business, Arts and Social Sciences Research Ethics Committee
Brunel University London
Kingston Lane
Uxbridge
UB8 3PH
United Kingdom

www.brunel.ac.uk

27 September 2019

LETTER OF APPROVAL

APPROVAL HAS BEEN GRANTED FOR THIS STUDY TO BE CARRIED OUT BETWEEN 27/09/2019 AND 31/07/2020

Applicant (s): Mrs Monia Al-Farsi

Project Title: The Impact of E-Learning on Developing the Higher Education Undergraduates' Employability Skills in Oman: A Case Study at the Colleges of Technology.

Reference: 17775-A-Sep/2019- 20542-1

Dear Mrs Monia Al-Farsi

The Research Ethics Committee has considered the above application recently submitted by you.

The Chair, acting under delegated authority has agreed that there is no objection on ethical grounds to the proposed study. Approval is given on the understanding that the conditions of approval set out below are followed:

- The agreed protocol must be followed. Any changes to the protocol will require prior approval from the Committee by way of an application for an amendment.

Please note that:

- Research Participant Information Sheets and (where relevant) flyers, posters, and consent forms should include a clear statement that research ethics approval has been obtained from the relevant Research Ethics Committee.
- The Research Participant Information Sheets should include a clear statement that queries should be directed, in the first instance, to the Supervisor (where relevant), or the researcher. Complaints, on the other hand, should be directed, in the first instance, to the Chair of the relevant Research Ethics Committee.
- Approval to proceed with the study is granted subject to receipt by the Committee of satisfactory responses to any conditions that may appear above, in addition to any subsequent changes to the protocol.
- The Research Ethics Committee reserves the right to sample and review documentation, including raw data, relevant to the study.
- You may not undertake any research activity if you are not a registered student of Brunel University or if you cease to become registered, including abeyance or temporary withdrawal. As a deregistered student you would not be insured to undertake research activity. Research activity includes the recruitment of participants, undertaking consent procedures and collection of data. Breach of this requirement constitutes research misconduct and is a disciplinary offence.

Professor David Gallear

Chair of the College of Business, Arts and Social Sciences Research Ethics Committee

Brunel University London

College of Business, Arts and Social Sciences Research Ethics Committee
Brunel University London
Kingston Lane
Uxbridge
UB8 3PH
United Kingdom

www.brunel.ac.uk

12 March 2020

LETTER OF APPROVAL

APPROVAL HAS BEEN GRANTED FOR THIS STUDY TO BE CARRIED OUT BETWEEN 12/03/2020 AND31/07/2020

Applicant (s): Mrs Monia Al-Farsi

Project Title: The Impact of E-Learning on Developing the Undergraduates' Skills in Oman

Reference: 17775-A-Mar/2020- 25023-1

Dear Mrs Monia Al-Farsi

The Research Ethics Committee has considered the above application recently submitted by you.

The Chair, acting under delegated authority has agreed that there is no objection on ethical grounds to the proposed study. Approval is given on the understanding that the conditions of approval set out below are followed:

- The agreed protocol must be followed. Any changes to the protocol will require prior approval from the Committee by way of an application for an amendment.

Please note that:

- Research Participant Information Sheets and (where relevant) flyers, posters, and consent forms should include a clear statement that research ethics approval has been obtained from the relevant Research Ethics Committee.
- The Research Participant Information Sheets should include a clear statement that queries should be directed, in the first instance, to the Supervisor (where relevant), or the researcher. Complaints, on the other hand, should be directed, in the first instance, to the Chair of the relevant Research Ethics Committee.
- Approval to proceed with the study is granted subject to receipt by the Committee of satisfactory responses to any conditions that may appear above, in addition to any subsequent changes to the protocol.
- The Research Ethics Committee reserves the right to sample and review documentation, including raw data, relevant to the study.
- You may not undertake any research activity if you are not a registered student of Brunel University or if you cease to become registered, including abeyance or temporary withdrawal. As a deregistered student you would not be insured to undertake research activity. Research activity includes the recruitment of participants, undertaking consent procedures and collection of data. Breach of this requirement constitutes research misconduct and is a disciplinary offence.

Professor David Gallear

Chair of the Committee Name

Brunel University London

APPENDIX D: Data Analysis Sample Diagrams

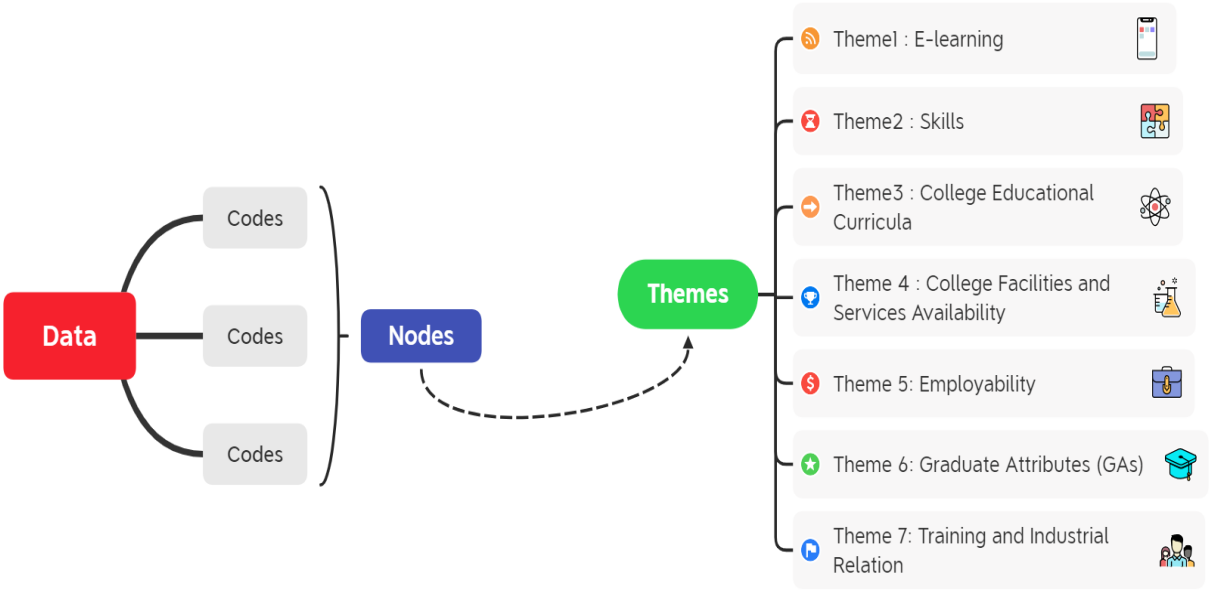
D.1: Examples of Creating Codes and Nodes using NVivo.

Code Samples				
<Files\\FGD 2> - § 1 reference coded [4.55% Coverage] Reference 1 - 4.55% Coverage If E-learning is functional in a proper way that will really help and they will accept it, in the way of online communication and there should be a more awareness on using E-Learning platform. <Files\\FGD 3> - § 1 reference coded [7.40% Coverage] Reference 1 - 7.40% Coverage Reference 1 - 7.40% Coverage 80% will be happy, but few will not be interested in using the computers. During the high school they were not well prepared and did not realize the importance of using <Files\\FGD 4> - § 1 reference coded [3.60% Coverage] Reference 1 - 3.60% Coverage They are happy to use it especially if E-learning has updated to all new technology with good and free examples based on the field of study that will help	<Files\\CDS 1> - § 3 references coded [1.47% Coverage] Reference 1 - 0.07% Coverage OERs Reference 2 - 0.12% Coverage ProQuest Reference 3 - 1.29% Coverage In terms of activities, videos, simulations using online apps, and online tools such as programming <Files\\CDS 2> - § 5 references coded [0.68% Coverage Reference 4 - 0.11% Coverage Reference 1 - 0.17% Coverage ProQuest Reference 2 - 0.17% Coverage Turnitin Reference 3 - 0.11% Coverage Moodle Reference 4 - 0.11% Coverage	<Files\\EMY 1> - § 2 references coded [1.95% Coverage] Reference 1 - 1.22% Coverage Establishment of additional workshops that will contribute to the improvement of skills Reference 2 - 0.73% Coverage Educational institutes should follow their graduates <Files\\EMY 2> - § 2 references coded [1.82% Coverage] Reference 2 - 0.85% Coverage Need to optimize things in the proper way <Files\\EMY 3> - § 5 references coded [1.60% Coverage] Reference 1 - 0.29% Coverage understand what the latest technology Reference 4 - 0.47% Coverage the level of knowledge we think it is useful for our company Reference 5 - 0.35% Coverage focus what is the requirement of the companies	<Files\\PDM 1> - § 3 references coded [1.92% Coverage] Reference 1 - 0.56% Coverage a very good link with all HEIs and CoT Reference 3 - 1.17% Coverage every one of us has a role according to the company responsibilities and duties <Files\\PDM 2> - § 3 references coded [2.90% Coverage] Reference 1 - 0.34% Coverage a good connection Reference 2 - 1.31% Coverage present in the workshops and we are always giving our recommendations <Files\\PDM 3> - § 6 references coded [7.66% Coverage] Reference 1 - 0.75% Coverage We all cooperate to make things better. Reference 4 - 2.99% Coverage on OJT and we offer a website which helps to link the colleges to the different workplaces and searching for a job training for their students. Reference 6 - 0.86% Coverage UpToDate they didn't call us for any workshop <Files\\PDM 5> - § 3 references coded [3.77% Coverage] Reference 1 - 0.78% Coverage usually we must give them feedback Reference 2 - 0.73% Coverage workshop or seminar or symposium Reference 3 - 2.25% Coverage the higher education should see how they can implement recommendation according to their resources	<Files\\EMY 1> - § 4 references coded [0.63% Coverage] Reference 1 - 0.18% Coverage Communication Reference 2 - 0.07% Coverage Email Writing Skills Reference 3 - 0.21% Coverage English writing <Files\\EMY 2> - § 2 references coded [0.53% Coverage] Reference 1 - 0.20% Coverage computing Reference 2 - 0.32% Coverage English writing <Files\\EMY 3> - § 2 references coded [1.34% Coverage] Reference 1 - 0.13% Coverage English language <Files\\EMY 4> - § 1 reference coded [0.11% Coverage] Reference 1 - 0.11% Coverage English language <Files\\FGD 2> - § 1 reference coded [0.75% Coverage] Reference 1 - 0.75% Coverage Time management and confidence <Files\\FGD 3> - § 1 reference coded [0.73% Coverage] Reference 1 - 0.73% Coverage Communication, and time management <Files\\FGD 4> - § 1 reference coded [0.51% Coverage] Reference 1 - 0.51% Coverage Still communication
Students' Attitude on Accepting E-learning as Tool for Developing Skills	New technology service	Required Changes Needed in The CoTs	CoT Link with Labour Market and other Organizations	Lack the Most

Sample Node

D.2: Word Cloud Diagram for the Top (20) Words Frequently Occurring - Interviews

D.3.: First Draft of The Thematic Map of The Themes



D.4: Word Tree Diagram